

THE MEDIATING ROLE OF PERCEIVED SCHOLASTIC COMPETENCE IN THE RELATIONSHIP
BETWEEN MOTOR COORDINATION AND ACADEMIC PERFORMANCE

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ABSTRACT

Children with developmental coordination disorder (DCD) are often referred to as clumsy because of their compromised motor coordination. Clumsiness and slow movement performances while scripting in children with DCD often result in poor academic performance and a diminished sense of scholastic competence. This study purported to examine the mediating role of perceived scholastic competence in the relationship between motor coordination and academic performance in children in grade six. Children receive a great deal of comparative information on their academic performances, which influence a student's sense of scholastic competence and self-efficacy. The amount of perceived academic self-efficacy has significant impact on academic performance, their willingness to complete academic tasks, and their self-motivation to improve where necessary. Independent t-tests reveal a significant difference ($p < .001$) between DCD and non-DCD groups when compared against their overall grade six average with the DCD group performing significantly lower. Independent t-tests found no significant difference between DCD and non-DCD groups for perceived scholastic competence. However, multiple linear regression analysis revealed a significant mediating role of 15% by perceived scholastic competence when examining the relationship between motor coordination and academic performance. While children with probable DCD may not rate their perceived scholastic competence as less than their healthy peers, there is a significant mediating effect on their academic performance.

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LIST OF ABBREVIATIONS

α	Alpha
DCD	Developmental Coordination Disorder
LD	learning disability
mABC-2	Movement Assessment Battery for Children, Version 2
KBIT-2	Kaufman Brief Intelligence Test, Second Edition
PA	physical activity
p-DCD	probable Developmental Coordination Disorder

CHAPTER 1 – INTRODUCTION

1.1 Preamble

The motor skill capabilities of a person are highly influenced by the motor learning they encounter across their lifespan through experience or specific practice (Schmidt & Lee, 1999). However, there is a condition present in a small cohort of children resulting in attenuation of learning and compromised motor coordination of everyday tasks at home, school, and at play (Cermak et al., 2002). This condition is called *development coordination disorder* (DCD) and it refers to difficulties in motor coordination found in individuals that is not due to general intellectual, primary sensory, or motor neurological impairment (DSM-IV, 1994; Hall, 1988).

This subset of school-aged children represents 6-10% of the pediatric population that demonstrates an obstacle with participation in physical activity (Ulrich, 1987; Cantell et al., 1994; Bouffard et al., 1996; Okely et al., 2001; Hands & Larkin, 2002; Faught et al., 2005). It has also been suggested that this deficit may not change with age (Cairney et al., 2006a; Bouffard et al., 1996). The presence of this condition results in daily activities such as tying shoelaces, handwriting, and participation in physical activity to be more challenging (Cairney et al., 2006a). These children may also suffer ridicule on the playground, as their motor impairments will be observable by other children (Cairney et al., 2005b). This can lead to children with DCD being less physically active and developing lower aerobic fitness than otherwise healthy children (Wrotniak et al., 2006; Rivilis et al., 2011; Silman et al., 2011). While the motor impairments associated with DCD has been shown to create difficulties for children in the classroom (Dewey et al., 2002; Wocadlo & Rieger, 2008), recent research (Alexander et al., 2015) has revealed that the physical fitness of a child with poor motor proficiency is not a significant contributor to their academic performance. Within the classroom, it is difficulties with handwriting that often limit scholastic

participation (Rosenblum & Livneh-Zirinksi, 2008) in courses that require significant amounts of written work. As a result, students are at risk of developing a poor sense of scholastic or cognitive competence because of lower grades (Klein & Magill-Evans, 1998). It is therefore understandable that impairments in physical abilities are felt to be particularly relevant to the perceptions of competence of the young school aged child due to age-specific environmental demands.

Smits-Engelsman et al. (2003) considered three primary hypotheses that might explain the motor difficulties observed in children with DCD; general slowness, limited capacity, and motor control mode. One common observation, with respect to general slowness, is that children with DCD are overall delayed in their performance of motor tasks (Jongmans et al., 2003). Similarly, research by Habib (2000) recognized that temporal processing impairment could account for some perceptual-motor and scholastic symptoms often associated with learning disorders (LD). Thus, children with DCD are likely to need more time to decide which movement is most appropriate for a given task (Smits-Engelsman et al., 2003). Furthermore, the presence of motor incoordination in children results in poorer performance on most measures of information processing (Wilson & McKenzie, 1998), which would be a limiting factor in children with DCD. With fewer resources available for parallel processing, planned movement could be compromised under high levels of cognitive load, which would support the limited capacity hypothesis. A third possibility, not mutually exclusive with the previous hypotheses, is that the movement difficulties of children with learning disabilities reflect a reduced ability to automate motor skills (Smits-Engelsman et al., 2003). This leads us to believe that children with DCD will demonstrate a reduced ability to transfer information from their minds to written words in a timely manner.

Within the last 20 years, graphonomic research has revealed important contributions to the understanding of fine motor control, motor development, and movement disorders (van Gemmert & Teulings, 2006). In particular, the analysis of performance in handwriting and drawing

tasks has been used to highlight neurological deficits affecting hand movements (Dounskaia, van Gemmert, Leis, & Stelmach, 2009; Elble, Brilliant, Leffler, & Higgins, 1996; Popovic, Dzoljic, & Kostic, 2008; van Gemmert, Teulings, Contreras-Vidal, & Stelmach, 1999) as well as motor incoordination such as DCD (Hamstra-Bletz & Blöte, 1993; Smits-Engelsman & van Galen, 1997; Smits-Engelsman, Niemeijer, & van Galen, 2001; Rosenblum, Parush, & Weiss, 2003; Engel-Yeger, Nagauker-Yanuv, & Rosenblum, 2009). Studies indicate that at least half of all children with a learning disability, or attention-deficit/hyperactivity disorder are comorbid with DCD (e.g., Jongmans, Smits-Engelsman, & Schoemaker, 2003; Kaplan, Wilson, Dewey, & Crawford, 1998; Sugden & Wann, 1987). Furthermore, research by Dewey et al. (2000) reveals frequent comorbidity between these three conditions. Thus, the difficulties in performing motor tasks by individuals with DCD will only be exacerbated by the presence of a concomitant learning disability (Jongmans, Smits-Engelsman, & Schoemaker, 2003). However, while a person afflicted with DCD will perceive themselves to be less competent performing motor tasks (Cantell et al., 1994; Schoemaker & Kalverboer, 1994; Piek et al., 2000), it is a lower sense of self-efficacy that is considered to be the largest factor as a barrier to physical activity in individuals presenting with DCD (Cairney et al., 2005a).

Throughout their school years, children receive a great deal of comparative information about their capabilities from grading practices and teachers' evaluations of their academic performances (Marshall & Wienstein, 1984; Rosenholtz & Simpson, 1984). These ongoing comparative evaluations serve as an influence in a student's sense of competence and self-efficacy with respect to academic prowess. The amount of perceived self-efficacy has significant impact not only on academic performance, but also on the student's willingness to complete an academic task as well as their self-motivation to improve where necessary. Schunk (1989) revealed that children with a high self-perceived sense of competence are more likely to attempt

to perfect their cognitive abilities compared to those with the same level of cognitive skill, but less sense of competence. Cognitive development and function is largely dependent on a person's writing literacy, which is mediated by their perception of self-efficacy. Enhancement of perceived writing-efficacy by instruction has shown to increase levels of perceived self-efficacy for academic activities, personal standards for quality of writing, and academic goals (Zimmerman, Bandura, & Martinez-Pons, 1992). Findings by Bandura (1993) show that children with a high sense self-efficacy behave more pro-social, are more popular, and experience less rejection by their peers. Thus, poor self-efficacy, physical competence, and scholastic competence, which are characteristic of children with DCD, would conceivably influence their academic performance. To date, no research has examined the degree in which scholastic competence influences academic performance in children with and without developmental coordination disorder. This lack of evidence will serve as the premise for this research investigation.

1.2 Objective

The primary objective of this study was to examine the mediating role of perceived scholastic competence in the relationship between motor coordination and academic performance in grade 6 children with and without developmental coordination disorder.

1.3 Hypothesis

We hypothesized that perceived scholastic competence would be a mediating factor in the relationship between children with impaired motor coordination and their academic performance.

CHAPTER 2 - REVIEW OF LITERATURE

2.1 Developmental coordination disorder

As early as 1937, children have been classified as being 'clumsy', 'having movement difficulties', or being 'awkward'(Orton, 1937). This poor motor coordination observed in children has been recognized as a developmental condition for nearly a century (Coleman et al., 2001; Miyahara & Register, 2000). However, greater awareness of the condition began only after the introduction of the term *Developmental Coordination Disorder* (DCD) in the Manual for Mental Disorders of the Psychiatric Association (DSM-IV, 1994). This has allowed the formation of specific criteria that aids in distinguishing DCD as a separate disorder from parallel conditions such as apraxia or developmental dyspraxia (Missiuna & Polatajko, 1995; Miyahara & Mobs, 1995; Miyahara & Register, 2000). The diagnostic criteria have been modified over time. Currently, the DSM-V (American Psychiatric Association, 2013) includes a set of four diagnostic criteria for DCD, including:

1. The acquisition and execution of coordinated motor skills is substantially below that expected given the individual's chronological age and opportunity for skill learning and use. Difficulties are manifested as clumsiness (e.g., dropping or bumping into objects) as well as slowness and inaccuracy of performance of motor skills (e.g., catching an object, using scissors or cutlery, handwriting, riding a bike, or participating in sports).
2. The motor skills deficit in Criterion 1 significantly and persistently interferes with activities of daily living appropriate to chronological age (e.g., self-care and self-maintenance) and impacts academic/school productivity, prevocational and vocational activities, leisure, and play.

3. Onset of symptoms is in the early developmental period.
4. The motor skills deficits are not better explained by intellectual disability (intellectual developmental disorder) or visual impairment and are not attributable to a neurological condition affecting movement (e.g., cerebral palsy, muscular dystrophy, degenerative disorder).

The prevalence of DCD is reported to range from 6–15% of children between the ages of 6-12 years (Henderson & Henderson 2002; Barnhart et al., 2003; Wilson, 2005). Even with such a significant number of children afflicted, the etiology of the condition has been difficult to pinpoint due to the heterogeneity of DCD (Cermak et al., 2002). Typically, children's coordination difficulties can result from a combination of one or more impairments related to proprioception, motor programming, as well as timing or sequencing of muscle activity (Barnhart et al., 2003).

Typically, a diagnosis of DCD is not possible until a child begins attending school, as their lack of coordination becomes more obvious when they fail to meet particular environmental demands (Cermak et al., 2002). Identifying the presence of DCD is further complicated as no single tool is used, with confidence, to diagnose the condition (Hay et al., 2004). Flouris and colleagues (2004) suggest a two-step process that is capable of identifying children suspected of having DCD. Initial screening for indicators of movement incompetence is possible using screening tools such as the Children Self-Perceptions of Adequacy and Predilection for Physical Activity scale (Hay et al., 2004) or Teacher Estimation of Activity Form (Faight et al., 2008). A confirmatory motor test such as The Movement Assessment Battery for Children (Henderson & Sugden, 1992; Henderson, Sugden, & Barnett, 2007) or Bruininks-Oseretsky Test of Motor proficiency (Crawford, Wilson, and Dewey, 2001) should be used as a follow-up in children suspected of DCD.

A major concern with DCD comparable to other more easily identified physically impairing conditions such as cerebral palsy or muscular dystrophy is the lack of identification by parents or teachers. The associated symptoms are often attributed to the child having general clumsiness, awkwardness, or being lazy. As a result, children with DCD form a "hidden cohort" as they feel at risk of experiencing social exclusion and ridicule from other children (Cairney et al., 2005b; Cairney et al., 2006a). This can lead to decreased performance in school, increased risk of emotional and behavioral problems persisting into adulthood, and an overall decrease in levels of physical activity that can lead to further health problems in the future (Cairney et al., 2006a).

Due to the difficulty of identifying DCD by teachers, a research study on the effectiveness of a teacher-based rating scale was imperative (Faught et al., 2008). This study examined a rating scale known as the *Teacher Estimation Activity Form* (TEAF). The TEAF is a 10-item scale designed to obtain teachers' assessments of each of their students' motor ability, participation in physical activity, and generalized self-efficacy toward physical activity, based on observations made during school-based activities (Hay & Donnelly, 1996). Determining the effectiveness of measuring tools such as the TEAF can allow for early identification of children with DCD or probable DCD (p-DCD). If identified early, the physical health, academic, and emotional needs of the children can be addressed earlier in order to prevent the negative experiences associated with the condition (Polatajko, Fox, & Missiuna, 1995; Schoemaker et al., 2006). Screening for DCD in school-based settings is, therefore, of particular importance as most children are enrolled in the formal school system (Faught et al., 2008). The introduction of a questionnaire-based assessment tool is necessary, as proper motor testing is both time consuming and expensive and overall less practical for primary schools (Schoemaker et al., 2003; Cairney et al., 2007). Results indicated that the TEAF scores were consistent with the children's reports on their activity patterns as well as their level of self-efficacy during physical activity. These results suggest reasonable convergent validity of

teachers' reports with child self-reported physical activity. Thus, the use of TEAF would be sufficient for preliminary screening in a population-based school environment (Faught, et al., 2008).

As previously mentioned, DCD covers a heterogeneous group of children (Sugden & Keogh, 1990; Hoare, 1994; Cermak et al., 2002) and as such not all children demonstrate comparable symptoms. However, since the criteria for a diagnosis of DCD includes both "significant interference with child's daily living skills" and "significantly interferes with academic achievement" (American Psychiatric Association, 2013), it is necessary to incorporate measures of cognitive or scholastic competence and self-efficacy alongside measures of a child's gross and fine motor skills (e.g. running, throwing an object, handwriting). This will provide a greater appreciation and understanding of impairments associated with developmental coordination disorder.

2.2 DCD and physical activity

There are a multitude of factors that are positively associated with physical activity in youth, including healthier self-efficacy in their ability to overcome barriers to physical activity (Sallis et al., 2000), perceptions of physical competence, enjoying physical activity, having a positive attitude towards physical education, and gaining support from parents, siblings, and peers (Stuckey-Ropp & DiLorenzo, 1993; Sallis et al., 2000). Another determinant of physical activity among children and adolescents may be the level of mastery of the movement skills that are the foundation for skills commonly used for adult physical activity (Okely et al., 2001).

A major concern for children with DCD is their diminished levels of habitual physical activity (PA). Most of the research on the association between DCD and PA relies on self-reported participation (Cairney, Hay, Mandigo, et al., 2007; Cairney, Hay, Veldhuizen et al., 2010) or

observed school PA that includes sports, intramural and playground activities (Bouffard et al., 1996; Faught et al., 2008). As such, research by Baerg et al. (2011) used accelerometry as a tool to evaluate accurately movement as opposed to previous subjective methods (Harris, 2009). Existing work on the association between ADHD and DCD has ignored the potential influence of the former on the latter. Therefore, it was still unknown whether the activity-deficit observed between children with DCD and their peers is solely attributed to motor coordination challenges, or whether the presence of ADHD alongside DCD significantly reduces their habitual physical activity. Results of the study by Baerg et al. (2011) found significantly more steps per day in the female DCD/ADHD and the DCD groups than the control group, and a significantly larger number of mean steps per day and activity energy expenditure in the male group than the female group. No significant differences were found between male groups. Thus, the poor motor coordination associated with DCD and DCD/ADHD may have a negative influence on activity in boys, but not among girls with comorbid DCD/ADHD. It was hypothesized that the hyperactivity of ADHD is expressed to a greater degree in girls due to lower relative physical activity than boys, but no evidence can be found in literature to aid in truly understanding this gender difference (Baerg et al., 2011). However, whether this gender difference is present in all aspects of movement impacted by DCD or DCD/ADHD has yet to be determined.

An early comparative study by Rarick and McKee (1949) examined the difference between children with low motor proficiency to a group with very high motor proficiency, and found that the children with lower motor capabilities were more interested in fine manipulative activities and preferred passive activities as their after school activity. Conversely, the high motor proficiency group was more inclined to choose activities around gross motor movements and a more active lifestyle. Recent research lends further support to this understanding whereby children with DCD are less likely to participate in activities such as organized sports and physical

education class, or engage in free play pursuits than children without the disorder (Bouffard et al., 1996; Smyth & Anderson, 2000; Cairney et al., 2005c; Wrotniak et al., 2006). A decrease in participation of routine physical activity has been found to result in lower aerobic capacity (Rivilis et al., 2011; Silman et al., 2011). Furthermore, research has found positive associations between physical fitness in children and their academic performance (Chomitz et al., 2009; Van Dusen et al., 2011). However, research by Alexander and colleagues (2015) on the mediating effect of aerobic fitness between levels of motor proficiency and academic performance in school-aged children found no significant effect.

Over the last several decades, evidence has shown that DCD is associated with poor perceived physical competence (Skinner & Peik, 2001) and activity-deficit (Bouffard et al., 1996; Cairney et al., 2005c). More precisely, children and adolescents with DCD perceive themselves to be less competent with regard to their physical capabilities than other children and as a result are less likely to participate in physical activities (Causgrove, 2000; Cairney et al., 2005b; Cairney et al., 2005c; Cairney et al., 2006b; Wrotniak et al., 2006). This can then lead those people with poor motor proficiency to choose a more sedentary lifestyle to avoid any issues with their movement difficulties and to evade ridicule from peers, especially in school-aged children. This places their long-term health and well-being at greater risk for deterioration (Petrolini et al., 1995; Hands & Larkin, 2002). There is also the concern of low levels of physical activity putting children with DCD at greater risk of developing excess adiposity (Smith & Biddle, 2008). If not monitored, children with DCD are at greater risk of overweight and obesity (Cairney et al., 2005a). There are a few studies already that have reported children with DCD are significantly more likely to be overweight and obese than children without DCD (Cairney et al., 2005a; Hands & Larkin, 2006; Hands, 2008). Furthermore, Faught et al. (2005) found that participation in physical activity is a

significant mediator in the relationship between DCD and relative body fat, and cardiorespiratory fitness, which are linked to several chronic diseases in adulthood (Rippe & Hess, 1998).

2.3 DCD and fine motor control

Movement control during fine motor tasks has been studied extensively in normal children (Meulenbroek & Van Galen, 1988; Wann, Wing, & Sjøik, 1991). This has allowed graphonomic research to provide significant contributions to the understanding of fine motor control, motor development, and movement disorders (van Gemmert & Teulings, 2006). However, the complexities of fine motor tasks remain largely misunderstood. Even a seemingly simple task such as handwriting is a result of a process in which linguistic, psychomotor, and biomechanical factors interact with physical maturation, cognitive development, and learning (Accardo, Genna, & Borean, 2013). By studying the basic elements of words, such as single letters, components and strokes, it reveals that some kinematic parameters are particularly useful to discriminating poor from good hand motor performance (Mavrogiorgou et al., 2001). Duration, length, velocity (Mergl et al., 2004), and numbers of strokes or components are the typical kinematic parameters of hand movements that provide information on the level of development achieved in fine motor function. Furthermore, analysis of performance in handwriting and drawing tasks has been used to highlight neurological deficits affecting hand movements (Dounskaia, van Gemmert, Leis, & Stelmach, 2009; Elble, Brilliant, Leffler, & Higgins, 1996; Popovic, Dzoljic, & Kostic, 2008; van Gemmert, Teulings, Contreras-Vidal, & Stelmach, 1999) as well as motor learning disabilities (Engel-Yeger, Nagauker-Yanuv, & Rosenblum, 2009; Hamstra-Bletz & Blöte, 1993; Rosenblum, Parush, & Weiss, 2003; Smits-Engelsman, Niemeijer, & van Galen, 2001; Smits-Engelsman & van Galen, 1997).

In tasks of handwriting and drawing, there are many varied hand and wrist movements involved that allow the motor system a significant amount of flexibility under changing temporal and spatial tasks (Smits-Engelsman et al., 2001). The presence of DCD, however, leads to a reduction in that flexibility. A theory surrounding the reduced fine motor function in individuals with DCD is the concept of deviant development. It is assumed that a wide variation in the development of neural function exists, but it is frequently stated that normal development will follow a stereotyped course. This lends to the hypothesis that variability indicates abnormality (Apley, 1978). When considering the movement capabilities of a large number of individuals, some will be demonstrate deviant movement patterns because of an abnormality such as clumsy or awkward movement associated with DCD. However, due to a lack of conclusive results in deviant development research, it is challenging to distinguish whether the altered movement pattern should be considered a symptom of the disorder, or an adaptation to the disorder (Smits-Engelsman et al., 2001). This “abnormal” movement pattern, that is characteristic of individuals with DCD, could be their optimal task solution given the altered properties of their neuromotor system. It can also therefore be seen as a “normal” adaptation, considering the reduced number of available strategies or fewer degrees of freedom (Latash & Anson, 1996). Not surprisingly, writing problems are frequently mentioned symptoms in children with DCD (APA, 1994).

Consequences of comorbid DCD and learning disabilities (LD) in children is an area of research still largely untouched even though half of all children with DCD are reported as comorbid with some form of LD. Research aims to determine if there is an increased vulnerability of neural networks responsible for sensori-motor information and perceptual-motor information (Waber et al., 2000; Smits-Engelsman et al., 2003; Jongmans et al., 2003). Smits-Engelsman et al. (2003) reported that motor problems of children with comorbid DCD and LD are not associated with a general slowness in processing. When compared to a control group on both movement

time and reaction time, children with DCD and LD will produce lower results. However, they are not found to be more sensitive to an increase in task difficulty as the slopes of both groups show nearly identical decreases in movement time as task difficulty increases. Their findings remain consistent with previous research, which shows that children with DCD and LD conform to Fitts' Law when overt repetitive tapping movements are examined (Maruff et al., 1999; Wilson et al., 2001). Fitts' Law (1954) is used to mirror the act of pointing by either physically touching an object with a finger or pencil, or through digital software with the aid of a pointing device. Specifically it is a descriptive model of human movement that can predict the time required to move rapidly to a target area, which is a function of the ratio between distance to the target and the width of the target. Thus, while children with comorbid DCD and LD may not perform the task as accurately as controls, the cause does not appear due to a limited information processing capacity.

2.4 DCD and perceived self-efficacy

Perceived self-efficacy is a person's beliefs in their ability to perform a motor action at a given difficulty (Chase, 2001). Self-efficacy theory (Bandura, 1977) states that beliefs of value play a mediating role in an individual's thought patterns, behavior, and motivation. Due to the difficulties in performing complex movements, children with DCD can never perform as well as their able-bodied peers and are often the subject of ridicule as a result. This may lead children with DCD to perceive themselves as less physically competent and have a reduced desire to participate in physical activity. It has also been suggested that children will pursue activities that are more sedentary and look to avoid structured physical activity as a coping mechanism to deal with the risk of failure and ridicule from peers (Fitzpatrick & Watkinson, 2003). Therefore, children will avoid specific activities if they believe they are not capable of handling the tasks (Chase, 2001).

Wide-ranging experiences of failure in most physical activities may form a basis for poor generalized self-efficacy toward physical activity, which provides a useful perspective mainly because children have a large variation of activities (Cairney et al., 2005c). Children with DCD may choose not to participate in physical activity because they do not perceive themselves able to meet minimum performance expectations (Cairney et al., 2005c). 'Perceived adequacy' is the perception of one's capability to achieve some acceptable standard of success, which is influenced by self, parents, peers, teachers, and society's expectations (Hay, 1992). All those factors impinging on children's experience in physical activity will influence their perceptions of adequacy (Philips, 1984). 'Predilection' refers to the likelihood that a child will select a physical, as opposed to sedentary, activity when given the choice. Along with perceived adequacy, these make up the components of generalized self-efficacy toward physical activity (Hay, 1992). Therefore, it is very likely that children who perceive themselves as inadequate and with no predilection toward physical activity would pursue a more sedentary lifestyle.

Research by Cairney et al. (2005) hoped to study just how large of a mediating influence general self-efficacy is present in the relationship between DCD and reduced physical activity. Initial results of the study support findings of previous studies with regard to children with DCD perceiving themselves as less competent in basic physical skills (Cantell et al., 1994; Rose, Larkin, & Berger, 1997; Piek et al., 2000; Skinner & Piek, 2001). The result found 28% of the variance in the physical activity of children could be explained by the influence of generalized self-efficacy. Evidence supporting these findings come from clinical trials designed to increase motor proficiency in children with DCD (Schoemaker et al., 1994). The findings report the influence to be mostly linked to an increase in confidence and willingness to participate as opposed to direct improvements to motor skills. This is further supported by a 10-week intervention study by Pless

et al. (2001), who reported no improvements in the motor impairments of the children with DCD, but an improvement was found in perceived self-efficacy towards specific tasks.

2.5 Perceived scholastic competence

As with self-efficacy, scholastic competence has underlying concepts within the literature (Berry, 1984). The concept of generalized cognitive competence includes an *a priori* assumption that abilities will be inter-related and there is a general underlying ability within all individuals (e.g. most individuals will have a similar underlying ability for walking). This concept allows for comparisons between groups as all people will have the same underlying ability, but vary in their perceived-competency towards it. The specific cognitive competency concept is considered in relation to the current task demand placed before an individual. Comparisons are usually avoided in this model as there is no guarantee each participant will be familiar with the task demands.

Early research by Wachs, Uzgiris, and Hunt (1971) proposed a model of early experience, which reflects a conception of cognitive development that is dynamic and sequential. This model states that early environmental stimulation can promote or attenuate certain processes or functions crucial for later cognitive development. This variability of an individual's skills is the result of influences from multiple domains over time. These domains of influence include genetics, neurology, environmental influences, parental beliefs, and the home and school environment (Wachs, 2000). Due to DCD creating difficulties in task performance very early in life, it is likely creating a bottleneck in the development of future skills.

To date, no research has examined the mediating influence that scholastic competence has on DCD and performance in school. While Schunk (1989) did not study DCD, his research did reveal that children with a high self-perceived sense of competence are more likely to attempt to perfect

their scholastic abilities when compared to those with the same level of cognitive skill, but less sense of competence. This concept is supported by several research studies (Marshall & Wienstein, 1984; Rosenholtz & Simpson, 1984; Klein & Magill-Evans, 1998; Habib, 2000; Wilson & McKenzie, 1998), which have stated that feelings of self-efficacy or competence towards a task can significantly influence the overall outcome of this task. Therefore, it is reasonable to assume that scholastic competence may play a significant role in mediating the influence between DCD and scholastic performance in children.

CHAPTER 3 - METHODS

3.1 Research Design

This nested case-control design was an ancillary study as part of a larger prospective cohort by the Physical Health Activity Study Team (PHAST). The PHAST is a longitudinal investigation comprised of two study phases. Phase one was conducted between September 2004 and June

2007. During this phase, 2519 children from an original sample of 3030 grade four students (75 of 90 schools) agreed to participate in bi-annual school-based health assessments. Phase two was conducted between September 2007 and June 2010 on the same cohort of students. This research phase involved an annual school-based health assessment as well as a nested case-control laboratory-based assessment that formed the design foundation for this study. Ethics clearance for research on human subjects was approved Brock University (Appendix 1) and the District School Board of Niagara. All children were required to provide informed assent in order to participate in both school- and laboratory-based assessments (Appendix 2). Furthermore, PHAST required a corresponding informed consent from parent or guardian for their child to participate in both school- and lab-based assessments (Appendix 3).

3.2 Participants

The original phase one of the PHAST longitudinal study included a surveillance sample of 2519 participants from September 2004 to June 2007. The second phase of the PHAST longitudinal study continued surveillance of 1785 of the original students (71% consent rate) from July 2007 to June 2010. Of these students, 963 (54% response rate) expressed interest in being contacted by telephone to participate in a laboratory-based component of the PHAST. A total of 124 grade 6 students were contacted by telephone who had previously been identified in phase one with probable DCD by scoring in the lowest 10th percentile in motor coordination by the short form of the Bruininks-Oseretsky test of motor proficiency (BOTMP-SF) (Bruininks, 1978). Exclusion criteria in this study included an individual's intelligence quotient below average ($SD = 2$) when compared to same age peers (American Psychiatric Association, 2013). A total of 67 of these children (31 females and 36 males) agreed to participate in the laboratory-based component of the PHAST (54% consent rate) and served as the cases for our study. Control subjects who scored above the

10th percentile on BOTMP-SF and matched for age (within 3 months), gender and school proximity were contacted by telephone to provide assent to participate in this case-control study. Grade six students were chosen to control for course subjects being taught while completing the EQAO standardized test for a second time.

3.3 Developmental motor coordination

All subjects were evaluated for motor coordination by a certified pediatric occupational therapist using the Movement Assessment Battery for Children, 2nd Edition (mABC-2). The mABC-2 is the most frequently used standardized motor test to screen for children with DCD (Wilson, 2005) and is considered both reliable and valid (Crawford et al., 2001; Tan et al., 2001). Regardless of each subject's previous BOTMP-SF score from phase one of the PHAST study, motor competence assessment of gross and fine motor coordination was evaluated in all subjects (Cairney et al., 2012) (Appendix 4). The mABC-2 consists of eight task items grouped under three headings: Manual Dexterity, Aiming & catching and Balance. For each item, a standard score was provided. Completion of the mABC-2 required approximately one and a half hours to complete. Children were provided with water throughout the assessment process. Parent or guardian were not present during the mABC-2 assessment. From each of these standard scores, a cumulative age adjusted score and percentile score were generated (Henderson, Sugden & Barnett, 2007). Children with a score at or below the 15th percentile were identified as DCD. The pediatric occupational therapist was blinded to the child's BOTMP-SF score. Nevertheless, a full assessment of all DSM-V criteria required to confirm a diagnosis of DCD was not possible. Specifically, the current study was not able to determine if the motor skills deficit significantly and persistently interferes with activities of daily living relative to the subject's chronological age and influenced their academic productivity, prevocational activity, leisure, and play. In light of this limitation, we

have chosen to use the term probable DCD (p-DCD) to describe subjects with motor coordination challenges.

3.4 Intellectual ability

Intellectual ability was assessed using the KBIT-2 (Kaufman & Kaufman, 2004) to verify that motor coordination was not discrepant with cognitive development (Sugden, 2006). The KBIT-2 is a brief and reliable measure of intelligence that does not require administration by psychologists and can be performed by a certified occupational therapist (Kaufman & Kaufman, 2004). The test also provides a measure of the general level of a child's intellectual ability.

3.5 Scholastic competence

The PHAST administered the Harter scale in the participant's homeroom class during the school-based assessment (Appendix 5). Again, research assistants explained the scale, guided students to completion and verified the completeness of each questionnaire. The Harter scale contained 32 items representing six domains, including scholastic competence (6 items), social acceptance (6 items), athletic competence (5 items), physical appearance (5 items), behavioral conduct (5 items) and general domain of global self-worth (5 items). For the purpose of this investigation, a composite score ranging from 6–24 for scholastic competence using the following seven questions was utilized.

- 1) (Harter Question 1): Some kids feel that they are very good at their schoolwork, but other kids worry about whether they can do the work assigned to them.
- 2) (Harter Question 7): Some kids feel like they are just as smart as other kids their age, but other kids aren't so sure and wonder if they are as smart
- 3) (Harter Question 13): Some kids are pretty slow in finishing their schoolwork, but other kids can do their schoolwork quickly.

- 4) (Harter Question 19): Some kids often forget what they learn, but other kids can remember things easily.
- 5) (Harter Question 25): Some kids do very well at their class work, but other kids don't do very well at their class work.
- 6) (Harter Question 31): Some kids have trouble figuring out the answer in school, but other kids almost always can figure out the answer.

Harter (1982) previously verified the validity and reliability of the Harter scale through factor analysis of a six domains separately. Each domain demonstrated discriminating factors, indicating that the Harter scale is an effective tool in differentiating among the six domains in children.

3.6 Measure of academic performance

The District School Board of Niagara provided the final grades for all grade 6 courses. Specifically, 10 final grades in each of the following courses were provided, including:

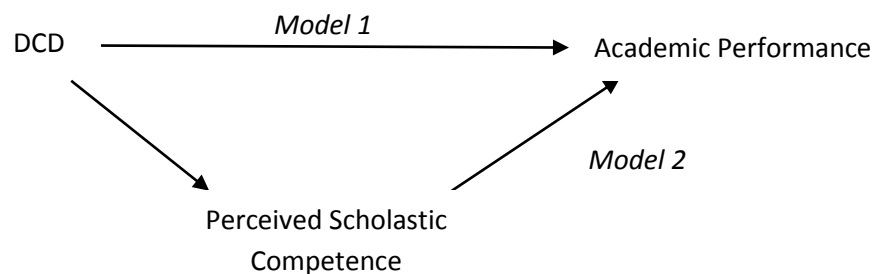
- 1) three English competencies (oral/visual comprehension, reading, writing)
- 2) Health and Physical Education
- 3) five Math operations (data/probabilities, numbers, patterns/algebra, geometry/spatial, measurement)
- 4) Science and Technology
- 5) three Second Language competencies (oral, reading, writing)
- 6) Social Studies
- 7) Visual Arts
- 8) Drama and Dance
- 9) Music
- 10) three Education Quality and Accountability Office scores (math, reading, writing)

Access to data for Geography, Design and Technology, Choices and Changes, and History was unavailable. Appendix 7 contains a complete description of the Ontario curriculum for all grade 6 courses.

3.7 Statistical analyses

Independent t-tests and corresponding descriptive statistics were used to compare differences between p-DCD and control groups for subject age, mABC-2 score, K-BIT score, Harter total and sub-scale scores, and all final grades per academic subject. To address the study's objective, multiple linear regression with a progressive adjustment strategy was incorporated using two models (Figure 3.1). Model one examined the main effect of motor coordination as measured by mABC-2 on academic performance overall grade average. Model 2 determined if the relationship between motor coordination score and academic performance was influenced by scholastic competence. More specifically, a reduction in the unstandardized b-coefficient in model 2 for motor coordination score would suggest that diminished scholastic competence mediates the initial relationship between motor coordination and academic performance. In all models, we controlled for age, gender and intellectual ability. In the event of multicollinearity (variance inflation factor >10), independent variables were zeroed. Level of significance for all analytic analysis was set at $\alpha=0.05$.

Figure 3.1 Conceptual model of regression analysis



CHAPTER 4 - RESULTS

4.1 Participant characteristics

This study initially included 126 subjects: 63 children with p-DCD and 63 controls (non-DCD) matched for age within three months, gender, and school proximity. Due to incomplete data, the final sample for this study included 120 subjects (59 p-DCD cases, 61 healthy controls). Table 4.1 outlines the descriptive statistics for the p-DCD and control groups. Since cases and controls were matched on age, no significant difference existed. In accordance with DSM-V diagnostic criteria, children with p-DCD scored significantly lower on the mABC-2 assessment than non-DCD subjects. Children with p-DCD demonstrated significantly lower scores on the K-BIT scale of intelligence ($p<0.01$) and Harter Scale sub-component of 'athletic competence' ($p<0.05$) compared to matched controls. Based on the independent t-test analysis, no significant differences were identified between groups within the other Harter Scale sub-components (i.e., scholastic, physical appearance, behavioral conduct and global self-worth) or overall Harter Scale ($p>0.05$).

Table 4.1 Participant characteristics comparison of p-DCD versus non-DCD (mean \pm SD)

	p-DCD (N=59)	non-DCD (N=61)
Males	34	36
Females	25	25
Average age (years)	12.94 \pm 0.4	12.87 \pm 0.4
mABC-2 score †	383.45 \pm 80.0	654.17 \pm 103.86
K-BIT†	74.04 \pm 9.8	80.59 \pm 7.1
Harter Scale overall score	73.75 \pm 17.5	87.30 \pm 12.1
Scholastic competence	12.95 \pm 3.4	13.74 \pm 2.5
Athletic competence*	14.2 \pm 3.6	15.44 \pm 2.3
Physical appearance	14.0 \pm 3.4	14.6 \pm 2.4
Behavioural conduct	13.51 \pm 3.3	14.38 \pm 2.3
Global self-worth	14.39 \pm 3.3	14.36 \pm 2.6

* = $p<0.05$; † = $p<0.001$

4.2 Academic Performances

Table 4.2 outlines a comparative statistics of subjects with p-DCD and matched control subjects for academic performances in each grade 6 course subject, overall grade average, and EQAO course grades in math, reading, and writing. Final grades were reported for all grade 6 course subjects except Geography, History, Choices and Changes as well as Design and Technology. Students with p-DCD demonstrated significantly lower final course grades in all English components (oral communication, reading, writing), Health & Physical Education, Science & Technology, all Second Language components (oral communication, reading, writing), Social Studies and two components of Math (i.e., patterning and algebra, measurement) compared to control subjects ($p < 0.05$). Conversely, no significant differences in final course grades were demonstrated in three Math components (data management & probability, number sense & numeration, geometry & spatial sense), Visual Arts, Drama & Dance, and Music ($p > 0.05$). EQAO scores for math, reading and writing were significantly lower in students with p-DCD compared to control subjects ($p < 0.01$). Finally, overall grade average in all grade 6 courses was significantly lower in students with p-DCD (63.88 ± 10.5) compared to non-DCD (70.81 ± 11.4) matched control subjects ($p < 0.01$).

Table 4.2 Academic performance of students with p-DCD versus non-DCD (mean \pm SD)

Course Subject	p-DCD	non-DCD
English - Oral Communication *	63.88 ±10.5	70.81 ±11.4
English - Reading *	68.37 ±14.0	74.93 ±11.6
English - Writing †	65.97 ±10.5	73.31 ±12.2
Health & Physical Education *	70.24 ±13.8	77.84 ±12.3
Math - Data Management & Probability	56.66 ±26.7	65.97 ±25.4
Math - Number Sense & Numeration	56.95 ±25.7	66.18 ±25.5
Math - Patterning & Algebra *	55.37 ±29.0	65.64 ±27.0
Math - Geometry & Spatial Sense	59.32 ±26.2	65.31 ±28.5
Math - Measurement †	67.88 ±9.10	74.20 ±9.30
Science & Technology †	67.93 ±12.0	75.26 ±12.5
Second Language - Oral Communication *	68.71 ±11.6	75.13 ±13.1
Second Language - Reading *	63.00 ±20.8	72.53 ±18.8
Second Language - Writing *	62.44 ±20.9	72.00 ±18.6
Social Studies *	67.34 ±11.5	73.82 ±12.6
Visual Arts	58.83 ±25.8	66.77 ±26.7
Drama & Dance	67.51 ±21.3	63.00 ±30.3
Music	63.46 ±24.2	70.31 ±22.0
Overall Grade Average †	63.88 ±10.5	70.81 ±11.4
EQAO Tests		
Math †	2.26 ±1.1	3.11 ±0.9
Reading †	2.40 ±1.0	3.19 ±0.8
Writing †	2.40 ±1.0	3.10 ±0.9

Note: Grades scores of subjects in both groups are reported as percentages. EQAO is scored out 4.

* = $p < 0.05$; † = $p < 0.001$

4.3 Regression of academic performance on p-DCD and scholastic competence

Table 4.3 reports the results of the multiple linear regression analysis. The overall average for all courses served as our outcome measure of academic performance. All assumptions for independence of residuals, multicollinearity, and normality were met before continuing with analysis. In Model 1, after controlling for age, gender and K-BIT score, the main effect of mABC-2 on the overall average was positive and significant ($p < 0.05$). The mediating influence of perceived scholastic competence was tested in Model 2 and was statistically significant ($p < 0.01$). The explained variance increased substantially from model 1 ($R^2 = 15\%$) to model 2 ($R^2 = 25.3\%$). The controlling variables of age, gender and K-BIT were not significant in either models ($p > 0.05$). Finally, the descending shift in the mABC-2 unstandardized *b*-coefficient from model 1 to model 2 indicated that perceived scholastic competence partially mediated the original relationship between mABC-2 and academic performance by 15%.

Table 4.3 Regression of academic performance on motor coordination score (mABC-2) and level of perceived scholastic competence

Variables	Model 1	Model 2
mABC-2	0.020 (0.007) *	0.017 (0.006) *
Age (years)	0.869 (2.490)	2.078 (2.365)
Gender	-1.110 (2.092)	-0.841 (1.971)
K-BIT	0.201 (0.116)	0.186 (0.111)
Perceived scholastic competence		1.256 (0.317) †
Constant	30.771	1.182
R-squared	0.15	0.253

Note: Unstandardized *b*-coefficient reported with standard error in parentheses.

*= $p < 0.05$; †= $p < 0.001$

CHAPTER 5 - DISCUSSION

5.1 Introduction

This study evaluated the relationship between motor coordination (mABC-2), perceived scholastic competence, and academic performance in 120 grade six children with and without DCD. The main hypothesis was that perceived scholastic competence would be a significant mediating factor in the relationship between motor coordination and academic performance. In general, results show that impaired motor coordination is not the sole contributor in a child with DCD's poor scholastic performance.

5.2 Differences in class-specific performance

Children with p-DCD performed significantly worse than those without DCD in the majority of course disciplines. Individual course disciplines in which they performed at a lower level include all components of English and French language classes, Health & Physical Education, two subjects of Mathematics (Patterning & Algebra; Measurements), Science & Technology, Social Studies, and all components of the EQAO standardized tests. Course subjects that indicated no difference included the Arts (Music; Drama and Dance; Visual Arts) as well as three categories of Mathematics (Data Management and Probabilities; Number Sense and Numeration; Geometry and Spatial Sense).

The results of this study are consistent with previous research that children with DCD have significantly greater challenges performing well in the classroom compared to children with greater motor coordination (Dewey et al., 2002). While Dewey et al. (2002) studied the effects of DCD on the attention, reading, writing, and spelling abilities of children, this is the first study to examine final grades in the majority of all course disciplines as well as standardized provincial EQAO grades. Courses that require significant fine motor coordination for scripting (i.e., English,

French, and Social Studies) or expect efficiency in gross motor coordination (i.e., Health & Physical Education) resulted in children with p-DCD performing significantly worse. Performing a large amount of script within a specific time frame is particularly difficult for children with poor motor control as they take a significantly longer time per stroke compared to healthy controls (Rosenblum & Livneh-Zirinski, 2008). Furthermore, with 30-60% of a child's school day focusing on fine motor activities with an emphasis on writing tasks (McHale & Cermak, 1992), poor motor proficiency would certainly effect academic performance. Previous research has indicated that a large task demand on the motor systems of children with DCD is directly related to the motor incoordination of their condition (Smits-Engelsman et al., 2001; Hands & Larkin, 2006; Wrotniak et al., 2006). However, within the language classes, we also see that children with DCD performed worse than healthy children in both the oral communication and reading components. Scripting is very difficult for a child with p-DCD (Smits-Engelsman et al., 2001) and when poor performance results in negative feedback, they develop a poor level of perceived competence with regard to their ability to script (Nicholls, 1984). Therefore, it is possible that poor performance in writing components of language classes leads to children with p-DCD developing poor perceived competence in their language skills as a whole.

Science & Technology course content does not require students to script large amount of written material nearly as much as in the language courses (Ontario Ministry of Education, 2015). However, students are required to create sample drawings and/or diagrams to carry out course expectations with respect to experimental solution as well as designing, building, and testing a device (Ontario Ministry of Education, 2015). Nevertheless, drawing and building of experimental devices is especially difficult for children with DCD as they exhibit diminished fine motor control (Smits-Engelsman et al., 2001). Within the category of Mathematics we have found mixed results. While significance was clearly evident in some (Measure; Patterning & Algebra) and nearly

significant in others (Number Sense & Numeration; Data Management & Probabilities), the general consensus is that children with p-DCD have greater challenges in most categories of Mathematics. Nevertheless, Smits-Engelsman and colleagues (2003) suggest that children with DCD may not be completely disadvantaged in math activities that are discrete in nature such as measurements or drawing angles with protractors as these fine motor activities do not pose as great of a challenge.

Children with p-DCD demonstrated comparable final grades relative to their healthy peers in Visual Arts and Music and slightly better in Drama & Dance. The physical demand and coordination required for dancing and dramatic movement places a large emphasis on gross motor coordination, which should create significant difficulties for children with p-DCD. However, the Ontario Ministry of Education (2015) emphasizes that student expectation in Dance & Drama is to develop personal movement vocabularies that communicate their feelings, ideas, and understandings of movement. In turn, teachers are to subjectively evaluate each student on individual use of movement and elements of dance rather than rote repetition or learned choreographed movements. Furthermore, subjective evaluation by teachers may allow children with coordination challenges greater freedom of personal expression rather than emphasis on the need for comparison to their coordinated peers or a rigid pedagogical expectation by their teacher. Research by Bandura (1993) on the influence of social comparisons found that an individual observing themselves being surpassed by their peers results in a diminished sense of self-efficacy and progressively impaired performance. The focus on evaluating the individual accomplishments of students could result in them making fewer cross-comparison of their achievements to others and developing a higher level of perceived competence. Subjective evaluation of students is not specific to Dance, as teachers of Visual Arts use their professional judgement to evaluate the course expectations that should be used to grade achievement of

students (Ontario Ministry of Education, 2015). While the involvement of fine motor tasks such as drawing, painting, sculpting, printmaking, and architecture in Visual Arts may be challenging for children with DCD, the lack of objective grading criteria and the ability to evaluate student performance without comparison to their peers may foster a more non-threatening atmosphere that could motivate children with DCD in the discipline of fine and performing arts. Final grades for Music class were considered the same for children with and without DCD. Music class is designed to teach students practical skills such as playing an instrument or singing as well as the opportunity to explore music critically through emotion and reason (Ontario Ministry of Education, 2015). The opportunity to respond to, analyze, and interpret music allows children to express their thoughts and feelings. Therefore, like Visual Arts, Music class is reflective of an environment that fosters free thinking and expression of feelings and emotions in response to musical pieces. Within the grade six arts, the potential exists for less emphasis on scripting or choreographed movements and greater emphasis on subjective evaluation by the teacher on expressive movement and creative thoughts by the student (Ontario Ministry of Education, 2015). However, the degree in which these factors influence the academic success of a child with DCD is not well understood and requires further examination.

5.3 The mediating role of scholastic competence and academic performance

Perceived competence of an individual is not influenced by a single performance, but by the results of repeated attempts. Knowing an individual's level of perceived competence can also help predict subsequent performances through its influence on effort, persistence, and perseverance (Bandura & Schunk, 1981; Bouffard-Bouchard, 1990; Schunk & Hanson, 1985). Research by Collins (1982) examined children of varied levels of mathematics ability and corresponding self-efficacy. After an initial set of math problems, they were given a new set of math challenges and an

opportunity to rework previous problems missed. Collins (1982) found that, regardless of ability level, children with higher self-efficacy correctly completed and reworked more problems. Applying early interventions for children with DCD will help increase levels of self-efficacy by altering expectations of the children (Hay, 1999; Cairney et al., 2005a). If children with DCD are not given the attention they require, they will develop a poor sense of scholastic competence that may lead to reduced effort and motivation in their academic performance in the long term.

The academic performance of children with DCD is significantly diminished in the majority of grade six course disciplines. For these children, perceived scholastic competence has a mediating influence on the relationship between their academic success and the presence of compromised motor coordination. Our multiple linear regression analysis indicated that perceived scholastic competence mediated the relationship between motor coordination and academic achievement by 15%. Theoretically, as the level of motor coordination in a child decreases, it leads to lower levels of perceived scholastic competence and increasingly poor performance in school. However, our independent t-test revealed non-significance between children with p-DCD and non-DCD on perceived scholastic competence while the multiple linear regression showed a significant mediating effect on academic performance. It could be that the children with p-DCD in our study may not be fully aware of the differences in their abilities compared to their healthy peers as a result of their age (Harter & Robinson, 1988). Piek and colleagues (2006) found that older children (mean age = 13.84 years) scored themselves lower on their perceived scholastic ability than those younger (mean age = 9.10 years). The children within our study were the same relative age reported by Piek et al. (2006) with a mean age of 12.94 years and 12.84 years for the p-DCD and non-DCD groups respectively. It is possible that the children in the PHAST study are still developing self-evaluation of their abilities comparatively to their healthy peers. Based on self-efficacy and expectancy beliefs research, the level of perceived scholastic

competence in a child varies on a task specific basis (Marsh, 1992; Pajares, 1996; Bong, 2001). Perceived competence would differ on whether a child is asked to solve math problem (Pajares & Graham, 1999) or perform a writing or reading assignment (Shell et al., 1995). Similarly, Chen and colleagues (2000) demonstrated that task-specific self-efficacy is more closely associated with an individual's motivational state than with general self-efficacy. This can lead us to believe that the measure of a general perceived scholastic competence from the Harter scale in our study may not provide a complete representation of a child's competency state. Therefore, a student's perceived scholastic competence on a class by class basis could demonstrate a more accurate indicator of scholastic performances (Scholz et al., 2002). With only knowledge on a global sense of perceived scholastic competence, only assumptions can be made how much of an impact it will have on each class. As each class subject carries with it its own topic material and curriculum, every child will respond differently to instruction. This can lead to difficulties in knowing where an issue presents itself if a child reports a low global sense of scholastic competence. Thus, if intervention on a child's level of self-perceived scholastic competence is to be addressed, it will have to be done in each class separately as a global intervention on perceived competence will likely yield negligible results (Pajares, 1996).

5.4 Limitations

Data missing for Geography, Design & Technology, Choices & Changes, and History limited our ability to evaluate scholastic performance for all course disciplines. Thus, the overall grade average is not entirely reflective of the differences between grade six students with and without DCD. Second, evaluation of perceived scholastic competence was evaluated relative to all course disciplines rather than each topic. A greater understanding of perceived scholastic competence specific to each course topic would provide greater understanding of the mediating influence in

the relationship between motor coordination and academic performance. Reliability and validity of final grades may be limited due to possible teacher variation and bias during the evaluation process. Teacher evaluation tools are not as structured and standardized as the EQAO examinations and are therefore subject to variation. Finally, the cross-sectional data for academic performance in grade six prohibits us from establishing any level of causality. A longitudinal investigation of academic performance across several grades with corresponding measures of motor coordination and perceived scholastic competence would provide a greater understanding of any causal influence that may exist.

5.5 Conclusions, implications, and future research

In conclusion, perceived scholastic competence mediates the relationship between motor coordination and a child's academic performance by 15%. Considering that children with DCD will have this condition through secondary and post-secondary education (Hay et al., 2004; Bouffard et al., 1996), it is expected that the impact on the perceived scholastic competence of an individual with DCD will impede scholastic performance throughout their academic careers. By applying differentiated instruction to children with DCD, such as adding an opportunity for the child to work through problems and assignments verbally while reducing the amount of written requirements, teachers could prevent a child's perceived scholastic competence from dropping. Due to the slower writing speed due to longer stroke time (Rosenblum & Livneh-Zirinkski, 2008), a different written work load could reduce a child's anxiety to complete an assigned task in the allotted time. Nevertheless, some course disciplines in the arts demonstrates promise in which children with DCD may experience scholastic success. Continued academic success in these courses may contributed to elevating the scholastic confidence in children with DCD despite fine and gross motor challenges.

Further research on DCD and perceived scholastic competence could examine the influence of instructional feedback on a child's self-efficacy. It is possible that a teacher using strategies to encourage the children, moving from challenge to support by external feedbacks and verbal persuasion, enhanced their performance within the classes of Dance & Drama, Visual Arts, and Music. The use of these strategies has proven in the past to enhance self-efficacy toward physical activity in children (Wright et al., 2005) and could have implications within the other school categories as well. Technological advancements in education could offer children with DCD the opportunity to express their knowledge using voice recognition software as an alternative to written work.

While perceived scholastic competence plays a significant role in a child's academic performance, research on the most effective methods to attenuate or prevent a child's scholastic competence from suffering could provide teachers with the best methods of approaching the education of children with DCD. If children with DCD are provided with the necessary tools, they will discover a direct relationship between their effort and achievement.

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APPENDIX 1 – REB Letter of Approval

DATE: January 10, 2008

FROM: Michelle McGinn, Chair
Research Ethics Board (REB)

TO: Brent FAUGHT, CHSC
John Hay, John Cairney

FILE: 07-106 FAUGHT

TITLE: Establishing the Health Profile of Children with Motor Coordination Challenges

The Brock University Research Ethics Board has reviewed the above research proposal.

DECISION: Accepted as clarified

This project has received ethics clearance for the period of January 10, 2008 to December 30, 2011 subject to full REB ratification at the Research Ethics Board's next scheduled meeting. The clearance period may be extended upon request. *The study may now proceed.*

Please note that the Research Ethics Board (REB) requires that you adhere to the protocol as last reviewed and cleared by the REB. During the course of research no deviations from, or changes to, the protocol, recruitment, or consent form may be initiated without prior written clearance from the REB. The Board must provide clearance for any modifications before they can be implemented. If you wish to modify your research project, please refer to <http://www.brocku.ca/researchservices/forms> to complete the appropriate form Revision or Modification to an Ongoing Application.

Adverse or unexpected events must be reported to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants and the continuation of the protocol.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research protocols.

The Tri-Council Policy Statement requires that ongoing research be monitored. A Final Report is required for all projects upon completion of the project. Researchers with projects lasting more than one year are required to submit a Continuing Review Report annually. The Office of Research Services will contact you when this form *Continuing Review/Final Report* is required.

Please quote your REB file number on all future correspondence.

MM/kw

APPENDIX 2 – Child Letter of Informed Assent

Principal Investigators: Dr. John A. Hay, Brock University
Dr. John Cairney, University of Toronto and Brock University
Dr. Brent E. Faught, Brock University

Dear Parent and Child:

Thank you for your interest in our study. Please read the following information together. If you both feel comfortable and willing to participate in the tests described below, please check the boxes at the end of this consent form indicating child assent and parent consent.

Purpose: The purpose of this study is to look at healthy growth and development of children for the next three years.

Procedures: This assessment will take approximately 2.5 to 3 hours long and is divided into three parts. We thank you for participating. As promised, we have agreed to provide transportation for you to and from Brock University as well as \$50 for your family's participation in this study. Your participation is voluntary and you are free to withdraw from this study at any time without penalty from Brock University. Further, you are under no obligation to answer any or all questions or to participate in any aspect of this project. If you wish to stop participating in this study at any time, you and your parent will still receive free transportation from us as well as \$50 for your participation in the laboratory. Each part is described below.

PART I

This part of the study will be conducted in our laboratory at Brock University and requires 2.5 to 3 hours of your time. First, we would like you to complete the following forms, which will take about 10 minutes.

1. Medical Screening Questionnaire
2. Edinburgh Survey – Handedness Questionnaire

Next, we would like to complete a number of physical assessments on your child with the parent/guardian present. These assessments include:

1. Body composition:
 - a. Height and weight will be measured using a dual-purpose stadiometer.
 - b. 9 skinfold sites using painless pinch calipers. (It does not hurt).
 - c. Measure around the waist and hip using a flexible tape measure.
 - d. Bioelectric impedance analysis requires your child to stand on a weight scale and grasp handles. An electrical impulse travels from your child's hands to their feet. The impulse cannot be felt and causes no harm.
 - e. Lengths of your child's ring and index fingers.
 - f. Body muscle and fat weight will be measured while your child sits in the BOD POD chamber. If your child expressing previous or current anxiety for confined spaces, they will not be allowed to participate in this portion of the study. The BOD POD incorporates a built in window on the front of the chamber in the event of a claustrophobic event or for communication purposes as well as a safety latch on the inside of the chamber for the subject to voluntarily exit on their own. During this 5-minute assessment, your child will be asked to relax and breathe normally.
2. Cardiovascular health measures: The carotid ultrasound method will be performed using a probe and pen like-devices. Heart rate will be measured using sensors placed on the skin of your child's chest. These sensors are used to detect the electrical activity generated by the heart and are not used to transmit electrical signals into their body from the heart rate monitor. Blood pressure is monitored using an automated arm cuff system that is similar to the method used in a doctor's office. A cuff is wrapped around the upper arm and is inflated then deflated. No risk is involved.

3. Movement ABC² assessment: This motor coordination assessment involving 8 short activities, including tasks such as tracing, cutting on a line and throwing a ball.
4. Physical fitness assessment: This assessment uses a bicycle to measure the maximum amount of heavy exercise. The bicycle tension will gradually get more difficult to pedal. A mask over the mouth and nose will be used to collect oxygen and carbon dioxide. The assessment will be finished when your child decides. One of the common risks of these kinds of assessments is the brief sensation of exhaustion. At the end of the assessment, your child will be asked to continue to pedal the bicycle at a very easy level until this sensation goes away. The risk of serious illness or death is extremely rare and is reduced by completing the medical screening questionnaire before the assessment and the continuous monitoring we will perform during the assessment.
5. Accelerometer assessment: This assessment will require your child to wear a small box the size of a smaller pager clipped onto their pant waist. The accelerometer is designed to measure activity movement that your child performs. We wish for your child to wear the accelerometer from the time they wake up, until they go to bed at night for 7 days. We also ask that the parent complete the Habitual Activity Estimation Scale and our Activity Log. There is no risk associated with this assessment. We will arrange to pick the accelerometer unit at your home.

PART II

The second part of the study would take place approximately 7 days from now at your home. We would come in the morning (before your child has breakfast) and it will only take about 10 minutes. We wish to collect a sample of your child's blood using a finger pinprick technique. The middle finger of your child's non-dominant hand (e.g. if they are right handed, we will use the middle finger of their left hand) will be pricked so two drops of blood can be sampled. Your child will feel a small prick, but will not feel any pain or discomfort for the remainder of the assessment. The tip of that finger may feel sensitive and a little bit sore for about a day. It is important to keep the site clean and covered with an adhesive bandage until it is healed to reduce the risk of infection. We will also use this moment to pick up the accelerometer that you will have had for the past week.

PART III

For this part of the study, we would like you to allow your child's homeroom teacher complete a survey on your child's combined listening, speaking, reading, writing, mathematics and reasoning skills. The name of this survey is the Learning Disabilities Diagnostic Inventory. Despite the name of this survey, we are not looking to diagnose any disabilities in your child's learning ability, nor are the teacher expected to provide a learning disabilities' diagnosis. We simply wish to see how able your child is while learning at school. The results of this assessment will not be shared with your child's school.

Participation and Withdrawal: Your child's participation is voluntary and they are free to withdraw from this study at any time without penalty from Brock University. Further, your child is not required to answer any or all questions or to participate in any aspect of this project.

Confidentiality: All personal data will be kept strictly confidential and all information will be coded so that your child is not associated with their answers. Only the researchers named above will have access to the complete data. Any information we receive will be entered immediately into computer records using a code number with no name attached. It is our intent to continue to publish the results of this research in scientific journals. Again, no personal information will be identified or be possible within any publication.

Information: This study has been reviewed and approved by the Brock University Research Ethics Board, (File#: 07-106) Research Services, Brock University, Room C315 - 905-688-5550 (Ext. 4315). We greatly appreciate your co-operation. If you would like to receive more information about the study, please contact Dr. Brent E. Faight at 905-688-5550, (Ext. 3586). If you are willing to grant permission to participate in this study, please complete the consent form below.

Thanks for your help!

Brent E. Faight, Ph.D.

John A. Hay, Ph.D.

John Cairney, Ph.D.

PARENT CONSENT FORM

I have read and understand the above explanation of the purpose and procedures of the project. My questions have been answered to my satisfaction.

I give permission for my child to participate in Part I of the Brock University study conducted by Dr. John Hay, Dr. John Cairney and Dr. Brent E. Faught.

As the participating child, I wish to participate in Part I of the Brock University study conducted by Dr. John Hay, Dr. John Cairney and Dr. Brent E. Faught.

I give permission for my child to participate in Part II of the Brock University study conducted by Dr. John Hay, Dr. John Cairney and Dr. Brent E. Faught.

As the participating child, I wish to participate in Part II of the Brock University study conducted by Dr. John Hay, Dr. John Cairney and Dr. Brent E. Faught.

I give permission for my child to participate in Part III of the Brock University study conducted by Dr. John Hay, Dr. John Cairney and Dr. Brent E. Faught.

As the participating child, I wish to participate in Part III of the Brock University study conducted by Dr. John Hay, Dr. John Cairney and Dr. Brent E. Faught.

OR

I do NOT give permission for my child to participate in the Brock University study conducted by Dr. John Hay, Dr. John Cairney and Dr. Brent E. Faught.

As the participating child, I do NOT wish to participate in the Brock University study conducted by Dr. John Hay, Dr. John Cairney and Dr. Brent E. Faught.

APPENDIX 3– Parent Letter of Informed Consent

Principal Investigators: Dr. John A. Hay, Brock University
Dr. John Cairney, University of Toronto and Brock University
Dr. Brent E. Faught, Brock University

Dear Parent/Guardian:

Purpose: The purpose of this study is to investigate healthy growth and development and its association with the physical activity of children for the next three years.

Procedures: We are requesting that you complete five forms as they relate to you and _____ (child’s name). These forms will take approximately 40 minutes to complete.

Participation and Withdrawal: As a condition of your participation, we have agreed to provide transportation for you and your child to and from Brock University as well as \$50 for your family’s participation in this study. Your participation is voluntary and you are free to withdraw from this study at any time without recourse from Brock University. Further, you are under no obligation to answer any or all questions or to participate in any aspect of this project. If you wish to discontinue participation in this study at any time, you and your child will still receive complementary transportation as well as \$50 for your participation in the study.

Confidentiality: All personal data will be kept strictly confidential and all information will be coded so that you are not associated with your answers. Only the researchers named above will have access to the complete data. Any information we receive will be entered immediately into computer records using a code number with no name attached. It is our intent to continue to publish the results of this research in scientific journals. Again, no personal information will be identified or be possible within any publication.

Information: This study has been reviewed and approved by the Brock University Research Ethics Board, (File#: 07-106) Research Services, Brock University, Room C315 - 905-688-5550 (Ext. 4315). We greatly appreciate your co-operation. If you would like to receive more information about the study, please contact Dr. Brent E. Faught at 905-688-5550, (Ext. 3586). If you are willing to grant permission to participate in this study, please complete the consent form below.

Thanks for your help!

Brent E. Faught, Ph.D.

John A. Hay, Ph.D.

John Cairney, Ph.D.

PARENT CONSENT FORM

I have read and understand the above explanation of the purpose and procedures of the project. My questions have been answered to my satisfaction.

I wish to participate for the next three years in this Brock University study conducted by Dr. Brent E. Faught, Dr. John Hay and Dr. John Cairney.

I do NOT wish to participate in this Brock University study conducted by Dr. Brent E. Faught, Dr. John Hay and Dr. John Cairney.

APPENDIX 4 – Movement Assessment Battery for Children, Version 2



Movement Assessment Battery for Children – 2

Test Record Form Age Band 3 (11-16 years)

Name:		Gender: M / F		
Home address:				
School:		Class/year/grade:		
Assessed by:				
Referral source:				
Preferred (writing) hand:		Year	Month	Day
Date tested				
Date of birth				
Chronological age				

Movement ABC-2 Checklist completed? Y / N
--

Item Scores and Equivalent Standard Scores

Item code	Name of item	Raw score (best attempt)	Item Standard Score
MD 1*	Turning Pegs preferred hand		
	Turning Pegs non-pref hand		
MD 2	Triangle with Nuts and Bolts		
MD 3	Drawing Trail 3		
ABC 1	Catching with one Hand - best hand		
	Catching with one Hand - other hand		
ABC 2	Throwing at Wall Target		
Bal 1*	Two-Board Balance		
Bal 2	Walking Toe-to-Heel Backwards		
Bal 3	Zig-Zag Hopping best leg		
	Zig-Zag Hopping other leg		
Total Test Score			
Sum of 8 Item standard scores:			

Three Component Scores [†]		
Manual Dexterity* MD 1 + MD 2 + MD 3		
Component score	Standard Score	Percentile

Aiming & Catching* ABC 1 + ABC 2		
Component score	Standard Score	Percentile

Balance* Bal 1 + Bal 2 + Bal 3		
Component score	Standard Score	Percentile

[†]In each case sum the item standard scores.

Total Test Score	Standard Score	Percentile Rank

*For Turning Pegs, Catching with One Hand and Zig-Zag Hopping, look up standard score for each limb, add these and divide by 2.

Manual Dexterity 1: TURNING PEGS



Record: Preferred hand: R / L (should be same as for Drawing Trail); Time taken (secs); F for failure; R for refusal; I if inappropriate (note reasons below)

Preferred hand		Only administer a second trial if the first trial takes longer than the time stated below:						Non-preferred hand		Only administer a second trial if the first trial takes longer than the time stated below:					
Trial 1		11.0-11.11	12.0-12.11	13.0-13.11	14.0-14.11	15.0-15.11	16.0-16.11	Trial 1		11.0-11.11	12.0-12.11	13.0-13.11	14.0-14.11	15.0-15.11	16.0-16.11
Trial 2		15 sec	22 sec	32 sec	42 sec	52 sec	62 sec	Trial 2		15 sec	22 sec	32 sec	42 sec	52 sec	62 sec

Qualitative observations

Posture/body control

- | | | | |
|--|--------------------------|---|--------------------------|
| Sitting posture is poor | <input type="checkbox"/> | Hand movements are jerky | <input type="checkbox"/> |
| Holds head too close to task | <input type="checkbox"/> | Moves constantly/fidgets | <input type="checkbox"/> |
| Holds head at an odd angle | <input type="checkbox"/> | Adjustment to task requirements | |
| Does not look while manipulating pegs | <input type="checkbox"/> | Misaligns pegs with respect to holes | <input type="checkbox"/> |
| Does not use pincer grip to pick up pegs | <input type="checkbox"/> | Uses excessive force when inserting pegs | <input type="checkbox"/> |
| Exaggerates finger movements in releasing pegs | <input type="checkbox"/> | Is exceptionally slow/does not change speed from trial to trial | <input type="checkbox"/> |
| Does not use the supporting hand to hold board steady | <input type="checkbox"/> | Goes too fast for accuracy | <input type="checkbox"/> |
| Does extremely poorly with one hand (asymmetry striking) | <input type="checkbox"/> | Other _____ | |
| Changes hands or uses both hands during a trial | <input type="checkbox"/> | | |

Comments: _____

Manual Dexterity 2: TRIANGLE WITH NUTS AND BOLTS



Record: Time taken (secs); F for failure; R for refusal; I if inappropriate (note reasons below)

No. of seconds	Only administer a second trial if the first trial takes longer than the time stated below:						
Trial 1		11.0-11.11	12.0-12.11	13.0-13.11	14.0-14.11	15.0-15.11	16.0-16.11
Trial 2		15 sec	22 sec	32 sec	42 sec	52 sec	62 sec

Qualitative observations

Posture/body control

- | | | | |
|---|--------------------------|---|--------------------------|
| Sitting posture is poor | <input type="checkbox"/> | Hand movements are jerky | <input type="checkbox"/> |
| Holds materials too close to face | <input type="checkbox"/> | Moves constantly/fidgets | <input type="checkbox"/> |
| Holds head at an odd angle | <input type="checkbox"/> | Adjustment to task requirements | |
| Does not look at hole while inserting bolt | <input type="checkbox"/> | Sometimes misses hole with tip of bolt | <input type="checkbox"/> |
| Does not use pincer grip to hold nuts and bolts | <input type="checkbox"/> | Gets muddled in the construction sequence | <input type="checkbox"/> |
| Finds it difficult to hold bolt with one hand and screw nut on with the other | <input type="checkbox"/> | Is exceptionally slow/does not change speed from trial to trial | <input type="checkbox"/> |
| Changes hands during a trial | <input type="checkbox"/> | Goes too fast for accuracy | <input type="checkbox"/> |
| | | Other _____ | |

Comments: _____

Manual Dexterity 3: DRAWING TRAIL 3

Note: Bic Atlantis pen to be used

Record: Hand used: R/L/Both; No. of errors: F for failure; R for refusal; I if inappropriate (note reasons below)
Number of errors should be counted after testing using scoring criteria provided in Appendix A of the Manual.

	No. of errors
Trial 1	
Trial 2	



Do not administer a second trial if the child completes the first trial perfectly (i.e. no errors).

Qualitative observations

Posture/body control

- | | | | |
|-------------------------------------|--------------------------|--|--------------------------|
| Sitting posture is poor | <input type="checkbox"/> | Changes hands during a trial | <input type="checkbox"/> |
| Holds head too near paper | <input type="checkbox"/> | Moves constantly/fidgets | <input type="checkbox"/> |
| Holds head at an odd angle | <input type="checkbox"/> | Adjustment to task requirements | |
| Does not look at trail | <input type="checkbox"/> | Progresses in short jerky movements | <input type="checkbox"/> |
| Holds pen with an odd/immature grip | <input type="checkbox"/> | Uses excessive force, presses very hard on paper | <input type="checkbox"/> |
| Holds pen too far from point | <input type="checkbox"/> | Is exceptionally slow | <input type="checkbox"/> |
| Holds pen too close to point | <input type="checkbox"/> | Goes too fast for accuracy | <input type="checkbox"/> |
| Does not hold paper still | <input type="checkbox"/> | Other _____ | |

Comments: _____

Aiming & Catching 1: CATCHING WITH ONE HAND

Record: Number of correctly executed catches; R for refusal; I if inappropriate (note reasons below)

Right Hand Practice: 10 Trials: Total: _____

Left Hand Practice: 10 Trials: Total: _____

Qualitative observations

Posture/body control

- | | | | |
|---|--------------------------|---|--------------------------|
| Standing posture is poor | <input type="checkbox"/> | Adjustment to task requirements | |
| Does not follow trajectory of ball with eyes | <input type="checkbox"/> | Does not adjust body position for catching | <input type="checkbox"/> |
| Turns away or closes eyes as ball approaches | <input type="checkbox"/> | Does not adjust position of feet as necessary | <input type="checkbox"/> |
| Holds hand out flat with fingers stiff as the ball rebounds | <input type="checkbox"/> | Judges force of throw poorly (too much or too little) | <input type="checkbox"/> |
| Hands and arms held wide apart, fingers extended | <input type="checkbox"/> | Does not adjust to height of rebound | <input type="checkbox"/> |
| Arm and hand do not 'give' to meet impact of ball | <input type="checkbox"/> | Does not adjust to direction of rebound | <input type="checkbox"/> |
| Fingers close too early or too late | <input type="checkbox"/> | Does not adjust to force of rebound | <input type="checkbox"/> |
| Does extremely poorly with one hand (asymmetry striking) | <input type="checkbox"/> | Other _____ | |
| Movements lack fluency | <input type="checkbox"/> | | |

Aiming & Catching 2: THROWING AT WALL TARGET

Record: Hand used: R / L / Both; Number of successful hits; R for refusal; I if inappropriate (note reasons below)

Practice: 10 Trials: Total: _____

Qualitative observations

Posture/body control

Balance while throwing is poor

Does not keep eyes on target

Does not follow through with the throwing arm

Releases ball too early or too late

Changes hands from trial to trial

Movements lack fluency

Adjustment to task requirements

Errors are consistently to one side of the target

(asymmetric sinking)

Control of direction is variable

Judges force of throw poorly (too much or too little)

Control of force is variable

Other: _____

Comments: _____

Balance 1: TWO-BOARD BALANCE



Record: Time balanced (secs); R for refusal; I if inappropriate (note reasons below)

	No. of seconds
Trial 1	
Trial 2	



Do not administer a second trial if the child maintains balance for 30 seconds

Qualitative observations

Posture/body control

Body appears rigid/tense

Body appears limp/floppy

Sways wildly to try to maintain balance

Does not hold head and eyes steady

Makes no or few compensatory arm movements

to help maintain balance

Exaggerated movements of arms and trunk disrupt balance

Cannot hold feet in a straight line

Other: _____

Comments: _____

Balance 2: WALKING TOE-TO-HEEL BACKWARDS

Record: Number of correct consecutive steps from the beginning of the line; Whether entire line was walked successfully; R for refusal; I if inappropriate (note reasons below)

	No. of steps	Entire line?
Trial 1		YES / NO
Trial 2		YES / NO



Do not administer a second trial if the child completes 15 steps OR completes the whole line in fewer than 15 correctly executed steps.

Qualitative observations:

Posture/body control

- Body appears rigid/tense
- Body appears limp/floppy
- Sways wildly to try to maintain balance
- Does not look behind to check position on track
- Does not compensate with arms to maintain balance
- Exaggerated arm movements disrupt balance
- Is very wobbly when placing feet on line

Adjustments to task requirements

- Goes too fast for accuracy
- Individual movements lack smoothness and fluency
- Sequencing of steps is not smooth/pauses frequently
- Other _____

Comments: _____

Balance 3: ZIG-ZAG HOPPING

Record: Number of correct consecutive hops (maximum of 5); R for refusal; I if inappropriate (note reasons below)

		No. of hops			No. of hops
Right Leg	Trial 1		Left Leg	Trial 1	
	Trial 2			Trial 2	



Do not administer a second trial if the child completes 5 perfect hops on the first trial.

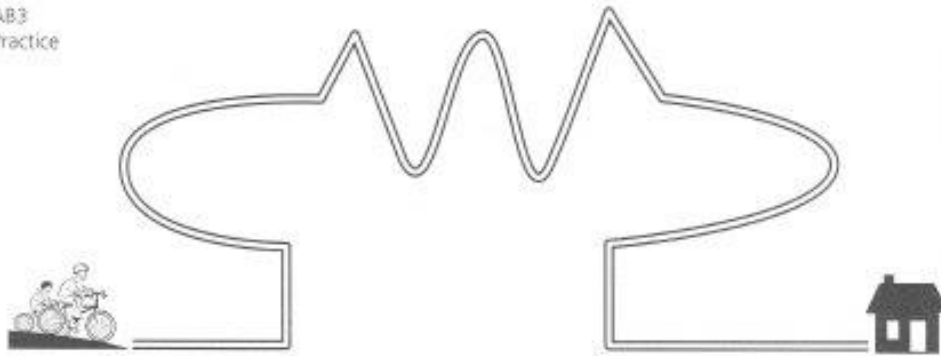
Qualitative observations:

Posture/body control

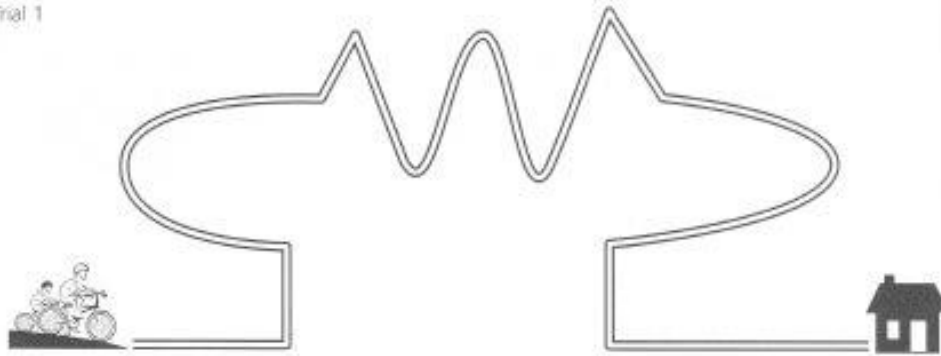
- Body appears rigid/tense
- Body appears limp/floppy
- Non-supporting leg held up in front of body
- Hops with stiff legs/on flat feet
- Lacks springiness/no push-off from feet
- Arm movements are exaggerated
- Does not use arms to assist hop
- Stumbles on landing

- Does extremely poorly with one leg (asymmetry striking)
- Adjustments to task requirements
- Goes too fast for accuracy
- Does not combine upward and forward movements effectively
- Uses too much effort
- Movements are jerky
- Other _____

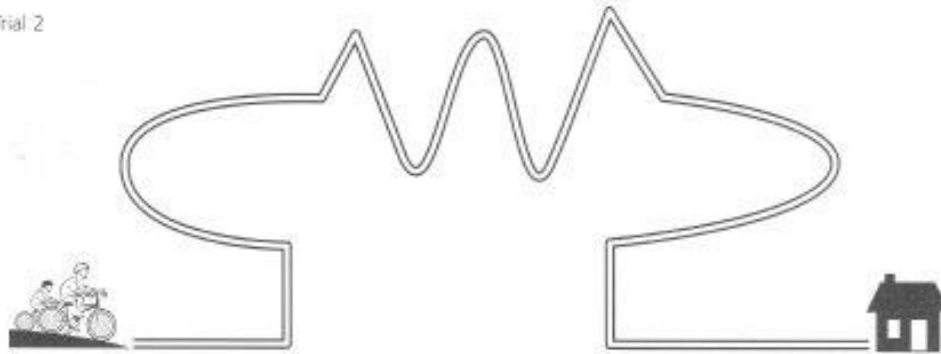
AB3
Practice



Trial 1



Trial 2



NON-MOTOR FACTORS THAT MIGHT AFFECT MOVEMENT

Complete the sections below by noting any features of the child's behaviour during testing that you suspect might have affected his or her motor performance. Headings (with examples) are given as guidelines only. Although negative aspects are given more emphasis, remember to note positive aspects of the child's behaviour.

	Yes	No
1. Disorganised (e.g. scattered clothes slows up dressing after PE; puts on shoes before socks).		
2. Hesitant/forgetful (e.g. slow to start complex actions; forgets what to do in the middle of an action sequence).		
3. Passive (e.g. hard to interest; requires much encouragement to participate).		
4. Timid (e.g. fearful of activities such as jumping/climbing; constantly asks for assistance).		
5. Anxious (e.g. trembles; becomes flustered in a stressful situation).		
6. Impulsive (e.g. starts before instructions are complete; impatient of detail).		
7. Distractible (e.g. looks around, responds to irrelevant noises).		
8. Overactive (e.g. squirms and fidgets; moves constantly when listening to instructions, fiddles with clothes).		
9. Overestimates own ability (e.g. tries to make tasks more difficult; tries to do things too fast).		
10. Underestimates own ability (e.g. complains of task difficulty; anticipates failure before starting).		
11. Lacks persistence (e.g. gives up quickly; is easily frustrated).		
12. Upset by failure (e.g. looks tearful; refuses to try task again).		
13. Unable to get pleasure from success (e.g. fails to respond to praise).		
Other (please specify).		
Overall, do you think these problems prevent the child from demonstrating his or her true movement capability (please circle)		not at all a little a great deal

PHYSICAL FACTORS THAT MIGHT AFFECT MOVEMENT

Anatomical/postural defect: YES/NO Specify, if possible
Vision defect: YES/NO Hearing defect: YES/NO
Judgement of weight: average/overweight/underweight
Judgement of height: average/tall/short
Other:

Table 2a: Brief summary of changes made to AB1 – now covers ages 3 to 6 years

Task	Movement ABC AB1	Movement ABC-2 AB1
<i>Manual Dexterity 1</i>	Posting Coins	Posting Coins
<i>Manual Dexterity 2</i>	Threading Beads	Threading Beads
<i>Manual Dexterity 3</i>	Bicycle Trail	Drawing Trail 1*
<i>Aiming & Catching 1</i>	Catching Beanbag	Catching Beanbag
<i>Aiming & Catching 2</i>	Rolling Ball into Goal	Throwing Beanbag onto Mat**
<i>Balance 1</i>	One-Leg Balance	One-Leg Balance
<i>Balance 2</i>	Walking Heels Raised	Walking Heels Raised
<i>Balance 3</i>	Jumping over Cord	Jumping on Mats**

* Altered item: shape of trail has changed

** New item

Table 2b: Brief summary of changes made to AB2 and AB3 – now labelled AB2 and covers ages 7 to 10 years

Task	Movement ABC AB2	Movement ABC AB3	Movement ABC-2 AB2
<i>Manual Dexterity 1</i>	Placing Pegs	Shifting Pegs by Rows	Placing Pegs-
<i>Manual Dexterity 2</i>	Threading Lace	Threading Nuts on Bolt	Threading Lace^
<i>Manual Dexterity 3</i>	Flower Trail	Flower Trail	Drawing Trail 2*
<i>Aiming & Catching 1</i>	Two-Hand Catch	One-Hand Bounce and Catch	Catching with Two Hands
<i>Aiming & Catching 2</i>	Throwing Beanbag into Box	Throwing Beanbag into Box	Throwing Beanbag onto Mat**
<i>Balance 1</i>	Stork Balance	One-Board Balance	One-Board Balance
<i>Balance 2</i>	Heel-to-Toe Walking	Ball Balance	Walking Heel-to-Toe Forwards
<i>Balance 3</i>	Jumping in Squares	Hopping in Squares	Hopping on Mats+

Altered items:

- New start position/layout

^ Lacing board now longer

* Shape of trail has changed

** Mat with target now used instead of box

+ Mats used for this task

Table 2c: Brief summary of changes made to AB4 – now labelled AB3, covering ages 11 to 16

Task	Movement ABC	Movement ABC-2
<i>Manual Dexterity 1</i>	Turning Pegs	Turning Pegs
<i>Manual Dexterity 2</i>	Cutting-Out Elephant	Triangle with Nuts and Bolts^
<i>Manual Dexterity 3</i>	Flower Trail	Drawing Trail 3*
<i>Aiming & Catching 1</i>	One-Hand Catch	Catching with One Hand
<i>Aiming & Catching 2</i>	Throwing at Wall Target	Throwing at Wall Target
<i>Balance 1</i>	Two-Board Balance	Two-Board Balance
<i>Balance 2</i>	Walking Backwards	Walking Toe-to-Heel Backwards
<i>Balance 3</i>	Jumping and Clapping	Zig-Zag Hopping^

^ New items

* Altered item: Shape of trail has changed

APPENDIX 5 – Harter Scale

Take your time and do the whole form carefully. Remember to check only one box on the side that has the sentence most like you. If you have any questions just ask! BE SURE TO FILL IN BOTH SIDES OF EACH PAGE!

REALLY TRUE for me	SORT OF TRUE for me		BUT		SORT OF TRUE for me	REALLY TRUE for me
<input type="checkbox"/> 4	<input type="checkbox"/>	Some kids feel that they are very <i>good</i> at their school work.		Other kids <i>worry</i> about whether they can do the school work assigned to them	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	Some kids find it <i>hard</i> to make friends.		Other kids find it is pretty <i>easy</i> to make friends.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 4	<input type="checkbox"/>	Some kids do <i>very well</i> at all kinds of sports.		Other kids <i>don't</i> feel that they are very good when it comes to sports.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 4	<input type="checkbox"/>	Some kids are <i>happy</i> with the way they look.		Other kids are <i>not</i> happy with the way they look.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	Some kids often do <i>not</i> like the way they behave.		Other kids usually <i>like</i> the way they behave.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	Some kids are often <i>unhappy</i> with themselves.		Other kids are pretty <i>pleased</i> with themselves.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 4	<input type="checkbox"/>	Some kids feel like they are just as <i>smart</i> as other kids their age.		Other kids aren't so sure and <i>wonder</i> if they are as smart.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 4	<input type="checkbox"/>	Some kids have <i>a lot</i> of friends.		Some kids <i>don't</i> have very many friends.	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	<input type="checkbox"/>	Some kids wish they <i>could be</i> a lot better at sports.	BUT	Other kids feel they <i>are good</i> enough at sports.	<input type="checkbox"/>	<input type="checkbox"/>
REALLY TRUE for me	SORT OF TRUE for me				SORT OF TRUE for me	REALLY TRUE for me
<input type="checkbox"/>	<input type="checkbox"/>	Some kids are <i>happy</i> with their height and weight.	BUT	Other kids wish their height and weight were <i>different</i> .	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids usually do the <i>right</i> thing.	BUT	Other kids often <i>don't</i> do the right thing.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids <i>don't</i> like the way they are leading their life.	BUT	Other kids <i>do</i> like the way they are leading their life.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids are pretty <i>slow</i> in finishing their school work.	BUT	Other kids can do their school work <i>quickly</i> .	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids would like to have a lot <i>more</i> friends.	BUT	Other kids have as <i>many</i> friends as they want.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids think they <i>could</i> do well at just about any new sports activity they haven't tried before.	BUT	Other kids are afraid they might <i>not</i> do well at sports they haven't ever tried.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids wish their body was <i>different</i> .	BUT	Other kids <i>like</i> their body the way it is.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids usually <i>act</i> the way they know they are <i>supposed</i> to.	BUT	Other kids often <i>don't</i> act the way they are supposed to.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids are <i>happy</i> with themselves as a person.	BUT	Other kids are often <i>not</i> happy with themselves.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids often <i>forget</i> what they learn.	BUT	Other kids can remember things <i>easily</i> .	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/> 4	<input type="checkbox"/>	Some kids are always doing things with <i>a lot</i> of kids.	BUT	Other kids usually do things by <i>themselves</i> .	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 4	<input type="checkbox"/>	Some kids feel that they are <i>better</i> than others their age at spots.	BUT	Other kids <i>don't</i> feel they can play as well.	<input type="checkbox"/>	<input type="checkbox"/>
REALLY TRUE for me	SORT OF TRUE for me				SORT OF TRUE for me	REALLY TRUE for me
<input type="checkbox"/> 1	<input type="checkbox"/>	Some kids wish their physical appearance (how they look) was <i>different</i> .	BUT	Other kids <i>like</i> their physical appearance the way it is.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	Some kids usually get in <i>trouble</i> because of things they do.	BUT	Other kids usually <i>don't</i> do things that get them in trouble.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 4	<input type="checkbox"/>	Some kids <i>like</i> the kind of person they are.	BUT	Other kids often <i>wish</i> they were someone else.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 4	<input type="checkbox"/>	Some kids do <i>very well</i> at their class work.	BUT	Other kids <i>don't</i> do very well at their class work.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	Some kids wish that <i>more</i> people their age liked them.	BUT	Other kids feel that <i>most</i> people their age do like them.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	In games and sports, some kids usually <i>watch</i> instead of play.	BUT	Other kids usually <i>play</i> rather than just watch.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	Some kids wish something about their face or hair looked <i>different</i> .	BUT	Other kids <i>like</i> their face and hair the way it is.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	Some kids do things they know they <i>shouldn't</i> do.	BUT	Other kids <i>hardly</i> ever do things they	<input type="checkbox"/>	<input type="checkbox"/>

				know they shouldn't do.		
<input type="checkbox"/>	<input type="checkbox"/>	Some kids are very <i>happy</i> being the way they are.	BUT	Other kids wish they were <i>different</i> .	<input type="checkbox"/>	<input type="checkbox"/>
4						
<input type="checkbox"/>	<input type="checkbox"/>	Some kids have <i>trouble</i> figuring out the answer in school.	BUT	Other kids almost <i>always</i> can figure out the answer.	<input type="checkbox"/>	<input type="checkbox"/>
1						
<input type="checkbox"/>	<input type="checkbox"/>	Some kids are <i>popular</i> with others their age.	BUT	Other kids are <i>not</i> very popular.	<input type="checkbox"/>	<input type="checkbox"/>
4						

REALLY TRUE for me	SORT OF TRUE for me				SORT OF TRUE for me	REALLY TRUE for me
<input type="checkbox"/>	<input type="checkbox"/>	Some kids <i>don't</i> do well at new outdoor games.	BUT	Other kids are <i>good</i> at new games right away.	<input type="checkbox"/>	<input type="checkbox"/>
1						
<input type="checkbox"/>	<input type="checkbox"/>	Some kids think that they <i>are</i> good looking.	BUT	Other kids think that they are <i>not</i> very good looking.	<input type="checkbox"/>	<input type="checkbox"/>
4						
<input type="checkbox"/>	<input type="checkbox"/>	Some kids <i>behave</i> themselves very well.	BUT	Other kids often find it <i>hard</i> to behave themselves.	<input type="checkbox"/>	<input type="checkbox"/>
4						
<input type="checkbox"/>	<input type="checkbox"/>	Some kids are <i>not</i> very happy with the way they do a lot of things.	BUT	Other kids think the way they do things is <i>fine</i> .	<input type="checkbox"/>	<input type="checkbox"/>
1						

THANK YOU VERY MUCH FOR COMPLETING THIS SCALE! ☺

**APPENDIX 6 - Children Self-Perceptions of Adequacy in and Predilection for Physical Activity
(CSAPPA) Scale**

Name: _____ Birth date: ____ / ____ / ____ Age: _____ years
MM DD YY

Grade: _____ Gender: M / F

INSTRUCTIONS:

PLEASE RESPECT YOUR FELLOW STUDENTS PRIVACY BY KEEPING YOUR EYES ON YOUR OWN PAPER! In this survey you have to read a pair of sentences and then circle (O) the sentence you think is ***MORE LIKE YOU***.

Try the following example.

SAMPLE QUESTION		
Some kids have one nose on their faces!	BUT	Other kids have three noses on their faces!

That shouldn't be too hard for you to decide! Once you have circled the sentence that is more like you, then you have to decide if it is ***REALLY TRUE*** for you or ***SORT OF TRUE*** for you.

Here is another sample question for you to try. Remember; first circle the sentence that is more like you and then put a check (✓) in the correct box if it is really true or only sort of true for you. **THERE ARE NO CORRECT OR INCORRECT ANSWERS, JUST WHAT IS *MOST LIKE YOU*.**

SAMPLE QUESTION				
REALLY TRUE for me	SORT OF TRUE for me		SORT OF TRUE for me	REALLY TRUE for me
<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to play with computers.	BUT	Other kids don't like playing with computers. <input type="checkbox"/>
				<input type="checkbox"/>

Now you are ready to start filling in this form. Take your time and do the whole form carefully. If you have any questions just ask! If you think you are ready you can start now. BE SURE TO FILL IN BOTH SIDES OF EACH PAGE!

REALLY TRUE for me	SORT OF TRUE for me		BUT		SORT OF TRUE for me	REALLY TRUE for me
<input type="checkbox"/>	<input type="checkbox"/>	Some kids can't wait to play active games after school.		Other kids would rather do something else.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids really enjoy physical education class.		Other kids don't like physical education class.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids don't like playing active games.		Other kids really like playing active games.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids don't have much fun playing sports.		Other kids have a good time playing sports.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids think physical education is the best class.		Other kids think physical education isn't much fun.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids are good at active games.		Other kids find active games hard to play.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids don't like playing sports.		Other kids really enjoy playing sports.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids always hurt themselves when they play sports.		Other kids never hurt themselves playing sports.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to play active games outside.		Other kids would rather read or play video games.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids do well in most sports.		Other kids feel they aren't good at sports.	<input type="checkbox"/>	<input type="checkbox"/>

REALLY TRUE for me	SORT OF TRUE for me				SORT OF TRUE for me	REALLY TRUE for me
<input type="checkbox"/>	<input type="checkbox"/>	Some kids learn to play active games easily.	BUT	Other kids find it hard learning to play active games.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids think they are the best at sports.	BUT	Other kids think they aren't good at sports.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids find games in physical education hard to play.	BUT	Other kids are good at games in physical education.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to watch games being played outside.	BUT	Other kids would rather play active games outside.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids are among the last to be chosen for active games.	BUT	Other kids are usually picked to play first.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to take it easy during recess.	BUT	Other kids would rather play active games.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids have fun in physical education class.	BUT	Other kids would rather miss physical education class.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids aren't good enough for sports teams.	BUT	Other kids do well on sports teams.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to read or play quiet games.	BUT	Other kids like to play active games.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to play active games outside on weekends.	BUT	Other kids like to relax and watch TV on weekends.	<input type="checkbox"/>	<input type="checkbox"/>

THANK YOU VERY MUCH FOR COMPLETING THE CSAPPA SCALE! ©

APPENDIX 7 - Ontario Curriculum for Grade 6 (2004-2006)

7.1 Mathematics

The following are highlights of student learning in Grade 6. They are provided to give teachers and parents a quick overview of the mathematical knowledge and skills that students are expected to acquire in each strand in this grade. The expectations on the pages that follow outline the required knowledge and skills in detail and provide information about the ways in which students are expected to demonstrate their learning, how deeply they will explore concepts and at what level of complexity they will perform procedures, and the mathematical processes they will learn and apply throughout the grade.

Number Sense and Numeration: representing and ordering numbers to 1 000 000; developing the concept of place value to thousandths; comparing and ordering fractional amounts with unlike denominators; estimating 10%, 25%, 50%, and 75% of a quantity; adding and subtracting decimal amounts to thousandths; multiplying and dividing four-digit whole numbers by two-digit whole numbers; multiplying and dividing decimals to tenths by whole numbers and two-digit by two-digit whole numbers; dividing three-digit whole numbers by one-digit whole numbers; applying order of operations in expressions without brackets; relating simple fractions, decimals, and percents.

Measurement: measuring quantities using metric units; converting from larger to smaller metric units, including square metres to square centimetres; developing and applying area relationships for a parallelogram and a triangle; developing and applying the volume relationships for a triangular prism; determining and applying surface area relationships for rectangular and triangular prisms; relating square metres and square centimetres

Geometry and Spatial Sense: classifying quadrilaterals by geometric properties; sorting polygons by lines of symmetry and by rotational symmetry; measuring angles to 180° with a protractor; constructing polygons; representing figures using views and isometric sketches; performing and describing rotations; plotting points in the first quadrant

Patterning and Algebra: representing patterns using ordered pairs and graphs; describing pattern rules in words; calculating any term when given the term number; investigating variables as changing quantities; solving equations using concrete materials and guess and check

Data Management and Probability: collecting and organizing discrete and continuous data; displaying data using continuous line graphs; selecting appropriate graphical representations; using continuous line graphs and mean to compare sets of data; finding theoretical probabilities; predicting the frequency of an outcome based on the theoretical probability

Grade 6: Mathematical Process Expectations

The mathematical process expectations are to be integrated into student learning associated with all the strands.

Throughout Grade 6, students will:

PROBLEM SOLVING

- develop, select, and apply problem-solving strategies as they pose and solve problems and conduct investigations, to help deepen their mathematical understanding;

REASONING AND PROVING

- develop and apply reasoning skills (e.g., classification, recognition of relationships, use of counter-examples) to make and investigate conjectures and construct and defend arguments;

REFLECTING

- demonstrate that they are reflecting on and monitoring their thinking to help clarify their understanding as they complete an investigation or solve a problem (e.g., by comparing and adjusting strategies used, by explaining why they think their results are reasonable, by recording their thinking in a math journal);

SELECTING TOOLS AND COMPUTATIONAL STRATEGIES

- select and use a variety of concrete, visual, and electronic learning tools and appropriate computational strategies to investigate mathematical ideas and to solve problems;

CONNECTING

- make connections among mathematical concepts and procedures, and relate mathematical ideas to situations or phenomena drawn from other contexts (e.g., other curriculum areas, daily life, sports);

REPRESENTING

- create a variety of representations of mathematical ideas (e.g., by using physical models, pictures, numbers, variables, diagrams, graphs, onscreen dynamic representations), make connections among them, and apply them to solve problems;

COMMUNICATING

- communicate mathematical thinking orally, visually, and in writing, using everyday language, a basic mathematical vocabulary, and a variety of representations, and observing basic mathematical conventions.

Grade 6: Number Sense and Numeration

Overall Expectations

By the end of Grade 6, students will:

- read, represent, compare, and order whole numbers to 1 000 000, decimal numbers to thousandths, proper and improper fractions, and mixed numbers;
- solve problems involving the multiplication and division of whole numbers, and the addition and subtraction of decimal numbers to thousandths, using a variety of strategies;
- demonstrate an understanding of relationships involving percent, ratio, and unit rate.

Specific Expectations

Quantity Relationships

By the end of Grade 6, students will:

- represent, compare, and order whole numbers and decimal numbers from 0.001 to 1 000 000, using a variety of tools (e.g., number lines with appropriate increments, base ten materials for decimals);
- demonstrate an understanding of place value in whole numbers and decimal numbers from 0.001 to 1 000 000, using a variety of tools and strategies (e.g. use base ten materials to represent the relationship between 1, 0.1, 0.01, and 0.001) (Sample problem: How many thousands cubes would be needed to make a base ten block for 1 000 000?);
- read and print in words whole numbers to one hundred thousand, using meaningful contexts (e.g., the Internet, reference books);
- represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers, using a variety of tools (e.g., fraction circles, Cuisenaire rods, drawings, number lines, calculators) and using standard fractional notation (Sample problem: Use fraction strips to show that $1 \frac{1}{2}$ is greater than $\frac{5}{4}$);
- estimate quantities using benchmarks of 10%, 25%, 50%, 75%, and 100% (e.g., the container is about 75% full; approximately 50% of our students walk to school);
- solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1 000 000 (Sample problem: How would you determine if a person could live to be 1 000 000 hours old? Show your work.);
- identify composite numbers and prime numbers, and explain the relationship between them (i.e., any composite number can be factored into prime factors) (e.g., $42 = 2 \times 3 \times 7$).

Operational Sense

By the end of Grade 6, students will:

- use a variety of mental strategies to solve addition, subtraction, multiplication, and division problems involving whole numbers (e.g., use the commutative property: $4 \times 16 \times 5 = 4 \times 5 \times 16$, which gives $20 \times 16 = 320$; use the distributive property: $(500 + 15) \div 5 = 500 \div 5 + 15 \div 5$, which gives $100 + 3 = 103$);
- solve problems involving the multiplication and division of whole numbers (four digit by two-digit), using a variety of tools (e.g., concrete materials, drawings, calculators) and strategies (e.g., estimation, algorithms);
- add and subtract decimal numbers to thousandths, using concrete materials, estimation, algorithms, and calculators;
- multiply and divide decimal numbers to tenths by whole numbers, using concrete materials, estimation, algorithms, and calculators (e.g., calculate 4×1.4 using base ten materials; calculate $5.6 \div 4$ using base ten materials);

- multiply whole numbers by 0.1, 0.01, and 0.001 using mental strategies (e.g., use a calculator to look for patterns and generalize to develop a rule);
- multiply and divide decimal numbers by 10, 100, 1000, and 10 000 using mental strategies (e.g., “To convert 0.6 m² to square centimetres, I calculated in my head $0.6 \times 10\ 000$ and got 6000 cm².”) (Sample problem: Use a calculator to help you generalize a rule for multiplying numbers by 10 000.);
- use estimation when solving problems involving the addition and subtraction of whole numbers and decimals, to help judge the reasonableness of a solution (Sample problem: Mori used a calculator to add 7.45 and 2.39. The calculator display showed 31.35. Explain why this result is not reasonable, and suggest where you think Mori made his mistake.);
- explain the need for a standard order for performing operations, by investigating the impact that changing the order has when performing a series of operations (Sample problem: Calculate and compare the answers to $3 + 2 \times 5$ using a basic four function calculator and using a scientific calculator.).

Proportional Relationships

By the end of Grade 6, students will:

- represent ratios found in real-life contexts, using concrete materials, drawings, and standard fractional notation (Sample problem: In a classroom of 28 students, 12 are female. What is the ratio of male students to female students?);
- determine and explain, through investigation using concrete materials, drawings, and calculators, the relationships among fractions (i.e., with denominators of 2, 4, 5, 10, 20, 25, 50, and 100), decimal numbers, and percents (e.g., use a 10 x 10 grid to show that $1/4 = 0.25$ or 25%);
- represent relationships using unit rates (Sample problem: If 5 batteries cost \$4.75, what is the cost of 1 battery?).

Grade 6: Measurement

Overall Expectations

By the end of Grade 6, students will:

- estimate, measure, and record quantities, using the metric measurement system;
- determine the relationships among units and measurable attributes, including the area of a parallelogram, the area of a triangle, and the volume of a triangular prism.

Specific Expectations

Attributes, Units, and Measurement Sense

By the end of Grade 6, students will:

- demonstrate an understanding of the relationship between estimated and precise measurements, and determine and justify when each kind is appropriate (Sample problem: You

are asked how long it takes you to travel a given distance. How is the method you use to determine the time related to the precision of the measurement?);

– estimate, measure, and record length, area, mass, capacity, and volume, using the metric measurement system.

Measurement Relationships

By the end of Grade 6, students will:

– select and justify the appropriate metric unit (i.e., millimetre, centimetre, decimetre, metre, decametre, and kilometre) to measure length or distance in a given real-life situation (Sample problem: Select and justify the unit that should be used to measure the perimeter of the school.);

– solve problems requiring conversion from larger to smaller metric units (e.g., metres to centimetres, kilograms to grams, litres to millilitres) (Sample problem: How many grams are in one serving if 1.5 kg will serve six people?);

– construct a rectangle, a square, a triangle, and a parallelogram, using a variety of tools (e.g., concrete materials, geoboard, dynamic geometry software, grid paper), given the area and/or perimeter (Sample problem: Create two different triangles with an area of 12 square units, using a geoboard.);

– determine, through investigation using a variety of tools (e.g., pattern blocks, Power Polygons, dynamic geometry software, grid paper) and strategies (e.g., paper folding, cutting, and rearranging), the relationship between the area of a rectangle and the areas of parallelograms and triangles, by decomposing (e.g., cutting up a parallelogram into a rectangle and two congruent triangles) and composing (e.g., combining two congruent triangles to form a parallelogram) (Sample problem: Decompose a rectangle and rearrange the parts to compose a parallelogram with the same area. Decompose a parallelogram into two congruent triangles, and compare the area of one of the triangles with the area of the parallelogram.);

– develop the formulas for the area of a parallelogram (i.e., Area of parallelogram = base x height) and the area of a triangle [i.e., Area of triangle = (base x height) ÷ 2], using the area relationships among rectangles, parallelograms, and triangles (Sample problem: Use dynamic geometry software to show that parallelograms with the same height and the same base all have the same area.);

– solve problems involving the estimation and calculation of the areas of triangles and the areas of parallelograms (Sample problem: Calculate the areas of parallelograms that share the same base and the same height, including the special case where the parallelogram is a rectangle.);

– determine, using concrete materials, the relationship between units used to measure area (i.e., square centimetre, square metre), and apply the relationship to solve problems that involve conversions from square metres to square centimetres (Sample problem: Describe the multiplicative relationship between the number of square centimetres and the number of square metres that represent an area. Use this relationship to determine how many square centimetres fit into half a square metre.);

– determine, through investigation using a variety of tools and strategies (e.g., decomposing rectangular prisms into triangular prisms; stacking congruent triangular layers of concrete

materials to form a triangular prism), the relationship between the height, the area of the base, and the volume of a triangular prism, and generalize to develop the formula (i.e., Volume = area of base x height) (Sample problem: Create triangular prisms by splitting rectangular prisms in half. For each prism, record the area of the base, the height, and the volume on a chart. Identify relationships.);

– determine, through investigation using a variety of tools (e.g., nets, concrete materials, dynamic geometry software, Polydrons) and strategies, the surface area of rectangular and triangular prisms;

– solve problems involving the estimation and calculation of the surface area and volume of triangular and rectangular prisms (Sample problem: How many square centimetres of wrapping paper are required to wrap a box that is 10 cm long, 8 cm wide, and 12 cm high?).

Grade 6: Geometry and Spatial Sense

Overall Expectations

By the end of Grade 6, students will:

- classify and construct polygons and angles;
- sketch three-dimensional figures, and construct three-dimensional figures from drawings;
- describe location in the first quadrant of a coordinate system, and rotate two-dimensional shapes.

Specific Expectations

Geometric Properties

By the end of Grade 6, students will:

- sort and classify quadrilaterals by geometric properties related to symmetry, angles, and sides, through investigation using a variety of tools (e.g., geoboard, dynamic geometry software) and strategies (e.g., using charts, using Venn diagrams);
- sort polygons according to the number of lines of symmetry and the order of rotational symmetry, through investigation using a variety of tools (e.g., tracing paper, dynamic geometry software, Mira);
- measure and construct angles up to 180° using a protractor, and classify them as acute, right, obtuse, or straight angles;
- construct polygons using a variety of tools, given angle and side measurements (Sample problem: Use dynamic geometry software to construct trapezoids with a 45° angle and a side measuring 11 cm.).

Geometric Relationships

By the end of Grade 6, students will:

- build three-dimensional models using connecting cubes, given isometric sketches or different views (i.e., top, side, front) of the structure (Sample problem: Given the top, side, and front views of a structure, build it using the smallest number of cubes possible.);
- sketch, using a variety of tools (e.g., isometric dot paper, dynamic geometry software), isometric perspectives and different views (i.e., top, side, front) of three-dimensional figures built with interlocking cubes.

Location and Movement

By the end of Grade 6, students will:

- explain how a coordinate system represents location, and plot points in the first quadrant of a Cartesian coordinate plane;
- identify, perform, and describe, through investigation using a variety of tools (e.g., grid paper, tissue paper, protractor, computer technology), rotations of 180° and clockwise and counterclockwise rotations of 90° , with the centre of rotation inside or outside the shape;
- create and analyse designs made by reflecting, translating, and/or rotating a shape, or shapes, by 90° or 180° (Sample problem: Identify rotations of 90° or 180° that map congruent shapes, in a given design, onto each other.).

Grade 6: Patterning and Algebra

Overall Expectations

By the end of Grade 6, students will:

- describe and represent relationships in growing and shrinking patterns (where the terms are whole numbers), and investigate repeating patterns involving rotations;
- use variables in simple algebraic expressions and equations to describe relationships.

Specific Expectations

Patterns and Relationships

By the end of Grade 6, students will:

- identify geometric patterns, through investigation using concrete materials or drawings, and represent them numerically;
- make tables of values for growing patterns, given pattern rules in words (e.g., start with 3, then double each term and add 1 to get the next term), then list the ordered pairs (with the first coordinate representing the term number and the second coordinate representing the term) and plot the points in the first quadrant, using a variety of tools (e.g., graph paper, calculators, dynamic statistical software);
- determine the term number of a given term in a growing pattern that is represented by a pattern rule in words, a table of values, or a graph (Sample problem: For the pattern rule “start with 1 and

add 3 to each term to get the next term”, use graphing to find the term number when the term is 19.);

– describe pattern rules (in words) that generate patterns by adding or subtracting a constant, or multiplying or dividing by a constant, to get the next term (e.g., for 1, 3, 5, 7, 9, ..., the pattern rule is “start with 1 and add 2 to each term to get the next term”), then distinguish such pattern rules from pattern rules, given in words, that describe the general term by referring to the term number (e.g., for 2, 4, 6, 8, ..., the pattern rule for the general term is “double the term number”);

Overall Expectations

By the end of Grade 6, students will:

- describe and represent relationships in growing and shrinking patterns (where the terms are whole numbers), and investigate repeating patterns involving rotations;

- use variables in simple algebraic expressions and equations to describe relationships.

– determine a term, given its term number, by extending growing and shrinking patterns that are generated by adding or subtracting a constant, or multiplying or dividing by a constant, to get the next term (Sample problem: For the pattern 5000, 4750, 4500, 4250, 4000, 3750, ..., find the 15th term. Explain your reasoning.);

– extend and create repeating patterns that result from rotations, through investigation using a variety of tools (e.g., pattern blocks, dynamic geometry software, geoboards, and dot paper).

Variables, Expressions, and Equations

By the end of Grade 6, students will:

– demonstrate an understanding of different ways in which variables are used (e.g., variable as an unknown quantity; variable as a changing quantity);

– identify, through investigation, the quantities in an equation that vary and those that remain constant (e.g., in the formula for the area of a triangle, $A = (b \times h)/2$, the number 2 is a constant, whereas b and h can vary and may change the value of A);

– solve problems that use two or three symbols or letters as variables to represent different unknown quantities (Sample problem: If $n + l = 15$ and $n + l + s = 19$, what value does the s represent?);

– determine the solution to a simple equation with one variable, through investigation using a variety of tools and strategies (e.g., modelling with concrete materials, using guess and check with and without the aid of a calculator) (Sample problem: Use the method of your choice to determine the value of the variable in the equation $2 \times n + 3 = 11$. Is there more than one possible solution? Explain your reasoning.).

Grade 6: Data Management and Probability

Overall Expectations

By the end of Grade 6, students will:

- collect and organize discrete or continuous primary data and secondary data and display the data using charts and graphs, including continuous line graphs;
- read, describe, interpret data, and explain relationships between sets of data;
- determine the theoretical probability of an outcome in a probability experiment, and use it to predict the frequency of the outcome.

Specific Expectations

Collection and Organization of Data

By the end of Grade 6, students will:

- collect data by conducting a survey (e.g., use an Internet survey tool) or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject, and record observations or measurements;
- collect and organize discrete or continuous primary data and secondary data (e.g., electronic data from websites such as E-Stat or Census At Schools) and display the data in charts, tables, and graphs (including continuous line graphs) that have appropriate titles, labels (e.g., appropriate units marked on the axes), and scales (e.g., with appropriate increments) that suit the range and distribution of the data, using a variety of tools (e.g., graph paper, spreadsheets, dynamic statistical software);
- select an appropriate type of graph to represent a set of data, graph the data using technology, and justify the choice of graph (i.e., from types of graphs already studied, such as pictographs, horizontal or vertical bar graphs, stem-and-leaf plots, double bar graphs, broken-line graphs, and continuous line graphs);
- determine, through investigation, how well a set of data represents a population, on the basis of the method that was used to collect the data (Sample problem: Would the results of a survey of primary students about their favorite television shows represent the favorite shows of students in the entire school? Why or why not?).

Data Relationships

By the end of Grade 6, students will:

- read, interpret, and draw conclusions from primary data (e.g., survey results, measurements, observations) and from secondary data (e.g., sports data in the newspaper, data from the Internet about movies), presented in charts, tables, and graphs (including continuous line graphs);
- compare, through investigation, different graphical representations of the same data (Sample problem: Use technology to help you compare the different types of graphs that can be created to represent a set of data about the number of runs or goals scored against each team in a tournament. Describe the similarities and differences that you observe.);
- explain how different scales used on graphs can influence conclusions drawn from the data;

- demonstrate an understanding of mean (e.g., mean differs from median and mode because it is a value that “balances” a set of data like the centre point or fulcrum in a lever), and use the mean to compare two sets of related data, with and without the use of technology (Sample problem: Use the mean to compare the masses of backpacks of students from two or more Grade 6 classes.);
- demonstrate, through investigation, an understanding of how data from charts, tables, and graphs can be used to make inferences and convincing arguments (e.g., describe examples found in newspapers and magazines).

Probability

By the end of Grade 6, students will:

- express theoretical probability as a ratio of the number of favorable outcomes to the total number of possible outcomes, where all outcomes are equally likely (e.g., the theoretical probability of rolling an odd number on a six-sided number cube is $\frac{3}{6}$ because, of six equally likely outcomes, only three are favorable – that is, the odd numbers 1, 3, 5);
- represent the probability of an event (i.e., the likelihood that the event will occur), using a value from the range of 0 (never happens or impossible) to 1 (always happens or certain);
- predict the frequency of an outcome of a simple probability experiment or game, by calculating and using the theoretical probability of that outcome (e.g., “The theoretical probability of spinning red is $\frac{1}{4}$ since there are four different-colored areas that are equal. If I spin my spinner 100 times, I predict that red should come up about 25 times.”). (Sample problem: Create a spinner that has rotational symmetry. Predict how often the spinner will land on the same sector after 25 spins. Perform the experiment and compare the prediction to the results.)

7.2 Health and Physical Education

Introduction

The Purpose of The Ontario Curriculum, Grades 1-8: Health and Physical Education, 1998
 Healthy active living involves a combination of physical activity and appropriate lifestyle choices. Students should begin early on to acquire basic knowledge about a wide variety of health-related topics and to develop relevant skills. They need to understand how their actions and decisions affect their health, fitness, and personal well-being, and how to apply their learning to make positive, healthy decisions in all areas of life and personal development. The school environment can profoundly influence students’ attitudes, preferences, and behaviours.

Through the health and physical education curriculum, students will develop:

- an understanding of the importance of physical fitness, health, and well-being and the factors that contribute to them;
- a personal commitment to daily vigorous physical activity and positive health behaviours;

- the basic movement skills they require to participate in physical activities throughout their lives.

The achievement of the objectives of the health and physical education program will not only enhance each student's life but will also result in a healthier population. Students' knowledge of the importance of daily vigorous physical activity will also help them understand how such activity combats health risks such as obesity and heart disease.

A comprehensive approach to health and physical education emphasizes the shared responsibility of parents, peers, schools, health-care systems, government, the media, and a variety of other institutions and agencies. Meaningful health and physical education also requires safe, health-promoting environments, support services from the community, and a school curriculum that makes health a priority in the school.

This document replaces the sections of The Common Curriculum: Policies and Outcomes, Grades 1-9, 1995 that relate to health and physical education. All health and physical education programs for Grades 1 to 8 will be based on the expectations outlined in this document.

The Role of Parents

Studies show that students perform better in school if their parents are involved in their education. Parents therefore have an important role to play in supporting their children's learning. By reading the curriculum, parents can find out what their children are learning in each grade and why they are learning it. This knowledge of the curriculum will enable parents to discuss their children's work with them, to communicate with teachers, and to ask relevant questions about their children's progress. Their knowledge of the expectations in each grade will also help parents interpret their children's report cards and work with teachers to improve students' learning. For this reason, parents are urged to read the expectations for all grades rather than just the particular grades their children are in.

Parents can also participate in parent conferences, work on school councils, and become involved in physical activities with their children. They should support classroom activities, promote and participate both in special events held within the school and in interschool activities, and promote healthy active living through their own habits and practices. They should also support healthy eating and take responsibility for developing their children's self-esteem.

The Role of Teachers

Teachers and students have complementary responsibilities. Teachers are responsible for developing a variety of appropriate instructional strategies that will involve students actively in the curriculum and at the same time address different student needs. They should bring enthusiasm to the classroom and should model healthy active living in their own lives to encourage students to recognize the value and relevance of what they are learning.

The Role of Students

Students have responsibilities with regard to their own learning, which increase as they advance through elementary and secondary school. Those willing to make the effort required and able to apply themselves soon learn that there is a direct relationship between achievement and hard work. Such students become motivated, self-directed learners.

Some students, however, find it more difficult to take responsibility for their learning because of special challenges they face. For these students, the attention, patience, and encouragement of teachers can be extremely important factors for success. Regardless of their circumstances, learning to take responsibility for their own progress and learning is an important part of education for all students.

Strands in the Health and Physical Education Curriculum

The curriculum's major areas of knowledge and skills are organized around three strands:

- Healthy living includes healthy eating, growth and development, personal safety and injury prevention, and substance use and abuse.
- Fundamental movement skills include locomotion/travelling, manipulation, and stability.
- Active participation includes physical activity, physical fitness, living skills, and safety.

These strands combine the living skills (e.g., personal, interpersonal, communication, conflict resolution, goal-setting, organizational, time-management, problem-solving, and decision making skills) that all students require.

The Importance of Safety

Schools must develop procedures to ensure the highest possible level of safety, while allowing students to engage in a broad range of challenging activities. Safety guidelines should outline the practices to be followed for each activity, addressing questions related to equipment, clothing, facilities, special rules and instructions, and supervision. They should also reflect school board policies on how to conduct activities, and they should be reviewed on a regular basis. While all physical activity involves an element of risk, participants have an obligation to minimize that risk.

Concern for safety should be an integral part of curriculum planning and implementation. The primary responsibility for ensuring safe practices rests with the school district and its employees. Wherever possible, potential risks must be identified and procedures developed to prevent or minimize accidents or injuries. In a safe classroom, the teacher will be aware of up-to-date safety information, will observe students carefully, show foresight, and act quickly. By implementing safe instructional practices (e.g., logical teaching progressions and age appropriate activities), educators can reduce risks and guard against accidents.

In a safe school, students will:

- follow established routines for physical activities (e.g., set procedures for entering and leaving the gym and changing clothes, warm-up and cool-down activities);
- wear clothing appropriate to activities (e.g., a hat for outdoor activities), wear appropriate footwear and ensure that shoelaces are tied, and remove jewellery when participating in physical activities;
- follow the instructions outlined for each activity (e.g., for starting and stopping);
- take age-appropriate responsibility (e.g., for the safe use of equipment) and necessary precautions (e.g., use a safety mat);
- follow rules and expectations pertaining to the setting for the activity (e.g., ski only in designated areas, follow playground rules);
- recognize and report unsafe situations and conditions;
- always play safely.

Attitudes in Health and Physical Education

Students' attitudes towards health and physical education can have a significant effect on their achievement of the expectations. To learn effectively and develop positive attitudes towards healthy active living, students should enjoy the skill-development and physical activities. They should also come to recognize the importance of observing safety procedures, respecting others, and being punctual. (These attitudes are incorporated into the specific expectations.)

The Use of Computers in the Health and Physical Education Curriculum

This curriculum provides students with opportunities to use software programs, the Internet, e-mail, and audio and visual technology for a variety of purposes. For example, students can use technology to record food choices over a period of time, measure nutrient intake, maintain a fitness profile, evaluate an individual's physical stages, monitor physical performance, and develop personal exercise programs. They can use the World Wide Web to access and research information on various health-and-fitness topics and issues.

Planning Student Programs

Teachers must provide a balanced program with a broad selection of activities. In doing so, they can combine expectations from more than one of the three strands to help students see the connections between physical skills and health concepts (e.g., that daily physical activity improves health and physical fitness).

Teachers must also ensure that the concepts and skills taught are appropriate to students' ages and stages of development, and to their perceptions, prior knowledge, attitudes, learning styles,

and exceptionalities. They must use a variety of instructional approaches to ensure that all students are given every opportunity to learn and perform to their full potential.

This curriculum requires that students participate in sustained moderate to vigorous physical activity for a minimum of twenty minutes each day. This requirement can be met in a variety of ways, using school and community indoor and outdoor facilities.

Co-curricular programs. Where possible, the health and physical education curriculum will include both curricular and complementary co-curricular components. Intramural programs allow all students to participate in either same-sex or coeducational activities that are informal and not highly competitive. Interschool programs offer students opportunities to participate in more organized and competitive activities. Other recreational activities and clubs also provide opportunities for students with common interests and a desire to participate in physical activities in non-competitive settings. In planning and organizing the health and physical education curriculum, schools should use community organizations, facilities, and programs as resources to provide students with additional experiences and opportunities for physical activities.

Coeducational and segregated classes. Although all the curriculum expectations can be achieved in either coeducational or same-sex classes, some expectations can be addressed more effectively in same-sex settings. For example, discussions involving topics of a sensitive nature, especially those in the Healthy Living strand, can be uncomfortable for some students, but these same students might feel quite secure and comfortable discussing these topics in a same sex setting. Similarly, when expectations related to skill development (particularly team-sport skills) are addressed, same-sex classes and groupings might encourage more students to become physically active and to participate in the interschool program, as well as in community activities. Teachers should base their decisions as to whether to teach in coeducational or segregated settings on the sensitivity of topics and students' needs.

Planning for the coeducational classroom. Acknowledgement of and respect for individual differences will encourage student participation and help students learn to collaborate with and respect others. They will also enhance students' competence, self-esteem, health, and wellbeing. The health and physical education program will address students' awareness of and esteem for each other. Strategies for encouraging this awareness and mutual respect among students include:

- providing opportunities for both male and female students to assume leadership roles;
- encouraging and respecting the interests and abilities of both genders;
- ensuring that responsibilities are shared equally by male and female students;
- expecting all students to be equally active participants;

- creating a class atmosphere that helps students develop consideration for, understanding of, and respect for each other.

Cross-curricular planning. Health and physical education are essential to the entire school curriculum. Studies show that students who participate in physical activity each day exhibit improved memory, concentration, and communication, problem-solving, and leadership abilities, which improve their learning in other subject areas. Such students also display more positive attitudes towards themselves, improved interpersonal behaviour, and a willingness to meet and deal with the challenges of daily life. Because active learning is so important for all students, the provincial curriculum requires a minimum of twenty minutes of sustained moderate to vigorous physical activity each day.

The development of skills and knowledge in the areas of health and physical education is related to learning in other subjects. When planning programs, teachers should emphasize such cross-curricular relationships by coordinating the teaching of related expectations. For example, in Grade 5, students could describe the short- and long-term effects of alcohol (health and physical education), learn about its properties (science and technology), and represent in a graph the results of a survey of a select group of people with regard to its use and abuse (mathematics). At the conclusion of the unit, students could be asked to report orally or in writing (language arts) on the impact of alcohol on people's lives.

Health and Physical Education for Exceptional Students

Recognizing the needs of exceptional students and providing appropriate programs and services for them are important aspects of planning and implementing the curriculum. Specific procedures are set out in legislation for the identification and placement of exceptional students. The needs of exceptional students are identified by an Identification, Placement, and Review Committee (IPRC).

When an IPRC identifies a student as exceptional, an Individual Education Plan (IEP) must be developed and maintained for that student. (It should be noted that an IEP may also be prepared for students with special needs who are receiving special education programs and/or services but who have not been identified as exceptional by an IPRC). An IEP defines the student's educational program as one that is based on and modified by the results of continuous assessment and evaluation. It identifies the student's specific learning expectations and explains how the school will address these expectations (for example, through appropriate programs and services, modifications in the regular program, and other accommodations). It also identifies the methods by which the student's progress will be reviewed.

In developing the student's IEP, consideration must be given to any recommendations made by the IPRC concerning programs and services that may be particularly appropriate for meeting the student's needs. Also, the school must consult with the parents of the student at the

development stage. The IPRC's recommendations and the results of consultation between the parents and the school staff will form the basis of decisions concerning the ways in which the learning expectations set out in the provincial curriculum will be modified to meet the student's special needs. Once the IEP has been developed, the parents of the student must be provided with a copy.

Those involved in developing the IEP should work together on an ongoing basis to review the student's progress and make adjustments to the IEP as necessary. It is important that the school continue to keep parents informed about the program and the progress of the student, as parents can provide valuable support for their child's learning.

In health and physical education, exceptional students may need a variety of modifications both to the program itself and to the learning environment. These modifications may include:

- facilities that allow for the mobility of students with physical disabilities;
- equipment modifications that enable all students to perform to their full potential (e.g., increasing the length of a scoop handle to enable a student who uses a wheelchair to reach the floor);
- program modifications (e.g., altering the method of instruction);
- assessment and evaluation strategies that accommodate a variety of learning styles and needs;
- encouraging as much student participation as possible in planning, instruction, assessment, and evaluation;
- using support systems extensively.

The Use of Equipment and Facilities

Since equipment and facilities in individual schools will vary across the province, care has been taken in this curriculum to ensure that students can meet the expectations in a variety of settings and with a broad range of equipment. The curriculum stresses daily active participation in physical activities that do not necessarily require the use of a school gymnasium. Teachers are encouraged to use various school and community facilities for their programs – schoolyards, soccer fields, baseball diamonds, football fields, swimming pools, arenas – and to help students develop specific skills through a variety of activities. Exposure to these various settings will increase students' awareness of community facilities.

Teachers can use equipment to focus on students' specific skill development and to vary physical activities. When supplies are limited, teachers will have to be resourceful to ensure that each student has opportunities to use various types of equipment. For example, an activity that

focuses on catching objects of various sizes and shapes could include the use of bean bags, tennis balls, beach balls, and Frisbees.

Teachers must provide specific instruction to students on the appropriate handling of equipment, ensure that equipment is in good repair and suitably organized, and take into account the height, weight, and ages of the students using the equipment.

Curriculum Expectations and Achievement Levels

The chart that follows identifies four categories of skills in health and physical education:

understanding of concepts, movement skills, active participation, and communication of required knowledge. For each of these categories, there are four levels of achievement. These levels are brief descriptions of degrees of achievement that teachers will use as the basis for their assessment of each student's work.

Teachers should use the descriptions to identify the level at which a student has achieved a particular expectation, or a group of expectations, in the appropriate category of knowledge or skills. For example, if the student communicates most of the concepts taught, requires no encouragement to participate, and usually performs the skills as described, the student's achievement would be at level 3. The characteristics given for level 3 represent achievement that is considered to be the standard for the grade.

Although the main purpose of the chart is for assessing student achievement, teachers may also use it for other related purposes. For example, they could use it as a guide when observing students' performance or to explain the different levels of achievement to parents.

[Page 9 chart omitted]

Healthy Living

The healthy living strand will provide students with the knowledge and skills they need to develop, maintain, and enjoy healthy lifestyles, as well as to solve problems, make decisions, and set goals that are directly related to personal health and well-being. The four components of this strand are healthy eating, growth and development, personal safety and injury prevention, and substance use and abuse.

Healthy eating. Topics related to healthy eating include nutrition, eating disorders, body image, and dental health. Students require knowledge to make healthy eating choices. Using this knowledge, they will examine their own food choices and eating patterns, and then make wise decisions and set appropriate goals. In later grades, students will learn more about the factors that affect healthy body weight and lead to eating disorders, and will increase their understanding of a healthy body image. Throughout the healthy living strand, the importance of healthy eating and regular physical activity is emphasized.

Growth and development. Growth and development education is more than simply teaching young people about the anatomy and physiology of reproduction. For example, growth and development education focuses on an understanding of sexuality in its broadest context – sexual development, reproductive health, interpersonal relationships, affection, abstinence, body image, and gender roles. Acquiring information and skills and developing attitudes, beliefs, and values related to identity and relationships are lifelong processes.

Parents and guardians are the primary educators of their children. As children grow and develop relationships with family members and others, they learn about appropriate behaviours and values, as well as about sexuality. They are influenced by parents, friends, relatives, religious leaders, teachers, and neighbours, as well as by television, radio, videos, movies, books, advertisements, music, and newspapers. School-based programs add another important dimension to a child’s ongoing learning about sexuality.

The overall and specific expectations in this strand are age-appropriate and should be addressed with sensitivity and respect for individual differences. Because of the sensitive nature of these topics, parents or guardians must be informed about the content of the curriculum and time of delivery. Teachers and learners must develop a comfort level with these topics so that information can be discussed openly, honestly, and in an atmosphere of mutual respect. The “healthy sexuality” expectations should be addressed only after teachers have developed rapport with their students. Opportunities should be provided for segregated as well as coeducational instruction.

Personal safety and injury prevention. Personal safety and injury prevention are essential components of the healthy living strand. Education in these areas is critical for reducing children’s injuries. Personal safety topics include bullying, peer assault, child abuse, harassment, and violence in relationships. Injury prevention topics include bicycle safety, seasonal safety rules, sun protection, home safety, fire safety, seat belt use, and first aid. The expectations address the knowledge and skills needed to reduce safety risks at home, at school, and in the community.

Students will become familiar with the support available to them within the family as well as with the agencies and services that provide support and help within the community. However, knowledge alone is not enough; students require the necessary skills to respond appropriately to situations that threaten their personal safety and well-being. Living skills such as conflict resolution, assertiveness, resistance and refusal techniques, and decision making will help them respond to situations effectively.

Substance use and abuse. Education is critical to the prevention of drug abuse. Parents, guardians, educators, and society in general all have key roles to play in educating students about drug use and abuse.

Alcohol and tobacco are the drugs most readily available to Ontario students, and smoking is the primary cause of preventable illnesses, disabilities, and premature deaths in Canada. The

substance use and abuse learning expectations respond to these facts by focusing on an understanding of the effects of drugs – prescription drugs, non-prescription drugs, illicit drugs, tobacco, alcohol – and the consequences of their use. This knowledge is integrated with the development of a variety of living skills that help students make and maintain healthy choices.

By using problem-solving, decision-making, refusal, and assertiveness skills effectively, learners can select healthy, drug-free behaviours based on accurate information.

Healthy Living: Grade 6

Overall Expectations

By the end of Grade 6, students will:

- explain how body image and self-esteem influence eating practices;
- identify the major parts of the reproductive system and their functions and relate them to puberty;
- use basic prevention and treatment skills (e.g., basic first aid) to help themselves and others;
- identify the influences (e.g., the media, peers, family) affecting the use of cannabis and other drugs, as well as the effects and legalities of, as well as healthy alternatives to, cannabis and other drugs.

Specific Expectations

Students will:

Healthy Eating

- determine the influence of various factors (e.g., the media, family traditions, allergies) on personal food choices, body image, and self-esteem;
- analyse personal eating habits in a variety of situations (e.g., at home, in school, in restaurants);
- describe the benefits of healthy eating for active living;

Growth and Development

- relate the changes at puberty to the reproductive organs and their functions;
- apply a problem-solving/decision-making process to address issues related to friends, peers, and family relationships;

Personal Safety and Injury Prevention

- identify and describe appropriate methods for preventing and treating ailments (e.g., sunburn, minor cuts);
- identify the responsibilities associated with caring for themselves and others (e.g., while babysitting);
- describe and respond appropriately to potentially violent situations relevant to themselves (e.g., threats, harassment, and violence in the media);

Substance Use and Abuse

- describe the short- and long-term effects of cannabis and other illicit drugs;
- determine influences (e.g., interpersonal, personal, legal, economic) on the use and abuse of tobacco and other drugs (e.g., alcohol, cannabis, LSD) and consider them as part of a decision-making process to make healthy choices;
- identify people and community agencies that support making healthy choices regarding substance use and abuse.

Fundamental Movement Skills: Grade 6

Fundamental Movement Skills

The movement skills are organized into three categories:

- locomotion/travelling, in which the body moves from one point to another (e.g., walking, running, skipping, hopping, galloping, chasing, fleeing, dodging)
- manipulation, which involves giving force to objects or receiving force from objects (e.g., throwing, catching, collecting, kicking, punting, dribbling, volleying, striking)
- stability, in which the body remains in place but moves around its horizontal or vertical axis (e.g., bending, stretching, twisting, turning, rolling, balancing, transferring weight, curling up, landing from a jump)

These basic movement skills are the foundation of all physical activity and are essential both to an individual's development of effective motor skills and to the application of these skills in a wide variety of physical activities. Since the skills can also enhance students' interpersonal, cognitive, and emotional development, it is critical that the health and physical education program be inclusive, engaging all students irrespective of their gender, background, or ability.

When fun and enjoyment are part of skill development and physical activity, students are more likely to develop positive attitudes towards healthy active living.

Students will develop skills related to the following four principles of movement:

- body awareness (what parts the body moves)
- space awareness (where the body moves, e.g., location, direction, or level)
- effort (how the body moves, e.g., fast or slow, with strong or light force, or bound or free)
- relationship (with whom or with what the body moves, e.g., with people or with objects)

Movement principles and skills must be taught in association with other activities. They must also be taught in the proper progression and through age-appropriate activities.

Research into motor development indicates that learners acquire new fundamental movement skills (motor skills) most successfully during the preschool and elementary years as students' neurological pathways are developing rapidly during this period and are receptive to the development of fundamental movement patterns and basic skills. When young children enter

school, their movements are often awkward and lacking in fluidity. In the early school years, they gain necessary co-ordination and control over their movements. They can then refine, extend, and apply these patterns to more complex skills during later childhood, adolescence, and adulthood. For example, the basic skill of throwing an object overhead can be transferred to a tennis serve or badminton smash.

Movement skills must be taught; they are not acquired simply through activities of various sorts. As well, mature movement skills do not result from physical maturation alone; rather, they must be continually refined and combined with other movement skills in a variety of physical activities.

Safety must be an integral part of the health and physical education program. While teachers have the ultimate responsibility for matters related to supervision, equipment, facilities, and procedures, students must take some responsibility for their own safety, beginning at a very young age. Following procedures, using equipment as instructed, and wearing appropriate

attire are some ways in which students can contribute to their safe participation in physical activity. Safety is addressed in the overall expectations for each grade and is implicit in all of the specific expectations. Students must fulfil each expectation safely and responsibly without putting themselves and others at risk.

Overall Expectations

By the end of Grade 6, students will:

- perform movement skills in the kind of combinations that are required in a variety of modified games, gymnastics, dance, and outdoor pursuits: locomotion/travelling (e.g., running, jumping, and hopping in combination, as performed in basketball or in a triple jump), manipulation (e.g., stepping sideways to get in position to bump or volley a ball, as performed in volleyball), and stability (e.g., running and jumping and landing, as in long jump);

- demonstrate the principles of movement while refining movement skills (e.g., combining body shapes and movements with changes in direction as in a dance or gymnastics routine).

Specific Expectations

Students will:

Locomotion/Travelling Skills

- perform a combination of locomotion/travelling skills using equipment (e.g., navigating through obstacle courses, skiing, skating);
- demonstrate a variety of running techniques (e.g., sprints, cross-country runs);

Manipulation Skills

- kick balls of various sizes and shapes for distance and accuracy (e.g., punt a football, kick a soccer ball);
- throw an object overhand or side arm, using the dominant hand, to a target or a partner for distance and accuracy;
- demonstrate goal-tending skills (e.g., blocking, trapping, catching, clearing) with or without a piece of equipment;

Stability Skills

- jump for height (e.g., vertical wall jump);
- perform locomotion/travelling and stability skills in combination (e.g., use a sprint approach and jump for distance, as in long jump);
- perform a variety of springing actions (e.g., spring into vertical rotations such as quarter-turns on the floor or springs to mounts on equipment).

Active Participation

Daily vigorous physical activity must become part of each child's routine and way of life. The health and physical education program, which includes vigorous physical activity for all learners throughout the school year, will help children to become fit, independent learners; to develop interpersonal skills by interacting with others; and to relate fitness activities to healthy, productive lives. The four components of this strand are physical activity, physical fitness, living skills, and safety.

Students are expected to participate vigorously on a regular basis in a wide range of physical activities. Also, students are required to participate in sustained moderate to vigorous physical activity for a minimum of twenty minutes each day in order to improve or maintain their

physical fitness.*[This requirement is effective as of October 6, 2005.] This requirement is reflected in a curriculum expectation included in every grade in this strand.

Physical activity. Participation in physical activity provides students with a variety of opportunities for increasing their self-esteem and developing positive interpersonal skills and attitudes, including practices of fair play and respect for others. Students, individually and in groups, should be strongly encouraged to participate daily in a wide variety of physical activities

– dance, gymnastics, aquatics, and fitness and recreational activities (where facilities permit)

– and to become increasingly responsible for their own daily physical activity.

Especially where facilities are limited and must be shared by large numbers of students, the scheduling of regular physical education classes will require some creativity (e.g., twenty minute as opposed to thirty-minute gym periods, the use of portables) and the use of alternative venues, such as parks, fields, and nearby community facilities.

Physical fitness. Teachers must use a variety of methods to encourage students to develop such aspects of physical fitness as flexibility, agility, co-ordination, strength, balance, and, especially, cardiovascular respiratory endurance. As levels of fitness improve, the duration of vigorous activity must be regularly increased. Students will become involved in assessing their own fitness levels, setting personal goals, and developing plans to achieve them.

Living skills. The development of living skills (e.g., decision-making, goal-setting, communication, time-management, organizational, problem-solving, conflict-resolution, and interpersonal skills) is an integral part of all aspects of the physical and health education curriculum, but particularly of this strand. The program will help students to combine these living skills with physical activity and fitness skills, and to apply these skills in ways that will be useful throughout their lives.

Safety. Safety must be an integral part of the program. While teachers have responsibility for matters related to supervision, equipment, facilities, and procedures, students must take some responsibility for their own safety at a very young age. Following procedures, using equipment as instructed, and wearing appropriate attire are some ways in which students can contribute to their safe participation in physical activity. Safety is addressed in the overall expectations and is implicit in all of the specific expectations for each grade. Students must fulfil each expectation safely and responsibly without putting themselves and others at risk.

Active Participation: Grade 6

Overall Expectations

By the end of Grade 6, students will:

- participate on a regular basis in physical activities that maintain or improve physical fitness (e.g., rope skipping to music);

- apply living skills, including interpersonal skills, in physical activities (e.g., games, gymnastics, dance, outdoor pursuits) and describe the benefits of using these skills in a variety of physical activities;
- follow safety procedures related to physical activity, equipment, and facilities, and begin to take responsibility for their own safety.

Specific Expectations

Students will:

Physical Activity

- participate vigorously in all aspects of the program (e.g., cross-country running, co-operative games);
- describe the factors that motivate participation in daily physical activity (e.g., the influence of friends, enthusiasm for the outdoors) and begin to consider them when making their own choices of physical activities;

Physical Fitness

- improve their personal fitness levels by participating in sustained moderate to vigorous physical activity (e.g., Ultimate Frisbee) for a minimum of twenty minutes each day, including appropriate warm-up and cool-down procedures;
- assess their progress in fitness-enhancing activities at regular intervals (e.g., daily, weekly, or monthly monitoring of their pulses before and after active games, stretching, or push-ups);

Living Skills

- implement and revise as required plans of action to achieve personal fitness goals;
- follow the rules of fair play in games and activities, and support the efforts of peers to improve their skills.

7.3 The Arts Introduction

This document replaces The Ontario Curriculum, Grades 1–8: The Arts, 1998. Beginning in September 2009, all arts programs for Grades 1 to 8 will be based on the expectations outlined in this document.

THE IMPORTANCE OF THE ARTS IN THE CURRICULUM

Since arts experiences offer other modes and ways of experiencing and learning, children will have opportunities to think and feel as they explore, problem solve, express, interpret, and evaluate the process and the results. To watch a child completely engaged in an arts experience

is to recognize that the brain is on, driven by the aesthetic and emotional imperative to make meaning, to say something, to represent what matters.

The Arts Go to School, David Booth and Masayuki Hachiya, Eds.

(Markham, Ontario: Pembroke Publishers, 2004), p.15

Education in the arts is essential to students' intellectual, social, physical, and emotional growth and well-being. Experiences in the arts – in dance, drama, music, and visual arts – play a valuable role in helping students to achieve their potential as learners and to participate fully in their community and in society as a whole. The arts provide a natural vehicle through which students can explore and express themselves and through which they can discover and interpret the world around them. Participation in the arts contributes in important ways to students' lives and learning – it involves intense engagement, development of motivation and confidence, and the use of creative and dynamic ways of thinking and knowing. It is well documented that the intellectual and emotional development of children is enhanced through study of the arts. Through the study of dance, drama, music, and visual arts, students develop the ability to think creatively and critically. The arts nourish and stimulate the imagination, and provide students with an expanded range of tools, techniques, and skills to help them gain insights into the world around them and to represent their understandings in various ways. Study of the arts also provides opportunities for differentiation of both instruction and learning environments.

Participation in the arts and learning about the arts can also broaden students' horizons in various ways. Through study of the arts, students learn about some of the diverse artistic practices, both traditional and contemporary, of a variety of cultures. They learn that they are part of a living and changing culture. They also learn to appreciate the similarities and differences among the various forms of artistic expression of people around the world. The arts offer students unique opportunities to engage in imaginative and innovative thought and action and to develop the ability to communicate and represent their thoughts, feelings, and ideas in numerous ways.

Through interacting with various works of dance, drama, music, and visual arts, including multimedia art works, students deepen their awareness and appreciation of diverse perspectives. They can empathize with the characters in a dance work, a drama, a song, or a visual art work, and can imagine what it would be like to be in the same situation as these people. They can identify common values, both aesthetic and human, in various works of art, and in doing so, increase their understanding of others. The arts can also encourage students to be responsible and critically literate members of society and citizens of the world. Students can learn to approach issues and present ideas and points of view in new ways and to challenge perceptions, while engaging their audience. They can explore and create original "artistic texts" in kinesthetic, visual, spatial, aural, and dramatic ways with attention to both conceptual and aesthetic considerations. Use of current and emerging technologies (e.g., video, multimedia) is

integrated in the four disciplines as means of recording, enhancing, communicating, and reinterpreting ideas.

The arts are a way of knowing that provides ways of perceiving, interpreting, organizing, and questioning various aspects of our world through exploration and experimentation. Artistic expression involves clarifying and restructuring personal ideas and experiences. The arts enable individuals and groups to create ideas and images that reflect, communicate, and change their views of the world. An important part of arts literacy is the development of an understanding of the nature of the arts, which includes an understanding of what artists, musicians, actors, and dancers do as individuals and as a community, how ideas are generated in the various arts, and what benefits are associated with these activities. The arts themselves can be regarded as “texts” or commentaries that reflect, record, celebrate, and pass on to future generations the personal and collective stories, values, innovations, and traditions that make us unique. Students may contribute their vision, abilities, and creative energies to the extensive arts and culture sector of Canada, and thus help define, renew, and shape our sense of personal and national identity. The arts broaden young minds and exalt our spirits; they help us understand what it is that makes us human by validating our commonalities and celebrating our differences.

Students will learn to link the study of the arts with the study of a variety of subjects and topics such as history, geography, language, culture, and human interaction. They gain an appreciation of the great importance of the arts as sources of enjoyment and as means of communication in cultures around the world. They also learn to understand that the arts have long served as important media for recording and communicating ideas and feelings. Students will learn that all the arts not only reflect historical and cultural values, but can also be interpreted differently depending on the experiences of the viewer and the perspective presented by the art work. Artistic “texts” (e.g., modern dance, sculptures, shadow plays, songs) carry meaning and require analysis, interpretation, and understanding of their context (for example, how and why the work is created and viewed).

Learning through the arts fosters integration of a student’s sensory, cognitive, emotional, and motor capacities. For example, hands-on materials and activities can challenge students to move from the concrete to the abstract, and students can develop ideas while working through the stages of the creative process. The arts can be enjoyable and fulfilling, but they are also intellectually rigorous disciplines involving the use of complex symbols (e.g., choreography, gesture, icons, musical notation) to communicate meaning and understanding. Many of these symbols are rooted in a particular social, historical, and cultural context and therefore may have meanings that are different from what one knows from one’s own culture and time.

All of the arts disciplines are distinct, each with its own body of knowledge, and with its own concepts, forms, styles, conventions, techniques, and modes of inquiry, but these disciplines are also linked in various ways and they enrich and are enriched by each other and by other subjects. The world of communication has been affected by the arts in many significant ways, such as the use of body language, music, visuals, and voice in the media. It is important,

therefore, that students see and understand the arts in their wider context – as endeavours with important ideas for people – and that they learn to connect their knowledge of the arts to the world beyond the school. In making links between the arts and other areas of the curriculum, students will learn to see how the arts can increase understanding or can give them alternative modes of expression for their ideas. For example, students can use dance to explore feeling and movement in the study of a science topic such as the stages of a natural disaster; through drama, they can explore the point of view of characters whose voice is not heard in a story; they can use their understanding of the power of music to create mood and a sense of time and place in a historical film; or they can use the power of imagery in art work or popular media to influence the viewer.

In producing their own works, students communicate their insights while developing artistic skills and aesthetic judgement. Since artistic activities are closely connected to play and human interaction, students experience a sense of wonder and joy when engaged in the arts, which can motivate them to participate more fully in cultural life and in other educational opportunities. Participation in arts activities helps students develop their ability to listen and observe, and enables them to become more self-aware and self-confident. It encourages them to take risks, to solve problems in creative ways, and to draw on their resourcefulness to build on new ideas. It encourages them to develop a personal voice. Fostering a love of the arts in students, even if they do not intend to be professional artists, will enrich their future experience as audience members. As well, study of the arts expands the ways in which students can express their ideas, feelings, beliefs, and values, as well as their understanding of those of others. It encourages innovative thinking, spontaneity, intuition, divergent thinking, and improvisation. Such learning is vital for communication, understanding, and intellectual and emotional growth. It is also necessary for critically analyzing and selecting information in an age when a plethora of information is available instantaneously. The knowledge and skills developed in the study of the arts can therefore be applied in many other endeavours.

APPROACHES TO EDUCATION IN THE ARTS

The approaches to education in the arts that are briefly discussed below are based on the ideas underlying the arts curriculum that are outlined in the chart on page 6.

Participation in the Arts. Learning experiences in the arts include aesthetic experiences, creative engagement, and development of skills of expressive participation, as well as acquisition of knowledge and skills related to specific arts. Arts experiences are unique learning experiences since they combine sensory perception, the affective domain, and the kinesthetic domain with the cognitive domain. Learning experiences in the arts thus provide opportunities for learning that involve the whole person, and participation in the arts provides a context for making wide-ranging and personal connections. In arts education, this is often referred to as “learning in the arts”.

Analysis and Appreciation of the Arts. Analysis, criticism, and appreciation are integral aspects of an arts program that is concerned with understanding the meaning and “language” of art forms and contemporary and historical artistic products. Learning experiences in analysis and appreciation of the arts may focus on one of the arts or on more than one, or on particular art forms or several forms combined. In arts education, this is often referred to as “learning about the arts”.

Integrated Learning in the Arts. Various aspects of the arts can also be used to illuminate other aspects of the school curriculum or to help develop students’ skills in other subjects. For example, teachers may have students demonstrate their learning in other subjects by using artistic modes of expression. Through integration of the arts with other subjects, students can also develop broader abilities – for example, communication skills. In arts education, this is often referred to as “learning through the arts”.

The arts curriculum is based on four central ideas – developing creativity, communicating, understanding culture, and making connections. Major aspects of these ideas are outlined in the chart below.

Ideas Underlying the Arts Curriculum

Developing Creativity

- developing aesthetic awareness
- using the creative process
- using problem-solving skills
- taking an innovative approach to a challenge

Communicating

- manipulating elements and forms to convey or express thoughts, feelings, messages, or ideas through the arts
- using the critical analysis process
- constructing and analyzing art works, with a focus on analyzing and communicating the meaning of the work
- using new media and technology to produce art works and to convey thoughts, feelings, and ideas about art

Understanding Culture

- understanding cultural traditions and innovations

- constructing personal and cultural identity (developing a sense of self and a sense of the relationship between the self and others locally, nationally, and globally)
- making a commitment to social justice and dealing with environmental issues

Making Connections

- making connections between the cognitive and affective domains (expressing thoughts and feelings when creating and responding to art works)
- collaborating to create works with others, and performing in ensembles
- making connections between the arts and other subjects (e.g., transferring knowledge, skills, and understanding to other subject areas)

ROLES AND RESPONSIBILITIES IN ARTS EDUCATION

Students

Students' responsibilities with respect to their own learning develop gradually and increase over time, as students progress through elementary and secondary school. With appropriate instruction and with experience, students come to see how making an effort can enhance learning and improve achievement. As they mature and develop their ability to persist, to manage their own impulses, to take responsible risks, and to listen with understanding, students become better able to engage with their own learning. Learning to take responsibility for their progress and achievement is an important part of every student's education.

Mastering the concepts and skills connected with the arts curriculum requires work, practice, study, and the development of cooperative skills. It also requires hands-on exploration and a commitment to safety practices. Through ongoing practice and review and revision of their work, students deepen their appreciation and understanding of the arts. In addition, students can learn to use skills that they have developed in the arts in a variety of other contexts and subjects – for example, to help them engage with their learning in other subjects and to revise their ideas. Students can also extend their learning in the arts by participating in school and community arts activities.

Parents

Parents¹ have an important role to play in their children's learning. Studies show that students perform better in school if their parents are involved in their education. By becoming familiar with the arts curriculum, parents can better appreciate what is being taught in each grade and what their children are expected to learn. This awareness will enhance parents' ability to discuss their children's work with them, to communicate with teachers, and to ask relevant questions about their children's progress. Knowledge of the expectations will also help parents to

understand how their children are progressing in school, to interpret teachers' comments on student progress, and to work with teachers to improve their children's learning.

1 In this document, parent(s) is used to refer to parent(s) and guardian(s).

Effective ways in which parents can support their children's learning include the following: attending parent-teacher interviews, participating in parent workshops and school council activities (including becoming a school council member), and encouraging their children to complete their assignments and to practice at home. Parents can also promote and attend artistic events at their children's school. By attending concerts, exhibitions, and arts presentations, parents can demonstrate a commitment to their children's success.

Parents can also provide valuable support for their children's learning by taking an interest in their children's projects in the arts and projects in other subject areas that require the application of knowledge and skills learned in the study of the arts. Such an interest encourages students and promotes a positive attitude to the arts, and the recognition of their achievements helps children develop confidence. The involvement of parents in their children's education also gives parents an opportunity to promote safe techniques in the handling of tools and materials (e.g., musical instruments, paints), and to encourage their children to take proper care of arts materials and instruments.

In addition to supporting regular school activities, parents may wish to encourage their children to take an active interest in using the arts for meaningful purposes as a regular part of their activities outside school. Parents are encouraged to take their children to art exhibits, theatrical presentations, and musical and dance performances. These events often take place in community centres, places of worship, and public parks or schools, as well as in more formal venues, such as galleries, museums, and concert halls. Such experiences help develop children's appreciation of art works and encourage them to develop their own creativity. The arts curriculum promotes lifelong learning not only for students, but also for their parents and all those with an interest in education.

Teachers

Teaching is key to student success. Teachers are responsible for developing appropriate instructional strategies to help students achieve the arts curriculum expectations, as well as appropriate methods for assessing and evaluating student learning. Teachers bring enthusiasm and varied teaching and assessment approaches to the classroom, addressing individual students' needs and ensuring sound learning opportunities for every student.

Using a variety of instructional, assessment, and evaluation strategies, teachers provide numerous hands-on opportunities for students to develop and refine their skills and knowledge in creating, presenting, performing, reflecting, analyzing, and responding in all of the arts. Through these learning experiences, teachers will enable students to make meaningful connections between what they already know and what they need to know. Teachers are also

encouraged to use their knowledge of their students and the curriculum to guide decisions about classroom instruction and activities. Teachers should reflect on the results of the learning opportunities they provide, and make changes to the activities where necessary in order to help students achieve the curriculum expectations to the best of their ability.

Teachers can help students understand that the creative process often requires a considerable expenditure of time and energy and a good deal of perseverance. Teachers can also encourage students to explore alternative solutions and to take the risks necessary to become successful problem-solvers and creators of art work. The arts can play a key role in shaping students' views about life and learning. Since the arts exist in a broader social and historical context, teachers can show students that all of the arts are affected by the values and choices of individuals, and in turn have a significant impact on society.

Teachers provide students with frequent opportunities to practice and apply arts concepts and, through regular and varied assessment, give them the specific and descriptive feedback they need in order to further develop and refine their skills. By assigning tasks that promote the development of creative and thinking skills, teachers also enable students to become thoughtful and effective communicators. Opportunities to relate knowledge and skills in arts learning to wider contexts, both across the curriculum and in the world beyond the school, motivate students to learn and to become lifelong learners.

Principals

The principal works in partnership with teachers and parents to ensure that each student has access to the best possible educational experience. The principal is also a community builder who creates an environment that is welcoming to all, and who ensures that all members of the school community are kept well informed. To support student learning, principals ensure that the Ontario curriculum is being properly implemented in all classrooms through the use of a variety of instructional approaches, and that appropriate time, facilities, and resources are made available for teachers to allow all students to participate in all four strands of the arts program. To enhance teaching and student learning in all subjects, including the arts, principals promote learning teams and work with teachers to facilitate teacher participation in professional development activities. Principals are also responsible for ensuring that every student who has an Individual Education Plan (IEP) is receiving the modifications and/or accommodations described in his or her plan – in other words, for ensuring that the IEP is properly developed, implemented, and monitored.

Community Partners

Community partners can be an important resource for a school's arts program. They can provide models of how the arts relate to life beyond school. These models include partnerships of school boards and individual schools with arts agencies and institutions, social services, community organizations, corporations, and local businesses. Such modelling and mentoring can enrich not only the educational experience of students but also the life of the community.

Schools and school boards can play a role by coordinating efforts with community partners. They can involve community artists and volunteers in supporting arts instruction and in promoting a focus on the arts inside and outside the school. Schools should ensure that partnership initiatives are carried out within the context of strong educational objectives. It is important that schools plan the ways in which visits from artists and other members of the arts community can help students to achieve particular arts learning expectations. It is also important to decide what are the best ways of integrating artists' visits into the sequence of lessons within the unit(s) of instruction. Community partners can be included in arts events held in the school, and can help facilitate educational visits. School boards can collaborate with leaders of existing community-based arts programs for youth, including programs offered in public libraries and community centres. Art galleries, theatres, museums, and concert venues (where available) provide rich environments for field trips and for exploration of the local community and its resources.

In choosing community partners, schools should build on existing links with their local communities and create new partnerships in conjunction with ministry and school board policies. These links are especially beneficial when they have direct connections to the curriculum. Teachers may find opportunities for their students to participate in community arts projects or events. At the elementary level, participation in inclusive exhibitions, concerts, and performances is encouraged. Teachers may have their students participate in festivals that focus on the curriculum, support the units or sequence of instruction, have clear criteria, are designed for educational purposes, and provide descriptive feedback. Teachers may provide ongoing exhibitions and performance opportunities within classrooms, schools, school districts, colleges, universities, and other community venues.

ATTITUDES IN THE ARTS

The attitudes of everyone involved with students have a significant effect on how students approach the arts. Parents can demonstrate a positive attitude towards the arts at home and in the community, and teachers should ensure that they project a positive attitude towards the arts in their instruction. Teachers should encourage students to use their imagination and their problem-solving and critical-thinking skills in planning, producing, and assessing works of art. They should also help students understand that even the most accomplished artists continue to put a great deal of time and effort into their work.

Teachers can also encourage a positive attitude towards the arts by helping students learn about careers in various areas of the arts industry. By studying art in a variety of forms, learning about artists within and outside the community, and participating in a variety of artistic activities, students will become better informed about the possibilities for active participation in the arts later in life.

Students' attitudes towards the arts can have a significant effect on their achievement of the curriculum expectations. Teaching methods and learning activities that encourage students to recognize the value and relevance of what they are learning will go a long way towards motivating students to work and to learn effectively.

THE PROGRAM IN THE ARTS

CURRICULUM EXPECTATIONS

The Ontario Curriculum, Grades 1–8: The Arts, 2009 identifies the expectations for each grade and describes the knowledge and skills that students are expected to acquire, demonstrate, and apply in their class work and investigations, on tests, and in various other activities on which their achievement is assessed and evaluated.

Two sets of expectations are listed for each grade in each strand, or broad area of the curriculum, in the arts for Grades 1 to 8 – overall expectations and specific expectations.

The overall expectations describe in general terms the knowledge and skills that students are expected to demonstrate by the end of each grade. There are three overall expectations for each strand in each grade in the arts.

The specific expectations describe the expected knowledge and skills in greater detail.

The specific expectations are organized under numbered headings, each of which indicates the overall expectation to which the group of specific expectations corresponds. The organization of expectations into groups is not meant to imply that the expectations in any one group are achieved independently of the expectations in the other groups. The numbered headings are used merely to help teachers focus on particular aspects of knowledge and skills as they develop various lessons and learning activities for their students (see the illustration on page 12).

Taken together, the overall and specific expectations represent the mandated curriculum.

Most of the specific expectations are accompanied by examples, given in parentheses, as well as “teacher prompts”. The examples and teacher prompts help to clarify the requirements specified in the expectations, and suggest the intended depth and level of complexity of the expectations. They have been developed to model appropriate practice for the grade and are meant to serve as illustrations for teachers. Teachers can choose to use the examples and teacher prompts that are appropriate for their classrooms, or they may develop their own approaches that reflect a similar level of complexity. Whatever the specific ways in which the requirements outlined in the expectations are implemented in the classroom, they must, wherever possible, be inclusive and reflect the diversity of the student population and the population of the province.

[Text only provided for illustration page 12]

Each grade is organized into four strands, numbered A, B, C, and D.

A numbered subheading introduces each overall expectation. The same heading is used to identify the group of specific expectations that relates to the particular overall expectation (e.g., within the specific expectations, “A1. Creating and Presenting” relates to overall expectation A1 for the Dance strand).

The overall expectations describe in general terms the knowledge and skills students are expected to demonstrate by the end of each grade. Three overall expectations are provided for each strand in every grade. The numbering of overall expectations indicates the strand to which they belong (e.g., A1 through A3 are the overall expectations for strand A).

Teacher prompts illustrate the kinds of questions teachers might pose in relation to the requirement specified in the expectation. They are illustrations only, not requirements. Teacher prompts always follow the expectation and examples.

The examples help to clarify the requirement specified in the expectation and to suggest its intended depth and level of complexity. The examples are illustrations only, not requirements. They appear within parentheses and are set in italics.

The specific expectations describe the expected knowledge and skills in greater detail. The expectation number identifies the strand to which the expectation belongs and the overall expectation to which it relates (e.g., A1.1 and A1.2 relate to the first overall expectation in strand A).

The fundamental concepts embedded in the expectations for each strand are outlined in this box for each grade.

[Illustration omitted page 12]

In the expectations for each of the strands, some repetition has been necessary to reflect the progressive nature of skill development in the arts. Expectations dealing with skills that continue to be of major importance as students progress from grade to grade are repeated for all relevant grades. Progression is indicated either by means of increasingly complex examples or by changes to the expectations.

It should also be noted that all the skills specified in the early grades continue to be developed and refined as students move on through the grades, whether or not the skills continue to be explicitly mentioned.

STRANDS IN THE ARTS CURRICULUM

The expectations in the arts curriculum are organized into four strands – Dance, Drama, Music, and Visual Arts. The knowledge and skills described in the expectations in these four strands will enable students to create, understand, respond to, and appreciate a range of works in the arts.

The program in all grades is designed to develop a range of essential skills in each of the arts – dance, drama, music, and the visual arts. These skills will be built on a solid foundation of knowledge of arts concepts and will include creative, analytical, critical thinking, and communication skills. Students learn best when they are encouraged to consciously monitor their thinking as they learn (metacognition), and each strand includes expectations that call for such reflection.

The emphasis in each strand is on developing students' ability to communicate through creating and presenting/performing works in the arts and to communicate their thoughts and feelings about works in the arts. Students' demonstration of understanding of the knowledge and skills specified in each strand must occur through active participation in the various arts. Learning in the arts cannot be viewed as merely the learning of facts, but must focus on developing students' knowledge and skills in hands-on, age-appropriate ways.

The expectations for each strand are grouped under three subheadings, as follows:

Creating and Presenting/Performing focuses on the students' creative use of the various art forms to express and communicate feelings and ideas in those forms. Students are required to be actively engaged in the stages of the creative process (described on pages 19–22). When engaged in the creative process, students should be given opportunities to be inventive and imaginative in their thinking, rather than merely to find a prescribed answer. Reflection and feedback, both ongoing and summative, are essential parts of the creative process, allowing students to evaluate their own achievement and to grow in their creative endeavours.

Reflecting, Responding, and Analyzing focuses on the students' awareness and communication of emotional and intellectual responses to works in the various art forms. Students are required to use the critical analysis process (described on pages 23–28) to analyse, discuss, and interpret their own works and those of others, and to assess their strengths and areas for growth as both creators and audience members. Students learn that all ideas can be expanded upon and revised and can be considered from a variety of perspectives. Practice in using the critical analysis process is intended to help students move beyond quick judgements to develop informed personal points of view and to learn how to articulate their creative and artistic choices.

Exploring Forms and Cultural Contexts focuses on the students' awareness and understanding of how the various arts and art forms have developed in various times and places; of the role of the different arts in students' own lives and in the local, national, and global communities; and of the social and economic factors that influence how the arts are perceived and valued. This component also encompasses the study of contemporary media and art forms. It is intended to help students understand that the arts are an important means of recording and expressing cultural history and identity and are also an essential aspect of living for all people. The focus should not be on the learning of facts, but rather on a meaningful extension of creating and learning in the arts.

The three groups of expectations are closely interrelated, and the knowledge and skills described in the expectations in each group are interdependent and complementary. Teachers should plan activities that blend expectations from these three groups in order to provide students with the kinds of experiences that promote meaningful learning and that help them understand the interrelationships between creative and practical work, critical analysis, and learning about the sociocultural and historical context of the arts.

Teachers should be aware that dance, drama, music, and the visual arts are separate disciplines, each with its own body of knowledge, artistic “language” or symbols, and modes of investigation. They each have a history and heritage, and they have structures in which ideas and experiences may be developed. Each discipline therefore provides unique opportunities through which students can develop their ability to communicate and to interpret meaning – for example, through visual, auditory, or kinesthetic forms or symbols. The arts can have a powerful influence on the way we think and communicate, and students can benefit from opportunities to interpret meaning and develop their communication skills in a variety of expressive forms in the arts.

Dance

The dance curriculum is intended to help students to develop an understanding and appreciation of dance, as well as the ability to create works using the elements and the choreographic forms of the discipline. Through exploring dance and movement, students will develop an understanding of the art form, themselves, and others, and will learn about the lives of people in different times, places, and cultures. They will develop practical artistic skills, critical analysis skills, and a variety of communication skills.

Dance is expressive movement with purpose and form. All dance communication is transmitted through movement – that is, through the body movements and gestures of the dancer. A dancer is, therefore, both the performer and the instrument through which dance is expressed. It is not recommended that students at the elementary level be given instruction in formal dance techniques (e.g., ballet, Graham, Limon techniques). Instead, students will develop their own movement vocabularies that they will use to create dance pieces that communicate their feelings, ideas, and understandings. This approach to dance, as outlined in this curriculum, is based on dance pedagogies (e.g., Laban), and focuses on the use of movement and the elements of dance instead of rote repetition of dance steps.

In all grades, students will draw upon a variety of sources – such as literature, media texts, images, historical and current events, and topics and themes from across the curriculum, particularly the other arts – in order to create dance pieces in which they communicate their interpretation of personal ideas and feelings, social justice issues, themes, situations, and the motives of various characters. Dance is a physical and non-verbal medium for learning about the self and the world; it offers the opportunity to participate in learning in kinesthetic, cognitive, and imaginative ways. It is important that movement skills be developed within students’

ongoing dance explorations and creations, rather than be focused on isolated, repetitive exercises.

As students engage in creating and responding to dance works, they will develop their awareness of aesthetic issues and explore various ways a dance piece can be interpreted. The meaning each person derives from a work of art is different and is based on the connections the observer makes between the dance and personal experience, the dance and other works of art, or the dance and the world. Students should also reflect on the meaning they communicate through their own dance. They will also learn to use technology both for observing performances by accomplished artists (e.g., DVDs, videos) and in creating their own presentations (e.g., lighting, musical recordings, projected images). The dance program should provide opportunities for students to view and be exposed to a variety of dance performances and works by local, multicultural, and professional Canadian artists both within and outside the school. Emphasis should be placed on understanding that dance is continually evolving and that innovations develop alongside or out of traditional forms or practices.

The Dance strand has three overall expectations, one for each of Creating and Presenting; Reflecting, Responding, and Analyzing; and Exploring Forms and Cultural Contexts.

Drama

The drama curriculum is intended to help students to develop an understanding and appreciation of drama, as well as the ability to create works using the forms, concepts, elements, and conventions of the discipline. Through exploring drama, students will develop an understanding of the art form, themselves, and others, and will learn about the lives of people in different times, places, and cultures. As they work in role in a context, they will come to understand particular situations, texts, ideas, and stories. In addition to role playing, students will use their growing understanding of drama forms, conventions, and elements to develop process drama with others, explore issues through improvisation, or develop or interpret scenes. It is not recommended that students at the elementary level be given instruction in formal drama or theatre techniques (e.g., memorizing scripts or interpreting mannerisms of a specific character using the Stanislavski method). Instead, students will expand their thinking, solve problems, and develop their ability to express ideas and feelings through aspects of the art form such as contextual or process drama and role play. Students should explore dramatic situations episodically and should assume different roles using various drama conventions. They will also develop practical artistic skills, critical analysis skills, and a variety of communication skills that will enable them to clarify and articulate their own point of view.

Drama provides many opportunities for students to practice communicating with different audiences for a variety of purposes, through moving, speaking and writing in role. Role playing is a key component of the drama curriculum. Pretending to be someone else involves an act of the imagination that is of central importance in the development of the ability to understand others. As students “live through” experiences of others in imagined situations, they learn to

understand a variety of points of view and motives and to empathize with others. This exploration of the “as if” in roles and worlds will help students deepen their understanding of humanity and issues of equity and social justice. Students will also learn to use language effectively to communicate a character’s emotional state and point of view.

In all grades, students will draw upon a variety of sources – such as literature, personal stories and experiences, historical and current events, and topics and themes from across the curriculum – to create a meaningful context for their drama explorations. Students can also draw on previous instruction and prior experience with other art forms – including visual arts, writing, dance, and music – to enhance and extend their drama work. As students engage in creating and critiquing works of drama, they will develop their awareness of aesthetic issues, not only in drama but in the arts generally, and will learn about ways in which the arts are interconnected. They will also learn to use a variety of existing and emerging technologies both for observing performances by accomplished artists (e.g., DVDs, videos) and in creating their own presentations (e.g., lighting, projections, musical recordings). In the higher grades, students will also use various technologies for research. The drama program should provide opportunities for students to view and be exposed to a variety of drama performances/media and works by local, multicultural, and professional Canadian artists both within and outside the school.

The Drama strand has three overall expectations, one for each of Creating and Presenting; Reflecting, Responding, and Analyzing; and Exploring Forms and Cultural Contexts.

Music

The music curriculum is intended to help students develop an understanding and appreciation of music, as well as the ability to create and perform it, so that they will be able to find in music a lifelong source of enjoyment and personal satisfaction. Emphasis should be placed on encouraging students to become active participants in composing music, exploring ideas through music, responding to music, and performing.

An interesting and challenging program in music not only develops practical artistic skills but also enables students to sharpen their ability to reason, to think critically, and to explore their emotional responses to the music. Students develop musical literacy through singing, playing, moving, performing, creating, and listening actively. It is therefore essential that a balanced music program be offered – one that includes listening and responding, performing, interpreting, and creating and that may appeal to a wide variety of students. Children learn to love music when they have opportunities to experience it in the context of a rich and varied curriculum.

As students engage in creating and performing music, they will learn to generate and focus their thoughts in a musical form; explore and experiment with instruments, found or environmental sounds, and compositional forms and techniques that are appropriate for their developmental stage; revise and refine their work; and present and share their composition or performance with others. Through creating and performing, students will experience the joy of making music,

create compositions that express and communicate their ideas and feelings, learn to identify and solve problems, and apply their knowledge of the elements of music both independently and in cooperation with others.

Students will learn to use the critical analysis process to respond to, analyse, and interpret music they experience or hear. As they express their initial thoughts, feelings, and ideas about music, analyse the musical choices that are made, and explore the context in which music was created, they will build the knowledge and language they need to communicate about music as well as through music. Students will further their understanding of the music of various cultures by studying a wide range of music and musicians from different time periods and cultures, including Aboriginal, local, national, and global societies.

The Music strand has three overall expectations, one for each of Creating and Performing; Reflecting, Responding, and Analyzing; and Exploring Forms and Cultural Contexts.

Visual Arts

The visual arts include a broad range of forms, genres, and styles that include the traditional arts of drawing, painting, sculpting, printmaking, architecture, and photography, as well as commercial art, traditional and fine crafts, industrial design, performance art, and electronic and media arts. The visual arts curriculum is intended to help students develop their creativity, as well as the ability to communicate their understanding of the world around them through visual arts. In learning to express themselves in visual ways, students will sharpen their powers of observation, imagination, and invention. In developing the ability to respond to, analyse, and describe works of art, they will learn to interpret art works and to communicate their understanding of the meaning and intentions they see in the works. The development of visual literacy skills and knowledge will therefore prepare students to investigate and understand images, media, and art works, and will equip them to interpret the complex contemporary visual world.

The visual arts curriculum is rooted in the experience of art making. Visual arts provide ways of describing, exploring, and responding, and can be used to express ideas, experiences, and feelings. In order to make visual art works, students need to acquire a range of skills and some specific knowledge. It is essential for students to be engaged in meaningful, open-ended art-making activities that enable them to express personal feelings, experiences, and ideas and develop the skills to use art tools, materials, and techniques that are appropriate for the grade. When students become familiar with the possibilities and limitations of a variety of tools, materials, and techniques and can demonstrate control of these resources, they will be expected to apply their knowledge and skills in making artistic choices in their own work.

The works of art to which students are exposed should represent various topics, themes, and styles (e.g., representational or realistic, stylized, Impressionist, abstract works) and different historical periods, including contemporary art by living artists, and should also include conceptual and fine art, traditional art, and artefacts. Teachers are expected to use a range of

high-quality art reproductions so that students have high-quality materials to observe and learn from. It should be noted that the art works cited in the curriculum are only examples and are not meant to limit teachers' choices. The works selected for study should include the works of both men and women and should reflect the cultural diversity of Canada and the world, including the contributions of First Nation, Métis, and Inuit artists. Through experiencing a wide variety of art works, students will also learn to understand and appreciate the range and significance of artistic expression. Wherever appropriate, the study of the visual arts should be linked to the other arts disciplines and other subject areas.

The Visual Arts strand has three overall expectations, one for each of Creating and Presenting; Reflecting, Responding, and Analyzing; and Exploring Forms and Cultural Contexts.

Media Arts and Multimedia Technology

Although media arts does not represent a separate strand, the arts curriculum must take it into account. There has been a global transformation of culture, as new and emerging media forms have blurred the boundaries between the arts, leading to the creation of new art forms and new ways of looking at the arts.

A new aesthetic sensibility has arisen from the technological revolution, allowing young people to view the world through multiple modalities. Multisensory and cross-disciplinary approaches are challenging fixed forms and categories as means for interpreting human experience. Traditional definitions of the arts do not sufficiently take these forces into account.

New technologies are increasingly being used in teaching, learning, and creating in the arts. These technologies are contributing to the emergence of new art forms. Moreover, the use of multimedia technology also gives students opportunities to develop collaborative skills, since creating a multimedia project in the arts often involves a number of learners. Such collaborative and interactive activities foster holistic learning, the integration of skills and knowledge, and the development of transferable skills. Students also need to develop the ability to think critically when creating and viewing print and electronic media so that they are aware of the effect of media on their perceptions and experience of the world.

FUNDAMENTAL CONCEPTS IN THE ARTS

In this document, fundamental concepts are listed separately for each of the arts – dance, drama, music, and visual arts. These concepts represent essential aspects of each of the arts. They consist of elements in the Dance, Drama, and Music strands and elements and principles in the Visual Arts strand. The elements and principles used in this document are listed in the table below.

Fundamental Concepts

Dance

Elements: body, space, time, energy, and relationship

Drama

Elements: role/character, relationship, time and place, tension, and focus and emphasis

Music

Elements: duration, pitch, dynamics and other expressive controls, timbre, texture/harmony, and form

Visual Arts

Elements: line, shape and form, space, colour, texture, and value

Principles: contrast, repetition and rhythm, variety, emphasis, proportion, balance, unity and harmony, and movement

In the Fundamental Concepts tables for each grade and strand, the requirements emphasized in the expectations for that grade and strand are listed under the appropriate element or principle. As students progress through the curriculum from grade to grade, they extend and deepen their understanding of these fundamental concepts and learn to apply their understanding with increasing sophistication. They also continue to build on the skills related to these concepts that they have learned in earlier grades.

It should be noted that students should not learn about the concepts of the various arts in isolation but through meaningful, creative activities. Teachers must also determine the extent to which the students have prior knowledge of the concepts in each strand and grade; they may need to provide differentiated instruction to ensure that students are given support, for example, in reviewing and applying the concepts and skills introduced in previous grades. For this reason, teachers should be familiar with the curriculum expectations for at least the grades that immediately precede and follow the grade that they are teaching.

THE CREATIVE PROCESS

Students are expected to learn and use the creative process to help them acquire and apply knowledge and skills in the arts. Use of the creative process is to be integrated with use of the critical analysis process (described on pages 23–28) in all facets of the arts curriculum as students work to achieve the expectations in the four strands.

All children have the ability to be creative. Education in the arts builds upon this ability and deepens children’s capacity for artistic expression and representation. Awareness of one’s inner feelings and thoughts is a prerequisite to making art. Inspiration and innovative thinking spring from this awareness and provide us with new answers and solutions, and new questions to pursue. Through the creation and presentation of art works, students express and communicate

their creative insights in a range of forms and with varying degrees of concreteness and abstraction.

Creativity involves the invention and the assimilation of new thinking and its integration with existing knowledge. Sometimes the creative process is more about asking the right questions than it is about finding the right answer. It is paradoxical in that it involves both spontaneity and deliberate, focused effort. Creativity does not occur in a vacuum. Art making is a process requiring both creativity and skill, and it can be cultivated by establishing conditions that encourage and promote its development. Teachers need to be aware that the atmosphere they create for learning affects the nature of the learning itself. A setting that is conducive to creativity is one in which students are not afraid to suggest alternative ideas and take risks.

The creative process comprises several stages:

- challenging and inspiring
- imagining and generating
- planning and focusing
- exploring and experimenting
- producing preliminary work
- revising and refining
- presenting, performing, and sharing
- reflecting and evaluating

The creative process is intended to be followed in a flexible, fluid, and cyclical manner. As students and teachers become increasingly familiar with the creative process, they are able to move deliberately and consciously between the stages and to vary their order as appropriate. For example, students may benefit from exploring and experimenting before planning and focusing; or in some instances, the process may begin with reflecting. Feedback and reflection can happen throughout the process.

The Creative Process

Graphic omitted (page 20)

The creative process will sometimes take students through the complete cycle, beginning with a contextualized challenge or inspiration and resulting in a final product to be evaluated and/or reflected upon. At other times, the process may only be followed through to the exploration and experimentation phase. Research clearly shows that the exploration and experimentation phase is a critical phase in the creative process. Students should be encouraged to experiment with a

wide range of materials, tools, techniques, and conventions and should be given numerous opportunities to explore and manipulate the elements within each art form.

Ongoing feedback and structured opportunities for students to engage in reflection and metacognition – for example, reflecting on strengths, areas for improvement, and alternative possibilities, and setting goals and identifying strategies for achieving their goals – are woven into each stage of the creative process. In this way, assessment by both teacher and student is used to inspire students' creativity and support their development and achievement in the arts. The communication and reflection that occur during and after the process of problem solving help students not only to articulate and refine their thinking but also to see the problem they are solving from different perspectives. Descriptive feedback to the students on their work can occur throughout the stages of the creative process. Drafts and other first attempts at creation or production may be works in progress assessed by the student, his or her peers, or the teacher. These sketches and drafts or preliminary recordings and videos may be housed in each student's working portfolio. Students might periodically select items or exhibits from their working or process portfolios to place in a presentation portfolio. Both types of portfolios are to be included in the assessment process.

The stages of the creative process are outlined in the chart that follows. Various activities that are characteristic of each stage are listed, and the role of the teacher at each stage is described.

THE CREATIVE PROCESS

Stage of the Process

The Student

The Teacher

Challenging/Inspiring

- uses creative ideas inspired by the stimulus for creation
- uses research, takes inventory, makes choices
- participates in the development of a plan or description of criteria for evaluating success
- introduces the initial idea, challenge, stimulus, inspiration, experience
- provides models, examples, and/or learning goals
- establishes expectations, defines parameters, and helps develop criteria for evaluating success

Imagining/Generating

- uses ideas inspired by the stimulus: brainstorm, "bodystorms", lists, sketches, discusses, poses questions, draws on prior knowledge and experience

- defines the problem in a unique way
- observes, listens, prompts with questions, and provides choices

Planning/Focusing

- gathers information, storyboards ideas, discusses, determines a focus for exploration, uses a variety of tools for recording plans (e.g., inquiry, research)
- states what he or she is trying to do, or articulates the idea to be developed
- makes choices about the art forms, tools, strategies, and formal concepts (e.g., elements)
- provides a rich variety of materials and resources
- strategically asks questions and/or models planning strategies
- shares a variety of samples of plans
- structures planning and provides choices (e.g., assigns group management roles to students)

Exploring/Experimenting

- uses a range of arts elements, techniques, conventions, and/or principles (as appropriate for each strand) in response to the challenge, stimulus, or inspiration introduced by the teacher or teaching artist or set by the student
- continues to provide a rich variety of materials and resources for open-ended activities
- continues to ask questions and provide direct instruction strategically
- provides reference charts of the elements, techniques, conventions, and/or principles (as appropriate for each strand)
- provides positive reinforcement for risk taking; expects focus; encourages incubation
- provides time to practice

Producing Preliminary Work

- commits to artistic choices and works to make his or her meaning clear for an intended audience
- creates the work (i.e., the embodiment of the idea)
- asks questions about meaning and intended audience
- observes aspects of the work and provides descriptive feedback (e.g., verbal, written)

- encourages students to reason, communicate ideas, make connections, and apply knowledge and skills

Revising/Refining

- shares preliminary work with peers; invites outside opinions; develops and refines the formal concepts (elements, techniques, conventions, principles, as appropriate for each strand)
- reworks the piece, building on strengths and incorporating feedback
- develops and modifies initial idea; makes choices, adapts, and shapes
- continues to ask questions about meaning and intended audience
- continues to provide numerous learning opportunities that are varied, and supports the learning needs and experiences of the students
- observes and provides descriptive feedback; encourages students to look for alternatives and give reasons for decisions
- provides time and opportunities for reflection and revision

Presenting/Performing/Sharing

- identifies an audience (e.g., teacher, parents, peers, community) and prepares a space for sharing the work; finalizes his or her production
- promotes student talk about the arts
- makes necessary arrangements to ensure that performers/exhibitors are sharing with an appropriate audience
- promotes the collaborative sharing of ideas and strategies; helps structure the sharing for students
- is supportive

Reflecting/Evaluating

- reflects on the process and the degree of success, and identifies further learning goals and opportunities and next steps
- encourages reflection
- links evaluation to criteria and the lessons taught
- provides a variety of methods of evaluation to accommodate the learning styles of a variety of students

- provides descriptive feedback
- evaluates on the basis of a body of evidence collected over time

THE CRITICAL ANALYSIS PROCESS

The critical analysis process is a central part of the arts curriculum. Students need to be guided through the stages of this process. As they learn the steps of the process they will become increasingly independent in their ability to develop and express an informed response to a work of dance, drama, music, visual art, or media/multimedia art. They will also become more sophisticated in their ability to critically analyse the works they are studying or responding to. Students learn to approach works in the arts thoughtfully by withholding judgement until they have enough information to respond in an informed manner.

It should be emphasized that the critical analysis process is not used in isolation, since aspects of the critical analysis process are often also used during the creative process (e.g., during the revising/refining and reflecting/evaluating stages). The critical analysis process and the creative process are therefore inextricably linked. Although students need to continually develop their critical abilities, creative work is at the heart of the arts program, and most of the students' time will be spent in creating and presenting/performing.

Using the critical analysis process will enable students to:

- respond knowledgeably and sensitively to their own and others' dance, drama, music, and visual art works;
- make connections between their own experiences and works in the arts, between different art forms, and between art works and the lives of people and communities around the world
- perceive and interpret how the elements of each art form contribute to meaning in dance, drama, music, and visual art works;
- develop, share, and justify an informed personal point of view about works in the arts;
- demonstrate awareness of and appreciation for the importance of dance, drama, music, and visual arts in society;
- demonstrate appreciation appropriately as audience members in formal and informal settings (e.g., peer performances in the classroom; excursions to arts institutions, galleries, concert halls, theatres).

Teachers can set the stage for critical response and analysis by creating a reassuring learning environment in which students feel free to experiment with new or alternative approaches and ideas. This is a good opportunity to remind students that different people may respond to the same work in different ways. Each person brings a particular cultural perspective and a unique

personal history to experiences in the arts. Responding to the arts is, in part, a discovery process. While students may lack specific background information about the artists, the history of the arts, or contemporary artistic practices, their own life experience, intuition, ideas, and critical and creative thinking abilities are important and relevant aspects of their interaction with works of all types in the arts.

The critical analysis process includes the following aspects:

- initial reaction
- description
- analysis and interpretation
- expression of an informed point of view
- consideration of cultural context

The process is intended to be used in a flexible manner, taking into account students' prior experiences and the context in which the various art forms and works are experienced. The cultural context of the work should be taken into consideration throughout the critical analysis process.

The Critical Analysis Process

Initial Reaction

Students are encouraged to express their first reaction to a work. This first impression is the starting point for further investigation and discovery. First impressions may provide a useful benchmark for later evaluations of how students have grown through the process of critiquing a work. This initial reaction may be expressed through a variety of approaches, including active approaches (e.g., a drama response to visual art works). Teachers can elicit students' first impressions by asking questions such as those listed below. If students cannot easily explain why they are making a judgement, these questions can help them move beyond overly simple value judgements such as "good" or "bad". Students should be reminded that there are no wrong answers if their responses are sincere.

Sample guiding questions might include:

- What is your first impression?
- What does this work bring to mind?
- What does this work remind you of?
- What do you feel? What emotions does this work evoke?

- What puzzles you? What are your questions?
- What connections can you make between this work and your own experience or other art forms?

Description

Students are asked to brainstorm and list everything they see or hear in the work. They can describe the ideas, images, elements, or effects they observe in the work (e.g., blue; organic shape; a low, outstretched starting position; high, fast notes or high voice). Students should keep the list of descriptions simple at this stage.

It is not necessary in this stage for students to try to figure out how the dancer, musician, dramatist, or visual artist organized the elements or achieved the effects they observe. Students are simply describing their observations. It is premature at this stage to assign meaning to what is seen or heard. If a student seems to be focusing on one idea, image, or element, he or she should be encouraged to make a note of it for later.

The description stage should not be lengthy. Its purpose is limited; it is simply a way to get students to note as much as they can before moving on to analysis and interpretation.

Sample guiding questions might include:

- What do you see when you examine the work closely?
- What grabs your attention in the work?
- What do you sense (e.g., see, hear, smell, feel, taste) when you examine the work?
- What stands out for you? What do you notice (e.g., elements)?
- What “qualities” do you hear or see in this work (e.g., strong, repeated rhythm; rapid and slow movements of the upper body; vibrant paint colours; bold brushstrokes or lines; a performer speaking in role with clarity and conviction)?
- What do you think the artist worked particularly hard at while he or she created this work?

Analysis and Interpretation

Students try to figure out what the artist has done to achieve certain effects. Students can discuss the artist’s use of the elements, materials, and concepts specific to the art form. Students might want to refer back to their first impressions (e.g., analyse how the various elements in the work contributed to a first impression of liveliness). Initially, students should be encouraged to identify how the individual elements have been used and how they relate to each other. They can also analyse the overall characteristics and compositional features of the work

(e.g., how the artist uses and manipulates various elements, sounds, movements, words, images, or ideas).

As students move towards personal interpretation (e.g., “This dance is about feeling lonely”), they connect their own perspectives, associations, and experiences with the characteristics found in the work. As in the “initial reaction” stage of the formal criticism approach, there are no wrong answers. However, students should be able to provide evidence for their interpretations. This stage requires some use of higher-order thinking skills; students should begin to go beyond free association to combine associations based on evidence found in the work.

Students may also address cultural studies information in this stage. Culturally specific information about the designs, the dances, the people, the music, the themes, and the symbolism enhances students’ understanding of the work and of its cultural context. Students can discuss and share their understanding of cultural perspectives.

Activities such as discussing interpretations in a small group, writing an artist’s statement, reflective journal writing, working independently on a written analysis, or preparing notes for an oral presentation may all be part of this stage.

Sample guiding questions might include:

- What elements and conventions of the art form are used in this work?
- How are the elements organized, combined, or arranged?
- How does the work evoke ideas, feelings, and images?
- What do you think is the theme or subject of the work? (i.e., What is the artist trying to communicate, and why? or, in reflecting on their own work: What did you intend to communicate, and why?)
- Why do you think the choreographer, composer, playwright, or visual artist created this work?
- What message or meaning do you think the work conveys?
- In your opinion, what is the artist’s view of the world?
- How does this view match or contrast with your own view of the world?

The types of questions asked will vary with the type of art works being discussed.

Expression of an Informed Point of View

Students compare their point of view after reflection and analysis to their initial reaction and make connections to other works of art they have seen or heard. They also reflect on whether they have learned anything that they can apply to their own work.

Sample guiding questions might include:

- How effectively does the artist select and combine elements to achieve an intended effect in this work? (i.e., What works?)
- What doesn't work and why?
- Has your point of view shifted from your initial reaction? If so, how has it changed?
- Have your thoughts or feelings about the work changed since your first impressions? If so, how have they changed?
- What made you change your mind?
- If you have not changed your mind, can you now explain your first reaction more fully or precisely?
- Is this an important work? Why?

Sample guiding questions to help students in reflecting on their own work might include:

- In what ways do you feel the work is successful?
- How did it affect the audience? Was it the way you intended?
- How would you alter this work for a different audience, or to send a different message?

Consideration of Cultural Context

Everyone views the world through various lenses, and our views of the world and our life experiences inform our understanding of works in the arts. Students need to be taught that the arts are not created in a vacuum; they reflect the personal, social, and historical context of the artists. This is true for works created by professional artists and by the students in the classroom.

Teachers may find that while formal critical analysis and interpretation are highly effective and appropriate for some works, other works are best approached through examination of their social, cultural, historical, or contemporary context. In the latter case, the critical analysis process can help students understand how personal, sociocultural, historical, and political frames of reference have a bearing on the creation and interpretation of particular works in the arts. Knowing something about the context in which a work was created can shed valuable light

on the meaning of signs and symbols used in the work. The arts not only reflect social reality but contribute to its creation; people shape and are shaped by cultural interactions and works.

There are many ways to build contextual understanding with students. Teachers can discuss with students the importance of understanding cultural and historical context when viewing or listening to a work of art. They can ask students to consider why artists in different historical periods and in different cultural environments created the works they did. For example, does the work have a specific purpose, convey a message, represent a school of thought, or evoke particular feelings?

The contextual approach can provide opportunities for teachers to incorporate authentic cultural information and inquiry-based research that can add depth and meaning to students' creating and learning. Students might begin by finding out about a work's historical, social, or artistic environment, or by examining how an artist's background or personal history influenced his or her work, or by creating a web or concept map listing multiple connections suggested by the work. This type of investigation can help students understand an artist's intentions and may also lead them to engage in further exploration and discovery. In such investigations, it is also important to avoid stereotypical expressions or judgements. Teachers are reminded that learning to analyse works in the arts is not intended to be a substitute for making works in the arts; it is a complementary component to hands-on work.

Students may conduct their own inquiry-based research, or teachers can support them in discussions of and investigations into:

- events in the artist's life;
- the social, political, and cultural climate at the time in which a work was created;
- the similarities and differences between specific works in the past and present;
- the way in which a work in the arts represents the perspective of individuals within a specific group (e.g., social, cultural);
 - examples of other works created in the same period or a comparison of works on a similar topic or theme created by a variety of artists in different times and places;
 - the expectations and artistic preferences of audiences at the time the work was created;
 - the initial critical reception of the work;
 - the responsibilities of an audience, including basic points of audience etiquette and the individual's responsibility to acknowledge any personal biases that may influence his or her response to a work (e.g., cultural biases or past experiences with the arts).

In order to guide students, teachers might ask questions such as:

- What interesting things did you learn about the artist's life and work? Is there something important that we need to know in order to understand the meaning of his or her work?
- Were working conditions for people in the arts more or less favourable at the time this artist lived than they are today? Why, and in what way? Are there viewpoints or voices that are left out or never heard in the works?
- In what ways do you agree or disagree with what the artist or critics said about the work? Also, were there competing beliefs and practices at the time?
- Why might different audiences view a work in a way that is different from the artist's intention (e.g., parents and a teenage audience might understand something different from seeing or hearing the same work)?
- How might the work be understood differently by different people in the same time period or by people in the past and in the present?
- Were you surprised by anything you discovered? If so, what?

Teachers and students need to be aware that the context of a work is constantly shifting, and that the nature of the audience and the time period in which a work is seen or heard have a significant impact on the way in which a work is perceived and understood. Because of these factors, there is no single meaning or truth in a work in the arts and no single way of responding to a work.

Studies of the context in which an artist lived and worked do not always need to be carried out in the form of written assignments. Teachers could also suggest that one student, who is acting in role as a reporter, interview another student, who is acting in role as a painter, composer, playwright, or choreographer, about cultural, social, economic, and political conditions at the time the artist lived. The goal of the analytical and contextual work is to develop students' literacy in the arts, to show them possibilities for their own creative work and creative goals, and to expand their repertoire of artistic strategies. Teachers need to ensure that students are engaged in meaningful activities in the arts, and should not ask students merely to memorize facts such as artists' names or titles and dates of works.

Where students are investigating a traditional work of art, use of cross-cultural studies may be appropriate. It is important for teachers and students to carefully and critically assess the cultural information sources to determine their merit and to consult a range of reputable authorities where possible.

ASSESSMENT AND EVALUATION OF STUDENT ACHIEVEMENT

BASIC CONSIDERATIONS

The primary purpose of assessment and evaluation is to improve student learning. Information gathered through assessment helps teachers to determine students' strengths and weaknesses in their achievement of the curriculum expectations in each subject in each grade. This information also serves to guide teachers in adapting curriculum and instructional approaches to students' needs and in assessing the overall effectiveness of programs and classroom practices.

Assessment is the process of gathering information from a variety of sources (including assignments, day-to-day observations, conversations or conferences, demonstrations, projects, performances, and tests) that accurately reflects how well a student is achieving the curriculum expectations in a subject. As part of assessment, teachers provide students with descriptive feedback that guides their efforts towards improvement. Evaluation refers to the process of judging the quality of student work on the basis of established criteria, and assigning a value to represent that quality. In Ontario elementary schools, the value assigned will be in the form of a letter grade for Grades 1 to 6 and a percentage grade for Grades 7 and 8.

Assessment and evaluation will be based on the provincial curriculum expectations and the achievement levels outlined in this document.

In order to ensure that assessment and evaluation are valid and reliable, and that they lead to the improvement of student learning, teachers must use assessment and evaluation strategies that:

- address both what students learn and how well they learn;
- are based both on the categories of knowledge and skills and on the achievement level descriptions given in the achievement chart on pages 34–35;
- are varied in nature, administered over a period of time, and designed to provide opportunities for students to demonstrate the full range of their learning;
- are appropriate for the learning activities used, the purposes of instruction, and the needs and experiences of the students;
- are fair to all students;
- accommodate students with special education needs, consistent with the strategies outlined in their Individual Education Plan;
- accommodate the needs of students who are learning the language of instruction;
- ensure that each student is given clear directions for improvement;
- promote students' ability to assess their own learning and to set specific goals;

- include the use of samples of students' work that provide evidence of their achievement;
- are communicated clearly to students and parents at the beginning of the school year and at other appropriate points throughout the school year.

Evaluation of Achievement of Overall Expectations

All curriculum expectations must be accounted for in instruction, but evaluation focuses on students' achievement of the overall expectations. A student's achievement of the overall expectations is evaluated on the basis of his or her achievement of related specific expectations. The overall expectations are broad in nature, and the specific expectations define the particular content or scope of the knowledge and skills referred to in the overall expectations. Teachers will use their professional judgement to determine which specific expectations should be used to evaluate achievement of the overall expectations, and which ones will be covered in instruction and assessment (e.g., through direct observation) but not necessarily evaluated.

Levels of Achievement

The characteristics given in the achievement chart (pages 34–35) for level 3 represent the “provincial standard” for achievement of the expectations. A complete picture of achievement at level 3 in the arts can be constructed by reading from top to bottom in the shaded column of the achievement chart, headed “Level 3”. Parents of students achieving at level 3 can be confident that their children will be prepared for work in the next grade.

Level 1 identifies achievement that falls much below the provincial standard, while still reflecting a passing grade. Level 2 identifies achievement that approaches the standard. Level 4 identifies achievement that surpasses the standard. It should be noted that achievement at level 4 does not mean that the student has achieved expectations beyond those specified for a particular grade. It indicates that the student has achieved all or almost all of the expectations for that grade, and that he or she demonstrates the ability to use the knowledge and skills specified for that grade in more sophisticated ways than a student achieving at level 3.

The Ministry of Education has provided teachers with materials that will assist them in improving their assessment methods and strategies and, hence, their assessment of student achievement. These materials include samples of student work (exemplars) that illustrate achievement at each of the four levels. (Adaptations can be made in the exemplar documents to align them with the revised curriculum.)

THE ACHIEVEMENT CHART FOR THE ARTS

The achievement chart that follows on pages 34–35 identifies four categories of knowledge and skills in the arts. The achievement chart is a standard province-wide guide to be used by teachers. It enables teachers to make judgements about student work that are based on clear performance standards and on a body of evidence collected over time.

The achievement chart is designed to:

- provide a framework that encompasses all curriculum expectations for all grades and subjects represented in this document;
- guide the development of assessment tasks and tools (including rubrics);
- help teachers to plan instruction for learning;
- assist teachers in providing meaningful feedback to students;
- provide various categories and criteria with which to assess and evaluate student learning.

Categories of Knowledge and Skills

The categories, defined by clear criteria, represent four broad areas of knowledge and skills within which the subject expectations for any given grade are organized. The four categories should be considered as interrelated, reflecting the wholeness and interconnectedness of learning.

The categories of knowledge and skills are described as follows:

Knowledge and Understanding. Subject-specific content acquired in each grade (knowledge), and the comprehension of its meaning and significance (understanding).

Thinking. The use of critical and creative thinking skills and/or processes.

Communication. The conveying of meaning through various forms.

Application. The use of knowledge and skills to make connections within and between various contexts.

Teachers will ensure that student work is assessed and/or evaluated in a balanced manner with respect to the four categories, and that achievement of particular expectations is considered within the appropriate categories.

Criteria

Within each category in the achievement chart, criteria are provided, which are subsets of the knowledge and skills that define each category. The criteria for each category are listed below:

Knowledge and Understanding

- knowledge of content (e.g., facts, genres, terms, definitions, techniques, elements, principles, forms, structures, conventions)

- understanding of content (e.g., concepts, ideas, procedures, processes, themes, relationships among elements, informed opinions)

Thinking

- use of planning skills (e.g., formulating questions, generating ideas, gathering information, focusing research, outlining, organizing an arts presentation or project, brainstorming/bodystorming, blocking, sketching, using visual organizers, listing goals in a rehearsal log, inventing notation)
- use of processing skills (e.g., analyzing, evaluating, inferring, interpreting, editing, revising, refining, forming conclusions, detecting bias, synthesizing)
- use of critical/creative thinking processes (e.g., creative and analytical processes, design process, exploration of the elements, problem solving, reflection, elaboration, oral discourse, evaluation, critical literacy, metacognition, invention, critiquing, reviewing)

Communication

- expression and organization of ideas and understandings in art forms (dance, drama, music, and the visual arts), including media/multimedia forms (e.g., expression of ideas and feelings using visuals, movements, the voice, gestures, phrasing, techniques), and in oral and written forms (e.g., clear expression and logical organization in critical responses to art works and informed opinion pieces)
- communication for different audiences (e.g., peers, adults, younger children) and purposes through the arts (e.g., drama presentations, visual arts exhibitions, dance and music performances) and in oral and written forms (e.g., debates, analyses)
- use of conventions in art forms (e.g., allegory, narrative or symbolic representation, style, articulation, drama conventions, choreographic forms, movement vocabulary) and arts vocabulary and terminology in oral and written forms

Application

- application of knowledge and skills (e.g., performance skills, composition, choreography, elements, principles, processes, technologies, techniques, strategies, conventions) in familiar contexts (e.g., guided improvisation, performance of a familiar work, use of familiar forms)
- transfer of knowledge and skills (e.g., concepts, strategies, processes, techniques) to new contexts (e.g., a work requiring stylistic variation, an original composition, student-led choreography, an interdisciplinary or multidisciplinary project)
- making connections within and between various contexts (e.g., between the arts; between the arts and personal experiences and the world outside the school; between cultural

and historical, global, social, and/or environmental contexts; between the arts and other subjects)

Descriptors

A “descriptor” indicates the characteristic of the student’s performance, with respect to a particular criterion, on which assessment or evaluation is focused. In the achievement chart, effectiveness is the descriptor used for each criterion in the Thinking, Communication, and Application categories. What constitutes effectiveness in any given performance task will vary with the particular criterion being considered. Assessment of effectiveness may therefore focus on a quality such as appropriateness, clarity, accuracy, precision, logic, relevance, significance, fluency, flexibility, depth, or breadth, as appropriate for the particular criterion. For example, in the Thinking category, assessment of effectiveness might focus on the degree of relevance or depth apparent in an analysis; in the Communication category, on clarity of expression or logical organization of information and ideas; or in the Application category, on appropriateness or breadth in the making of connections. Similarly, in the Knowledge and Understanding category, assessment of knowledge might focus on accuracy, and assessment of understanding might focus on the depth of an explanation. Descriptors help teachers to focus their assessment and evaluation on specific knowledge and skills for each category and criterion, and help students to better understand exactly what is being assessed and evaluated.

Qualifiers

A specific “qualifier” is used to define each of the four levels of achievement – that is, limited for level 1, some for level 2, considerable for level 3, and a high degree or thorough for level 4. A qualifier is used along with a descriptor to produce a description of performance at a particular level. For example, the description of a student’s performance at level 3 with respect to the first criterion in the Thinking category would be: “The student uses planning skills with considerable effectiveness”.

The descriptions of the levels of achievement given in the chart should be used to identify the level at which the student has achieved the expectations. Students should be provided with numerous and varied opportunities to demonstrate the full extent of their achievement of the curriculum expectations, across all four categories of knowledge and skills.

The Achievement Chart for THE ARTS: Grades 1–8

Categories

Knowledge and Understanding – Subject-specific content acquired in each grade (knowledge), and the comprehension of its meaning and significance (understanding)

The student: Knowledge of content (e.g., facts, genres, terms, definitions, techniques, elements, principles, forms, structures, conventions)

Level 1: demonstrates limited knowledge of content

Level 2: demonstrates some knowledge of content

Level 3: demonstrates considerable knowledge of content

Level 4: demonstrates thorough knowledge of content

Understanding of content (e.g., concepts, ideas, procedures, processes, themes, relationships among elements, informed opinions)

Level 1: demonstrates limited understanding of content

Level 2: demonstrates some understanding of content

Level 3: demonstrates considerable understanding of content

Level 4: demonstrates thorough understanding of content

Categories

Thinking – The use of critical and creative thinking skills and/or processes

The student: Use of planning skills (e.g., formulating questions, generating ideas, gathering information, focusing research, outlining, organizing an arts presentation or project, brainstorming/bodystorming, blocking, sketching, using visual organizers, listing goals in a rehearsal log, inventing notation)

Level 1: uses planning skills with limited effectiveness

Level 2: uses planning skills with some effectiveness

Level 3: uses planning skills with considerable effectiveness

Level 4: uses planning skills with a high degree of effectiveness

Use of processing skills (e.g., analyzing, evaluating, inferring, interpreting, editing, revising, refining, forming conclusions, detecting bias, synthesizing)

Level 1: uses processing skills with limited effectiveness

Level 2: uses processing skills with some effectiveness

Level 3: uses processing skills with considerable effectiveness

Level 4: uses processing skills with a high degree of effectiveness

Use of critical/creative thinking processes (e.g., creative and analytical processes, design process, exploration of the elements, problem solving, reflection, elaboration, oral discourse, evaluation, critical literacy, metacognition, invention, critiquing, reviewing)

Level 1: uses critical/creative thinking processes with limited effectiveness

Level 2: uses critical/creative thinking processes with some effectiveness

Level 3: uses critical/creative thinking processes with considerable effectiveness

Level 4: uses critical/creative thinking processes with a high degree of effectiveness

Categories

Communication – The conveying of meaning through various forms

The student: Expression and organization of ideas and understandings in art forms (dance, drama, music, and the visual arts), including media/multimedia forms (e.g., expression of ideas and feelings using visuals, movements, the voice, gestures, phrasing, techniques), and in oral and written forms (e.g., clear expression and logical organization in critical responses to art works and informed opinion pieces)

Level 1: expresses and organizes ideas and understandings with limited effectiveness

Level 2: expresses and organizes ideas and understandings with some effectiveness

Level 3: expresses and organizes ideas and understandings with considerable effectiveness

Level 4: expresses and organizes ideas and understandings with a high degree of effectiveness

Communication for different audiences (e.g., peers, adults, younger children) and purposes through the arts (e.g., drama presentations, visual arts exhibitions, dance and music performances) and in oral and written forms (e.g., debates, analyses)

Level 1: communicates for different audiences and purposes with limited effectiveness

Level 2: communicates for different audiences and purposes with some effectiveness

Level 3: communicates for different audiences and purposes with considerable effectiveness

Level 4: communicates for different audiences and purposes with a high degree of effectiveness

Use of conventions in dance, drama, music, and the visual arts (e.g., allegory, narrative or symbolic representation, style, articulation, drama conventions, choreographic forms, movement vocabulary) and arts vocabulary and terminology in oral and written forms

Level 1: uses conventions, vocabulary, and terminology of the arts with limited effectiveness

Level 2: uses conventions, vocabulary, and terminology of the arts with some effectiveness

Level 3: uses conventions, vocabulary, and terminology of the arts with considerable effectiveness

Level 4: uses conventions, vocabulary, and terminology of the arts with a high degree of effectiveness

Categories

Application – The use of knowledge and skills to make connections within and between various contexts

The student: Application of knowledge and skills (e.g., performance skills, composition, choreography, elements, principles, processes, technologies, techniques, strategies, conventions) in familiar contexts (e.g., guided improvisation, performance of a familiar work, use of familiar forms)

Level 1: applies knowledge and skills in familiar contexts with limited effectiveness

Level 2: applies knowledge and skills in familiar contexts with some effectiveness

Level 3: applies knowledge and skills in familiar contexts with considerable effectiveness

Level 4: applies knowledge and skills in familiar contexts with a high degree of effectiveness

Transfer of knowledge and skills (e.g., concepts, strategies, processes, techniques) to new contexts (e.g., a work requiring stylistic variation, an original composition, student-led choreography, and an interdisciplinary or multidisciplinary project)

Level 1: transfers knowledge and skills to new contexts with limited effectiveness

Level 2: transfers knowledge and skills to new contexts with some effectiveness

Level 3: transfers knowledge and skills to new contexts with considerable effectiveness

Level 4: transfers knowledge and skills to new contexts with a high degree of effectiveness

Making connections within and between various contexts (e.g., between the arts; between the arts and personal experiences and the world outside the school; between cultural and historical, global, social, and/or environmental contexts; between the arts and other subjects)

Level 1: makes connections within and between various contexts with limited effectiveness

Level 2: makes connections within and between various contexts with some effectiveness

Level 3: makes connections within and between various contexts with considerable effectiveness

Level 4: makes connections within and between various contexts with a high degree of effectiveness

SOME CONSIDERATIONS FOR PROGRAM PLANNING IN THE ARTS

When planning a program in the arts, teachers must take into account considerations in a number of important areas, including those discussed below.

INSTRUCTIONAL APPROACHES AND TEACHING STRATEGIES

The mind is not a vessel to be filled but a fire to be kindled.

Plutarch, 45–125 A.D.

One of the primary objectives of elementary arts curricula is to encourage children's natural inclination to express their ideas through the arts. Students come to school with a natural desire for a wide variety of outlets for their creativity. Students also bring with them individual interests and abilities, as well as diverse personal and cultural experiences, all of which have an impact on their prior knowledge about arts and about the world in which they live. The arts curriculum, particularly for students in the primary grades, should be enjoyable for students, and should be designed to encourage them to take a lifelong interest in the arts.

High-quality instruction is a key to student success in arts education. It is based on the belief that all students can be successful in arts learning. Teachers who provide high-quality instruction respect students' strengths, capture their interest, identify their learning needs, and use ongoing feedback and assessment to plan instruction. They clarify the purpose for learning, help students activate prior knowledge, scaffold instruction, and differentiate instruction for individual students and small groups according to need. High-quality instruction motivates students and instills positive habits of mind, such as a willingness and determination to explore and persist, to develop their thinking skills, to represent and communicate their ideas with clarity, to take responsible risks, and to observe, listen, ask questions, and pose problems.

Students learn best by doing. Teachers can stimulate and encourage all students by establishing environments where students have plenty of time and opportunities to explore the arts in ways that are meaningful to them. Teachers should provide as many hands-on activities as possible, since many of the skills emphasized in this curriculum are best taught and learned through participatory, creative experiences with concrete materials. Time, space, and a wide variety of tools and materials are necessary for supporting effective learning in the arts. In such an environment, students are free to explore abstract ideas in rich, varied, and concrete ways. Students need to have frequent opportunities to explore and to practice and apply new learning. Through regular and varied assessments, teachers can give them the specific feedback they need to further develop and refine their skills.

Students should be given a wide range of activities and assignments that foster mastery of the basic fundamental concepts and development of inquiry and research skills as well as opportunities for self-expression. In effective arts programs, teachers provide a variety of activities based on assessment of students' individual needs, proven learning theory, and best practices. Effective activities integrate expectations and enable both direct teaching and modelling of knowledge, skills, and learning strategies that encourage students to express their thinking and learning processes. Teachers should also be models for lifelong learning in the arts, showing a willingness to participate in the arts, to appreciate unfamiliar art forms, to attempt new approaches, and to engage in new experiences.

Effective teaching approaches promote the development of higher-order thinking skills. In this way, teachers enable students to become thoughtful and effective communicators. In addition, teachers encourage students to think out loud about their own artistic choices and processes, and support them in developing the language and techniques they need to assess their own learning. As well, teachers encourage students to relate the knowledge and skills gained to issues and themes that are relevant to them.

Teaching approaches should be informed by the findings of current research related to creativity and arts education. These include approaches based on constructivist learning theory, which argues that humans construct knowledge and meaning from their experiences. For example, teachers should be both co-learners and facilitators, and should always aim to provide students with learning experiences that interest them. Such experiences include learning through inquiry, through initiating their own projects, and through engaging in arts projects with other students to develop a sense of community through teamwork. A well-planned curriculum should be at the students' level, but should also push them a little further than their comfort level, still keeping within their "zone of proximal development" (that is, within the range of things they can do on their own and with guidance). Teachers should also create a classroom environment for the arts that is focused not only on activities but on creative activities that involve exploration of ideas. It is instructive to note that creativity is now within the highest levels of thinking skills in the revised edition of Bloom's taxonomy.

Teachers also need to provide options to accommodate different learning styles and intelligences. The arts contribute to student engagement in school by addressing multiple intelligences, which can be used to differentiate instruction.

Teachers need to provide direct instruction in the arts. It is particularly important for young children to have a balanced program that provides for direct instruction in content, and to have opportunities to use their knowledge and skills in structured, as well as unstructured, activities. Teachers should also plan ways to engage students through shared and guided practice so that they can gradually move towards a greater level of independence and a greater level of comfort with risk-taking in the arts.

When exploring the cultural contexts of the arts, teachers need to avoid marginalizing groups or following stereotypes when planning lessons. For example, teachers should avoid focusing on art forms from only one place or that reflect only one style; avoid judging some art forms as “better” than others; avoid teaching by artistic movement or period; and avoid choosing only male artists’ work or only European works for study. To put this in positive terms, teachers should include consideration of arts from around the world and from a variety of times, including contemporary works by living artists; comparisons of a variety of art works by theme, topic, and purpose; and study of both male and female artists. In short, teachers should plan to develop and extend students’ awareness by using a wide variety of sources as a springboard and by helping them ask meaningful questions about the artists and their work.

When planning the use of classroom space, teachers should organize the learning environment in a way that facilitates activity and stimulates creativity – for example, ensuring that there is sufficient open space for dance activities, drama circles, or musical activities, or for groups to work at tables on visual arts projects. Likewise, it is important to plan routines for students to move from one arts activity to another, including use of materials, tools, and instruments, and to support routines with the use of visuals. Teachers should create a classroom environment that is comfortable, colourful, and stimulating; that allows for flexible groupings; that displays student work in meaningful and engaging ways; and that highlights the learning and creative process by displaying such items as sketches, as well as finished works, and students’ reflective statements. Much of the work at the elementary level should encourage students to use the arts to explore and understand the process of learning, and to express ideas and feelings through the arts for a small audience of their peers in the classroom.

Teachers should keep in mind that the intention of the arts curriculum is to give all students the opportunity to discover and develop their ability in different artistic forms and media and to learn to appreciate works of art. In other words, the classroom needs to be inclusive of all students. The arts curriculum is not intended to provide the intensive instruction that students with special abilities need. The abilities of such students can be developed through other means (e.g., private lessons), which support the development of talents to a high level.

Teachers should also keep in mind that instruction in the arts needs to take place on a regular basis and in a variety of large and small blocks of time in order to allow skills to develop. Students should not be given isolated experiences – for example, engaging in a one-time craft activity on a Friday afternoon.

Descriptions of some strategies that are effective in teaching the arts can be found below.

Analysis of Bias and Stereotype. Teachers can use this critical thinking strategy to help students examine inequities based on race, ethnicity, gender, class, point of view or perception, and any number of physical or mental attributes of individuals. Students can examine their own prejudices, as well as systemic discrimination, and learn to understand how social, political, economic, organizational, and cultural structures contribute to these perceptions. Students

learn the skills to make critical assessments with respect to their reading, listening, and viewing in order to be aware of biases and stereotypes reflected therein. Students consider how the variety of motivations, controls, and constraints related to media directly influence our perceptions and views.

Brainstorming. Teachers can use brainstorming as a thinking strategy to help students generate questions, ideas, and examples and to explore a central idea or topic. During brainstorming, students share ideas that come to mind and record these ideas without making judgements about them. When introducing a topic, teachers can use brainstorming sessions to determine what students already know or wish to learn, and to provide direction for learning and reflection. Brainstorming stimulates fluent and flexible thinking and can also be used to extend problem-solving skills.

Conference. During a student–teacher conference, students can report on their progress, consider problems and solutions, and note strengths and areas for improvement. Teachers can discuss students’ work with pairs or small groups of students in order to facilitate learning. Conferences therefore require an inviting and supportive atmosphere to encourage open discussion, as well as a high level of trust between participants. Conferences provide teachers with an opportunity to guide and support learners and a forum for students to demonstrate their learning through discussion, sketchbooks, or portfolios.

Cooperative Learning. Cooperative-learning techniques allow students to work as a team to accomplish a common learning goal. For example, a group of students may work together to prepare a drama, dance, or music performance, to create an art work, or to complete a research project.

In addition to the final product produced by the group, an important aspect of the cooperative-learning process is having each group member examine how the group functioned in its task and evaluate his or her own contribution to the group process. Discussions, journal entries, and self-evaluation checklists are some ways in which students can reflect on the group work process and their part in it.

Discussion. Discussion is a cooperative strategy through which students explore their thinking, respond to ideas, process information, and articulate their thoughts in exchanges with peers and the teacher. Discussion can be used to clarify understanding of concepts, ideas, and information. Emphasis is placed on talking and listening to each other. Through discussion, students can make connections between ideas and experience, and reflect on a variety of meanings and interpretations of texts and experiences.

Experimenting. Experimenting is central to the arts, and is frequently used in making connections between the concrete and the abstract. Experimenting requires that students investigate, test, explore, manipulate, solve problems, make decisions, and organize information in hands-on ways. Experimenting also encourages students to use cooperative skills effectively

in interpreting and communicating findings. Experimenting enhances student motivation, understanding, and active involvement and can be initiated by the teacher or the student.

Focused Exploration. This is a method of instruction in which students use the materials and equipment available in the classroom in ways of their choosing. The teacher observes and listens while students are exploring, and provides guidance as needed, using information gathered from assessment. For example, the teacher may pose a question, prompt deeper thinking, or introduce new vocabulary.

Free Exploration. This is a key instructional activity that is initiated by students, using the materials available in the classroom in ways of their choosing. Teachers observe and listen as part of ongoing assessment while students are exploring freely, but do not guide the exploration as they do during focused exploration.

Graphic or Visual Organizers. The use of visual supports is an especially powerful teaching strategy. Graphic organizers, often also referred to as key visuals, allow students to understand and represent relationships visually rather than just with language, providing helpful redundancy in making meaning from a text. Graphic organizers can be used to record, organize, compare, analyse, and synthesize information and ideas. They can assist students in accessing prior knowledge and connecting it to new concepts learned as well as consolidating their understanding. Examples of common graphic organizers include the following: timeline, cycle diagram, T-chart, Venn diagram, story map, flow chart, grid, web, and problem-solution outline.

The use of a graphic organizer is extremely helpful when carried out initially as a class or group brainstorming activity. The graphic organizer provides a way of collecting and visually presenting information about a topic that will make it more comprehensible for students. When using different graphic organizers, teachers should point out and model for students the usefulness of particular graphic organizers. For example, the T-chart provides an ideal framework for visually representing comparison and contrast, while the flow chart is well suited to illustrating cause-and-effect relationships.

Guided Activity. This is a key instructional activity that is initiated by the teacher. On the basis of assessment information, the teacher may pose a series of questions, provide prompts to extend thinking, ask students to demonstrate a familiar concept in a new way, encourage students to try a new activity, and so on.

Guided Exploration. The teacher models a concept or skill that is part of a larger set of skills or knowledge, and guides the students as they practice this first step. The process is repeated until the students master the expected knowledge and skills of the lesson. This strategy is particularly useful for introducing new skills that are developed sequentially.

Jigsaw. Jigsaw is a cooperative group activity in which a different segment of a learning task is assigned to each member of a small group (the “home” group). All home group members then work to become an “expert” in their aspect of the task in order to teach the other group

members. Jigsaw activities push all students to take equal responsibility for the group's learning goals. In the arts, jigsaw activities can be done in creating/performing, listening, and reading formats.

In a jigsaw activity in creating/performing, each student becomes a member of an "expert" group, which learns a particular arts skill. Experts then return to their home groups to share information and demonstrate the skill. Each expert must ensure that all members of the home group understand the information and the method of performing the skill. A similar procedure can be followed for a jigsaw listening activity or a jigsaw reading activity.

Lateral Thinking. This is a thinking process first described by Edward de Bono, who recognized that the mind can perceive issues from many angles and is thus able to generate many creative solutions, even unorthodox ones. Lateral thinking involves reviewing a problem or challenge from multiple perspectives, often breaking up the elements and recombining them in different ways, even randomly. Use of lateral thinking methods develops skills in bringing positive and negative aspects of a problem to the fore and evaluating the whole picture.

Media Analysis. Media analysis is a critical literacy strategy in which commercial media works are examined for the purpose of "decoding" the work – that is, determining the purpose, intended audience, mood, and message of the work, and the techniques used to create it. Through media analysis, students evaluate everyday media, maintaining a critical distance and resisting manipulation by media producers, and they learn about media techniques that they can then use to create or enhance their own works. Key concepts of media analysis include recognition that media construct reality, have commercial implications, contain ideological and value messages, and have social and political implications.

Modelling. Teachers can demonstrate a task or strategy to students, and may "think aloud" while doing it to make the process clearer. By imitating the model, students become aware of the procedures needed to perform the task or use the strategy.

Multiple Points of View. Teachers can encourage students to adopt another point of view in order to develop their ability to think critically and to look at issues from more than one perspective. In this activity, students identify which person's point of view is being considered and the needs and concerns of the person. They also locate and analyse information about the person and summarize the person's position. They learn to examine issues and characters and to form conclusions without letting personal bias interfere. This strategy can be used in both creating and viewing activities in the arts.

Oral Explanation. Students may use oral explanation to clarify thinking, to justify reasoning, and to communicate their understanding in any of the arts.

Panel Discussion. A panel discussion provides opportunities for students to examine controversial issues from different perspectives. A moderator introduces the topic, and the panel members then each present to an audience a prepared statement of three to five minutes

that elucidates a particular viewpoint. The moderator facilitates audience participation and allows panel members to clarify previous statements or provide new information. After the discussion period, the moderator asks each panel member for some general conclusions or summary statements. Topics chosen for a panel discussion should engage students intellectually and emotionally, allowing them to use higher-order thinking skills as they make reasoned and logical arguments.

Role Play. Role play allows students to simulate a variety of situations, using language for different purposes and audiences. Through role plays, students can practice and explore alternative solutions to situations outside the classroom. The role-play strategy also allows students to take different perspectives on a situation, helping them to develop sensitivity and understanding by putting themselves in the shoes of others. An important phase in any role-playing activity is the follow-up. Debriefing after a role play allows students to analyse the role-play experience and the learning in the activity.

Simulation. Through simulation, students can participate in a replication of real or hypothetical conditions and respond and act as though the situation were real. Simulation is useful when students are learning about complex processes, events, ideas, or issues, or when they are trying to understand the emotions and feelings of others. Simulation requires the manipulation of a variety of factors and variables, allowing students to explore alternatives and solve problems and to take values and attitudes into consideration when making decisions and experiencing the results. Simulation can take a number of forms, including role playing, dramatizations, and enactments of historical events.

Sketching to Learn. Through making quick sketches, students can represent ideas and their responses to them during or immediately following a presentation or lesson. They can also take notes in pictorial or graphic form while reading a story for a dance or drama project. Sketching to learn is often used during a listening or viewing experience in order to help students understand new or complex concepts or techniques.

Think-Aloud. In the think-aloud strategy, the teacher models out loud a thinking or learning process while using it. It is particularly useful when students are learning a difficult concept or reinforcing learning. Think-alouds can also be done by students on their own as they learn a skill, with a peer, or with the teacher for assessment purposes.

Think-Pair-Share. During a think-pair-share activity, students individually consider an issue or problem and then discuss their ideas in pairs or in a small group. A few students are then called on by the teacher to share their thoughts and ideas with the whole class.

Visualization. Visualization is a process of making an object, an event, or a situation visible in one's imagination by mentally constructing or recalling an image. Teachers can use visualization with students as an exercise in image creation prior to creating an art work. Visualization allows students to draw on their own prior experience and extend their thinking creatively. Teachers can also make use of a variety of visual stimuli (e.g., illustrations, photographs, reproductions,

videos, real objects, graphics) to assist students in generating ideas for various kinds of works in all the arts.

CROSS-CURRICULAR AND INTEGRATED LEARNING

In cross-curricular learning, students are provided with opportunities to learn and use related content and/or skills in two or more subjects. For example, all subjects, including the arts, can be related to the language curriculum. In the arts, students use a range of language skills: they build subject-specific vocabulary, read stories for inspiration for their art works, and respond to and analyse art works using language. Teachers can also use reading material about the arts in their language lessons, and can incorporate instruction in critical literacy in their arts lessons by, for instance, having students develop alternative illustrations for advertisements or fiction texts that use colour or angle of view to modify the message (e.g., a spoof advertisement criticizing commercial propaganda) or to show a different point of view (e.g., that of a child in the situation). Students can also use drama conventions to bring to life the motivations of minor characters who have other perspectives on the story.

In integrated learning, students are provided with opportunities to work towards meeting expectations from two or more subjects within a single unit, lesson, or activity. By linking expectations from different subject areas, teachers can provide students with multiple opportunities to reinforce and demonstrate their knowledge and skills in a range of settings. The arts can be used to provide other ways of learning and making connections. Through integrated learning, exploration of topics, issues, experiences, or themes can provide students with a stimulus both for engaging in artistic creation and for developing understanding in another subject area. For example, teachers can create a unit linking expectations from the arts curriculum and the social studies curriculum. Connections can be made between these curricula in a number of areas, including the relationship between art forms and their social and cultural context at various times and places around the world, the importance of the arts in Canada, and the impact of changes in technology on the arts (e.g., improvements to musical instruments, use of multimedia technology). In such a unit, students can gain insights into the importance of the arts for a range of people. They can also, for instance, work with drama or dance movement to express their understanding of a historical character or a visual art work, and through that activity develop imagery that reflects their own ideas, time, and place.

In integrated learning, teachers need to ensure that the specific knowledge and skills for each subject are taught. For example, if they ask students to draw an illustration for their story, they need to give not only language instruction, but instruction in creating the images; the teacher could instruct the students in using compositional concepts, such as creating sight lines that make use of lines, shapes, and colours to lead the eye to a particular point for emphasis. Likewise, in dance, the teacher could instruct the students in using elements of dance (e.g., body, level, tempo, space) and not simply assign a set dance routine to use to accompany the story. In drama, the teacher could instruct the students in using dramatic conventions to explore the possible motivations of a character in the story and not simply ask them to recreate the

scene. In music, the teacher could instruct the students in elements of music and musical forms so that they could create a mood piece to accompany the story, not merely select an existing piece.

Integrated learning can also be a solution to fragmentation and isolated skill instruction – that is, in integrated learning, students can learn and apply skills in a meaningful context, not merely learn how to mix colours or play technical musical exercises. In such contexts, students can also develop their ability to think and reason and to transfer knowledge and skills from one subject area to another.

PLANNING ARTS PROGRAMS FOR STUDENTS WITH SPECIAL EDUCATION NEEDS

Classroom teachers are the key educators of students who have special education needs. They have a responsibility to help all students learn, and they work collaboratively with special education resource teachers, where appropriate, to achieve this goal. They commit to assisting every student to prepare for living with the highest degree of independence possible.

Education for All: The Report of the Expert Panel on Literacy and Numeracy Instruction for Students with Special Education Needs, Kindergarten to Grade 6, 2005 describes a set of beliefs, based in research that should guide all program planning for students with special education needs. Teachers planning arts programs need to pay particular attention to these beliefs, which are as follows:

- All students can succeed.
- Universal design and differentiated instruction are effective and interconnected means of meeting the learning or productivity needs of any group of students.
- Successful instructional practices are founded on evidence-based research, tempered by experience.
- Classroom teachers are key educators for a student’s literacy and numeracy development.
- Each student has his or her own unique patterns of learning.
- Classroom teachers need the support of the larger community to create a learning environment that supports students with special education needs.
- Fairness is not sameness.

In any given classroom, students may demonstrate a wide range of strengths and needs. Teachers plan programs that recognize this diversity and give students performance tasks that respect their particular abilities so that all students can derive the greatest possible benefit from the teaching and learning process. The use of flexible groupings for instruction and the provision

of ongoing assessment are important elements of programs that accommodate a diversity of learning needs.

In planning arts programs for students with special education needs, teachers should begin by examining both the curriculum expectations for the appropriate grade level of the individual student and his or her strengths and learning needs to determine which of the following options is appropriate for the student:

- no accommodations² or modifications; or
- accommodations only; or
- modified expectations, with the possibility of accommodations; or
- alternative expectations, which are not derived from the curriculum expectations for a grade and which constitute alternative programs.

² Accommodations refers to individualized teaching and assessment strategies, human supports, and/or individualized equipment.

If the student requires either accommodations or modified expectations, or both, the relevant information, as described in the following paragraphs, must be recorded in his or her Individual Education Plan (IEP). More detailed information about planning programs for students with special education needs, including students who require alternative programs, ³ can be found in *The Individual Education Plan (IEP): A Resource Guide, 2004* (referred to hereafter as the IEP Resource Guide, 2004). For a detailed discussion of the ministry's requirements for IEPs, see *Individual Education Plans: Standards for Development, Program Planning, and Implementation, 2000* (referred to hereafter as IEP Standards, 2000). (Both documents are available at www.edu.gov.on.ca.)

³ Alternative programs are identified on the IEP form by the term "alternative (ALT)".

Students Requiring Accommodations Only

Some students with special education needs are able, with certain accommodations, to participate in the regular curriculum and to demonstrate learning independently. (Accommodations do not alter the provincial curriculum expectations for the grade level.) The accommodations required to facilitate the student's learning must be identified in his or her IEP (see IEP Standards, 2000, page 11). A student's IEP is likely to reflect the same accommodations for many, or all, subject areas.

Providing accommodations to students with special education needs should be the first option considered in program planning. Instruction based on principles of universal design⁴ and differentiated instruction⁵ focuses on the provision of accommodations to meet the diverse needs of learners.

4 The goal of Universal Design for Learning (UDL) is to create a learning environment that is open and accessible to all students, regardless of age, skills, or situation. Instruction based on principles of universal design is flexible and supportive, can be adjusted to meet different student needs, and enables all students to access the curriculum as fully as possible.

5 Differentiated instruction is effective instruction that shapes each student's learning experience in response to his or her particular learning preferences, interests, and readiness to learn.

There are three types of accommodations:

- Instructional accommodations are changes in teaching strategies, including styles of presentation, methods of organization, or use of technology and multimedia.
- Environmental accommodations are changes that the student may require in the classroom and/or school environment, such as preferential seating or special lighting.
- Assessment accommodations are changes in assessment procedures that enable the student to demonstrate his or her learning, such as allowing additional time to complete tests or assignments or permitting oral responses to test questions (see page 29 of the IEP Resource Guide, 2004 for more examples).

If a student requires "accommodations only" in the arts, assessment and evaluation of his or her achievement will be based on the appropriate grade-level curriculum expectations and the achievement levels outlined in this document. The IEP box on the student's Provincial Report Card will not be checked, and no information on the provision of accommodations will be included.

Students Requiring Modified Expectations

In the arts, for most students with special education needs, modified expectations will be based on the regular grade-level curriculum, with changes in the number and/or complexity of the expectations. Modified expectations must represent specific, realistic, observable, and measurable achievements, and must describe specific knowledge and/or skills that the student can demonstrate independently, given the appropriate assessment accommodations.

Modified expectations must indicate the knowledge and/or skills the student is expected to demonstrate and have assessed in each reporting period (IEP Standards, 2000, pages 10 and 11). Modified expectations should be expressed in such a way that the student and parents can understand exactly what the student is expected to know or be able to do, on the basis of which his or her performance will be evaluated and a grade or mark recorded on the Provincial Report Card. The student's learning expectations must be reviewed in relation to the student's progress at least once every reporting period, and must be updated as necessary (IEP Standards, 2000, page 11).

If a student requires modified expectations in the arts, assessment and evaluation of his or her achievement will be based on the learning expectations identified in the IEP and on the achievement levels outlined in this document. On the Provincial Report Card, the IEP box must be checked for any subject in which the student requires modified expectations, and the appropriate statement from the Guide to the Provincial Report Card, Grades 1–8, 1998 (page 8) must be inserted. The teacher’s comments should include relevant information on the student’s demonstrated learning of the modified expectations, as well as next steps for the student’s learning in the subject.

PROGRAM CONSIDERATIONS FOR ENGLISH LANGUAGE LEARNERS

[English language learners] each have a language, a culture, and background experiences. Effective teachers draw on these resources and build new concepts on this strong experiential base.

Y. S. Freeman and D. E. Freeman, *Closing the Achievement Gap: How to Reach Limited-Formal-Schooling and Long-Term English Learners* (2002), p. 16

Ontario schools have some of the most multilingual student populations in the world. The first language of approximately 20 per cent of the children in Ontario’s English-language schools is a language other than English. Ontario’s linguistic heritage includes several Aboriginal languages and many African, Asian, and European languages. It also includes some varieties of English – also referred to as dialects – that differ significantly from the English required for success in Ontario schools. Many English language learners were born in Canada and have been raised in families and communities in which languages other than English, or varieties of English that differ from the language used in the classroom, are spoken. Other English language learners arrive in Ontario as newcomers from other countries; they may have experience of highly sophisticated educational systems, or they may have come from regions where access to formal schooling was limited.

When they start school in Ontario, many of these children are entering a new linguistic and cultural environment. All teachers share in the responsibility for these students’ English-language development.

English language learners (students who are learning English as a second or additional language in English-language schools) bring a rich diversity of background knowledge and experience to the classroom. These students’ linguistic and cultural backgrounds not only support their learning in their new environment but also become a cultural asset in the classroom community. Teachers will find positive ways to incorporate this diversity into their instructional programs and into the classroom environment.

Most English language learners in Ontario schools have an age-appropriate proficiency in their first language. Although they need frequent opportunities to use English at school, there are important educational and social benefits associated with continued development of their first

language while they are learning English. Teachers need to encourage parents to continue to use their own language at home in rich and varied ways as a foundation for language and literacy development in English. It is also important for teachers to find opportunities to bring students' languages into the classroom, using parents and community members as a resource.

During their first few years in Ontario schools, English language learners may receive support through one of two distinct programs from teachers who specialize in meeting their language-learning needs:

English as a Second Language (ESL) programs are for students born in Canada or new-comers whose first language is a language other than English, or is a variety of English significantly different from that used for instruction in Ontario schools.

English Literacy Development (ELD) programs are primarily for newcomers whose first language is a language other than English, or is a variety of English significantly different from that used for instruction in Ontario schools, and who arrive with significant gaps in their education. These children generally come from countries where access to education is limited or where there are limited opportunities to develop language and literacy skills in any language. Some Aboriginal students from remote communities in Ontario may also have had limited opportunities for formal schooling, and they also may benefit from ELD instruction.

In planning programs for children with linguistic backgrounds other than English, teachers need to recognize the importance of the orientation process, understanding that every learner needs to adjust to the new social environment and language in a unique way and at an individual pace. For example, children who are in an early stage of English-language acquisition may go through a "silent period" during which they closely observe the interactions and physical surroundings of their new learning environment. They may use body language rather than speech or they may use their first language until they have gained enough proficiency in English to feel confident of their interpretations and responses. Students thrive in a safe, supportive, and welcoming environment that nurtures their self-confidence while they are receiving focused literacy instruction. When they are ready to participate, in paired, small-group, or whole-class activities, some students will begin by using a single word or phrase to communicate a thought, while others will speak quite fluently.

With exposure to the English language in a supportive learning environment, most young children will develop oral fluency quite quickly, making connections between concepts and skills acquired in their first language and similar concepts and skills presented in English. However, oral fluency is not a good indicator of a student's knowledge of vocabulary or sentence structure, reading comprehension, or other aspects of language proficiency that play an important role in literacy development and academic success. Research has shown that it takes five to seven years for most English language learners to catch up to their English-speaking peers in their ability to use English for academic purposes. Moreover, the older the children are when

they arrive, the more language knowledge and skills they have to catch up on, and the more direct support they require from their teachers.

Responsibility for students' English-language development is shared by the classroom teacher, the ESL/ELD teacher (where available), and other school staff. Volunteers and peers may also be helpful in supporting English language learners in the arts classroom. Teachers must adapt the instructional program in order to facilitate the success of these students in their classrooms. Appropriate adaptations for the arts program include:

- modification of some or all of the subject expectations so that they are challenging but attainable for the learner at his or her present level of English proficiency, given the necessary support from the teacher;
- use of a variety of instructional strategies (e.g., extensive use of visual cues, images, diagrams, visual representations of key ideas, graphic organizers, scaffolding; manipulation of images to find solutions to a design problem; pre-teaching of key vocabulary; peer tutoring; use of music, movement, and gestures; strategic use of students' first languages);
- use of a variety of learning resources (e.g., simplified text, graphic novels, arts-specific word walls, songs that teach language, bilingual dictionaries; visual material, displays, art work, diagrams that show how to use materials, graphical information from textbooks, manipulatives, modelling clay; music, plays, dances, materials to be used in open-ended activities, and materials that reflect cultural diversity);
- use of assessment accommodations (e.g., granting of extra time; use of oral interviews and presentations; participation in dance or physical drama; participation in songs or chants; use of portfolios, demonstrations, visual representations or models (e.g., sketches, drawings, paintings, sculptures), or tasks requiring completion of graphic organizers instead of essay questions and other assessment tasks that depend heavily on proficiency in English).

In general, the arts provide English language learners with multiple modes of expression beyond written and oral texts, and support achievement for these learners across the curriculum.

Although the degree of program adaptation required will decrease over time, students who are no longer receiving ESL or ELD support may still need some program adaptations to be successful. If a student's program has been modified, a checkmark must be placed in the ESL/ELD box on the student's report card. If the student requires modified expectations, the appropriate statement from the Guide to the Provincial Report Card, Grades 1–8, 1998 (page 8) must be inserted.

For further information on supporting English language learners, refer to the following documents:

- Supporting English Language Learners in Grades 1 to 8: A Practical Guide for Ontario Educators, 2008

- Supporting English Language Learners with Limited Prior Schooling: A Practical Guide for Ontario Educators, Grades 3 to 12, 2008

- English Language Learners – ESL and ELD Programs and Services: Policies and Procedures for Ontario Elementary and Secondary Schools, Kindergarten to Grade 12, 2007

- Supporting English Language Learners in Kindergarten: A Practical Guide for Ontario Educators, 2007

- Many Roots, Many Voices: Supporting English Language Learners in Every Classroom – A Practical Guide for Ontario Educators, 2005

ENVIRONMENTAL EDUCATION AND THE ARTS

Environmental education is education about the environment, for the environment, and in the environment that promotes an understanding of, rich and active experience in, and an appreciation for the dynamic interactions of:

- The Earth’s physical and biological systems
- The dependency of our social and economic systems on these natural systems
- The scientific and human dimensions of environmental issues
- The positive and negative consequences, both intended and unintended, of the interactions between human-created and natural systems.

Shaping Our Schools, Shaping Our Future: Environmental Education in Ontario Schools (June 2007), p. 6

As noted in Shaping Our Schools, Shaping Our Future: Environmental Education in Ontario Schools, environmental education “is the responsibility of the entire education community. It is a content area and can be taught. It is an approach to critical thinking, citizenship, and personal responsibility, and can be modelled. It is a context that can enrich and enliven education in all subject areas, and offer students the opportunity to develop a deeper connection with themselves, their role in society, and their interdependence on one another and the Earth’s natural systems” (page 10).

There are many opportunities to integrate environmental education into the teaching of the arts. Nature often provides an inspirational starting point for creativity in both representational and more abstract art forms. Indeed, a sense of connection to the immediate environment and the natural world is frequently reflected in the arts – for example, Paleolithic cave paintings of animals, traditional dances and performances that evoke aspects of nature, landscape painting, and Impressionist music. To facilitate these connections, arts teachers are encouraged to take students out of the classroom and into the world beyond the school to help students observe,

explore, and investigate nature, and to design activities that allow students to integrate natural materials into their creative works.

The arts can also be used as powerful forms of expression for students to use to explore and articulate the social and political impact of issues related to the environment. They can also serve as effective media to advocate protection of and respect for the environment. As well, the actual use of arts materials can be related to environmental education. Many safety guidelines are followed to reduce harmful effects arising from the interaction of potentially hazardous substances with the environment. The safe handling and disposal of substances used in the arts provides opportunities for students to explore how everyday human interactions with the environment can have significant consequences.

ANTIDISCRIMINATION EDUCATION IN THE ARTS PROGRAM

The implementation of antidiscrimination principles in education influences all aspects of school life. It promotes a school climate that encourages all students to work to high standards, affirms the worth of all students, and helps students strengthen their sense of identity and develop a positive self-image. It encourages staff and students alike to value and show respect for diversity in the school and the wider society. It requires schools to adopt measures to provide a safe environment for learning, free from harassment, violence, and expressions of hate.

Antidiscrimination education encourages students to think critically about themselves and others in the world around them in order to promote fairness, healthy relationships, and active, responsible citizenship.

Schools also have the opportunity to ensure that school–community interaction reflects the diversity in the local community and wider society. Consideration should be given to a variety of strategies for communicating and working with parents and community members from diverse groups, in order to ensure their participation in such school activities as plays, concerts, and teacher interviews. Families new to Canada, who may be unfamiliar with the Ontario school system, or parents of Aboriginal students may need special outreach and encouragement in order to feel comfortable in their interactions with the school.

In an inclusive arts program, learning resources and art work presented for analysis reflect the broad range of both female and male students' interests, backgrounds, cultures, and experiences. Teachers routinely use materials that reflect the diversity of Canadian and world cultures, including those of contemporary First Nation, Métis, and Inuit peoples, and ensure that students have access to such material. At the same time, the creation of various forms of art, inspired by styles from diverse cultures, provides opportunities for students to explore issues relating to their self-identity.

Students should be made aware of the historical, cultural, and political contexts of both the traditional and non-traditional gender and social roles represented in the material they are studying. Attention should be drawn to the ways in which minority groups are represented. In visual arts, for instance, examples can be taken from traditional art forms and crafts, which in

the past were largely the purview of women, as well as from fine arts. In music, male and female students should be encouraged to play instruments of their choice without facing gender bias. In dance, same-sex partnering and grouping should be supported, and opportunities to explore non-stereotypical social roles in dance forms should be provided. The dramatic arts provide opportunities for teachers and students to examine the work of Aboriginal storytellers and playwrights and those from other minority groups.

Outside the classroom, the work of women and many minority groups is underrepresented in public galleries, theatres, dance and music concert halls, and the world of popular culture. As a result, women's and minority perspectives and viewpoints in drama, film, dance, music, and the visual arts are limited. Changes are occurring, however. For example, many instrumental music groups hold auditions for new members behind a screen so that the evaluators cannot tell whether they are assessing female or male instrumentalists. Nevertheless, there are few female conductors of major orchestras in the world, and in the dance world, the works of male choreographers predominate. Teachers should make students aware of these equity issues and ensure that the work of a socio-culturally and historically diverse range of both women and men is valued and explored. As well, teachers should provide positive role models for both male and female students in the areas they are exploring, both to engage the students and to help students consider the possibility of careers in those areas.

The arts give both students and teachers a unique way to explore positive ways of dealing with the social and emotional impact of various forms of discrimination, such as racism, sexism, homophobia, and religious intolerance, as well as the effects of bullying, harassment, and other expressions of violence and hatred. Teachers can help students link the understanding they gain in this regard to messages conveyed through the school's antibullying and violence-prevention programming.

Participation in the arts can also benefit students who have not had educational or economic advantages. By being actively engaged in arts activities, students become motivated and can develop the ability to be persistent in tasks; through their successes, they develop self-confidence. In addition, participation in the arts gives them opportunities to develop social skills, such as skills in conflict resolution, self-control, and collaboration, as well as social tolerance and empathy. They can also learn to take creative risks in a safe environment.

LITERACY, NUMERACY, AND INQUIRY IN THE ARTS

Literacy, numeracy, and inquiry and research skills are critical to students' success in all subjects of the curriculum and in all areas of their lives. Literacy is defined as the ability to use language and images in rich and varied forms to read, write, listen, view, represent, and think critically about ideas. It involves the capacity to access, manage, and evaluate information; to think imaginatively and analytically; and to communicate thoughts and ideas effectively. Literacy includes critical thinking and reasoning to solve problems and make decisions related to issues

of fairness, equity, and social justice. Literacy connects individuals and communities and is an essential tool for personal growth and active participation in a cohesive, democratic society.

Reach Every Student: Energizing Ontario Education (2008), p. 6

“Literacy instruction must be embedded across the curriculum. All teachers of all subjects... are teachers of literacy” (Think Literacy Success, Grades 7–12: The Report of the Expert Panel on Students at Risk in Ontario, 2003, p. 10). This instruction takes different forms of emphasis in different subjects and needs to be explicitly taught.

In the arts, literacy includes writing artistic statements and storyboards, connecting illustrations and text, role playing to make meaning from stories, learning songs, researching, discussing, listening, viewing media, and – especially important for kinesthetic learners – participating in action and physical activity. Students use language to record their observations, to describe their critical analyses in both informal and formal contexts, and to present their findings in presentations and reports in oral, written, graphic, and multimedia forms. Understanding in the arts requires the use and understanding of specialized terminology. In all arts programs, students are required to use appropriate and correct terminology, and are encouraged to use language with care and precision in order to communicate effectively.

Fostering students’ communication skills is an important part of the teacher’s role in the arts classroom. Students need to be able to use aural, oral, physical, and visual communication as well as reading, writing, and media literacy skills to gain new learning in the arts and to communicate their understanding of what they have learned.

Oral communication skills are fundamental to the development of arts literacy and are essential for thinking and learning. Through purposeful talk, students not only learn to communicate information but also explore and come to understand ideas and concepts, identify and solve problems, organize their experience and knowledge, and express and clarify their thoughts, feelings, and opinions.

To develop their oral communication skills, students need numerous opportunities to listen to information and talk about a range of subjects in the arts. The arts program provides opportunities for students to engage in various oral activities in connection with expectations in all the strands, such as brainstorming to identify what they know about a new topic they are studying, discussing strategies for solving a problem, presenting and defending ideas or debating issues, and offering critiques or feedback on an art work and expressed opinions of their peers.

Students’ understanding is revealed through both oral and written communication, but it is not necessary for all critical analysis in arts learning to involve a written communication component. Students need opportunities to focus on their oral communication without adding the additional responsibility of writing.

Whether students are talking or writing about their arts learning, teachers can prompt them to explain their thinking and reasoning behind a particular solution, design, or strategy, or to reflect on what they have done, by asking questions. Because a rich, open-ended question provides the starting point for an effective inquiry or for addressing a problem, it is important that teachers model such questions for their students and allow students multiple opportunities to ask, and find answers to, their own questions.

When reading texts related to the arts, students use a different set of skills than they do when reading fiction. They need to understand vocabulary and terminology that are unique to the various arts disciplines, and must be able to interpret symbols, charts, and diagrams. To help students construct meaning, it is essential that teachers of the arts model and teach the strategies that support learning to read while students are reading to learn in this subject area.

The Ministry of Education has facilitated the development of materials to support literacy instruction across the curriculum. Helpful advice for integrating literacy instruction in the arts may be found in the following resource materials:

- A Guide to Effective Literacy Instruction, Grades 4 to 6, Volume Seven: Media Literacy, 2008
- Me Read? No Way! A Practical Guide to Improving Boys' Literacy Skills, 2004
- Think Literacy: Cross-Curricular Approaches, Grades 7–12, 2003
- Think Literacy: Cross-Curricular Approaches, Grades 7–12 – Subject-Specific Examples: Drama and Dance, Grades 7–10, 2005
- Think Literacy: Cross-Curricular Approaches, Grades 7–12 – Subject-Specific Examples: Music, Grades 7–9, 2004
- Think Literacy: Cross-Curricular Approaches, Subject-Specific Examples: Music, Grades 1–6, 2008
- Think Literacy: Cross-Curricular Approaches, Grades 7–12 – Subject-Specific Examples: Visual Arts, Grades 7–12, 2005
- Webcasts for Educators: Critical Literacy, November 29, 2007 (available through <http://www.edu.gov.on.ca> or on DVD)

In addition to providing opportunities for literacy development, the arts program also builds on, reinforces, and enhances mathematical literacy. For example, clear, concise communication often involves the use of diagrams, charts, tables, and graphs, and many components of the arts curriculum emphasize students' ability to interpret and use symbols and graphic texts.

Inquiry is at the heart of learning in all subject areas. In the arts program, students are encouraged to develop their ability to ask questions and to explore a variety of possible answers

to those questions. As they advance through the grades, they acquire the skills to locate relevant information from a variety of sources, such as books, periodicals, dictionaries, encyclopedias, interviews, videos, and the Internet. The questioning they practiced in the early grades becomes more sophisticated as they learn that all sources of information have a particular point of view and that the recipient of the information has a responsibility to evaluate it, determine its validity and relevance, and use it in appropriate ways. The ability to locate, question, and validate information allows a student to become an independent, lifelong learner.

CRITICAL THINKING AND CRITICAL LITERACY IN THE ARTS

Critical thinking is the process of thinking about ideas or situations in order to understand them fully, identify their implications, make a judgement, and/or guide decision making. Critical thinking includes skills such as questioning, predicting, hypothesizing, analyzing, synthesizing, examining opinions, identifying values and issues, detecting bias, and distinguishing between alternatives. It involves an inquiry process of exploring questions about and solutions for issues that are not clearly defined and for which there are no clear-cut answers. Students who are taught these skills become critical thinkers who do not merely accept the obvious as a given.

Students use critical thinking skills in the arts when they assess, analyse, and/or evaluate the impact of something and when they form an opinion about something and support that opinion with a rationale. In order to do these things, students need to examine the opinions and values of others, detect bias, look for implied meaning, and use the information gathered to form a personal opinion or stance, or a personal plan of action with regard to making a difference.

As they work to achieve the arts expectations, students frequently need to identify the possible implications of choices. As they gather information from a variety of sources, they need to be able to interpret what they are listening to, reading, or viewing; to look for instances of bias; and to determine why that source might express that particular bias.

In developing critical thinking skills in the arts, students must ask good questions to interpret information, detect bias, and consider the values and perspectives of a variety of groups and individuals.

Critical literacy is the capacity for a particular type of critical thinking that involves looking beyond the literal meaning of a text to determine what is present and what is missing, in order to analyse and evaluate the text's complete meaning and the author's intent. Critical literacy goes beyond conventional critical thinking by focusing on issues related to fairness, equity, and social justice. Critically literate students adopt a critical stance, asking what view of the world the text advances and whether they find this view acceptable, who benefits from the text, and how the reader is influenced.

In the arts, students who are critically literate are able, for example, to actively analyse art works and texts to identify possible meanings. They are able to determine what biases might be contained in an art work and why that might be, how the content of the art work was

determined and by whom, and whose perspectives might have been left out and why. These students would then be equipped to produce their own interpretation of the issue. Opportunities should be provided for students to engage in a critical discussion of “texts”, which can include television programs, movies, web pages, advertising, music, gestures, oral texts, visual art works, and other means of expression. This discussion empowers students to understand how the authors of texts are trying to affect and change them as members of society. Language and communication are never neutral: they are used to inform, entertain, persuade, and manipulate.

Critically literate students understand that meaning is not found in texts in isolation. People make sense of a text, or determine what a text means, in a variety of ways. Students therefore need to be aware of points of view (e.g., those of parents and students), the context (e.g., the beliefs and practices of the time and place in which a text is read), the background of the person interacting with the text (e.g., upbringing, friends, school and other communities, education, experiences), intertextuality (e.g., information that a viewer brings to a film from other films viewed previously), gaps in the text (e.g., information that is left out and that the reader must fill in), and silences in the text (e.g., voices of a person or group not heard).

MULTIPLE LITERACIES IN THE ARTS

The arts disciplines ... are basic: as means of communication, as historical components of civilization, and as providers of unique forms of knowledge. As such, they need no other justification as essential components of education. While study in the arts disciplines may enhance other skills, encourage personal development, or lead to a stronger economic base for professional presentation of the arts, these are not and should not be the primary reasons for their study. The goal of all education in the arts should be the development of basic literacy in dance, music, theater, and the visual arts. Such literacy is grounded in the study of the language and grammar of each art form as they are related directly to creation, performance, or exhibition. Studies in the history, literature, and analysis of the arts at the appropriate time are equally important in the development of artistic literacy.

Thomas A. Hatfield, “The Future of Art Education: Student Learning in the Visual Arts”, *NASSP Bulletin* 82/597 (1998), pp. 11–12

In developing their understanding of the world, young children respond to gesture and movement before they react to the spoken word. They understand and explore the use of sound before they learn to speak. They draw pictures before they form letters. They dance and role-play stories before they learn to read. Gestures, movement, sound, and images are symbol systems for forms of thinking and communication that allow children, as students, to formulate ideas and express observations and understandings.

Literacies in the arts are developed as students learn in, through, and about different art forms within the arts disciplines and as they learn to use the “languages” of these disciplines to communicate and to interpret meaning. There are many ways of knowing and of communicating

what we know and understand, and the arts provide multiple avenues for expression. These include the visual (e.g., still and animated images, layout, design, hypermedia, three-dimensional forms), oral (e.g., timbre and tone of voice), gestural (e.g., body language, kinesthetic movement), and aural (e.g., music, sound effects) – in fact, anything that can be “read”, whether it uses print or other symbol systems to communicate. Visual, auditory, or kinesthetic signs and symbols are used by artists, choreographers, composers, dancers, dramatists, and musicians as part of the language of their discipline.

Because the arts offer various ways of knowing and different forms of communication, they provide students with relevant options for developing and representing their understanding. Education in arts programs is relevant to learning in all subjects because it offers students different means of expression while strengthening linguistic literacy, and it offers teachers various ways of differentiating instruction and engaging students in learning. In addition, since art forms, genres, styles, and techniques are rooted in a cultural context, students have an opportunity to develop an understanding of the meaning of the artistic languages used in art forms from various cultures by studying art forms in their cultural context.

The various arts disciplines are therefore a vital component of literacy education. The arts disciplines promote literacies that contribute to students’ ability to explore, negotiate, communicate, interpret, and make sense of the changing realities of contemporary culture, technology, and society. Since technological advances continue to develop at an unprecedented rate, educators should promote the learning of multiple literacies as crucial to living successfully in an age in which communication and change have so much importance. Education in the arts prepares students not only to adapt to change but also to be active participants in bringing about change.

THE ROLE OF THE SCHOOL LIBRARY IN ARTS PROGRAMS

The school library program can help to build and transform students’ knowledge to support a lifetime of learning in an information- and knowledge-based society. The school library program supports student success across the arts curriculum by encouraging students to read widely, teaching them to read many forms of text for understanding and enjoyment, and helping them to improve their research skills and to use information gathered through research effectively. The school library program enables students to:

- develop a love of reading for learning and for pleasure;
- develop a critical appreciation of works of art;
- acquire an understanding of the richness and diversity of artistic and informational texts produced in Canada and around the world;
- obtain access to programs, resources, and integrated technologies that support all curriculum areas;

- understand and value the role of public library systems as a resource for lifelong learning.

The school library program plays a key role in the development of information literacy and research skills. In collaboration with classroom or content-area teachers, teacher-librarians design, teach, and provide students with authentic information and research tasks that foster learning, including the ability to:

- access, select, gather, process, critically evaluate, create, and communicate information;
- use the information obtained to explore and investigate issues, solve problems, make decisions, build knowledge, create personal meaning, and enrich their lives;
- communicate their findings for different audiences, using a variety of formats and technologies;
- use information and research with understanding, responsibility, and imagination.

In addition, teacher-librarians can work with teachers of the arts to help students to:

- develop literacy in using non-print forms, such as the Internet, CDs, DVDs, and videos, in order to access images of art works, critical reviews, and a variety of performances;
- design inquiry questions for research for arts projects;
- create and produce art works in dance, drama, music, and the visual arts, including media/multimedia works, that communicate their experiences.

Teachers of the arts are also encouraged to collaborate with both local librarians and teacher-librarians on collecting digital, print, and visual resources for arts projects (e.g., storybooks on a theme or topic to inspire role play, picture books for artistic inspiration, culture-specific and large-format image collections, informational and performance videos). Librarians may also be able to assist in accessing a variety of online resources and collections (e.g., professional articles, image galleries, videos).

In addition to resource materials in the school library, teachers may be able to access specialized libraries of plays, musical scores, and copyright-free music collections for use in video editing. Teachers need to discuss with students the concept of ownership of work and the importance of artists' copyright in all forms of art.

THE ROLE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY IN ARTS EDUCATION

Information and communications technologies (ICT) provide a range of tools that can significantly extend and enrich teachers' instructional strategies and support students' learning in the arts. ICT tools include multimedia resources; databases; Internet websites; digital

cameras; notation, sequencing, and accompaniment software; and software for animation, image/video editing, and graphic design. Computer programs can help students to collect, organize, and sort the data they gather, and to write, edit, and present reports on their findings. ICT can also be used to connect students to other schools, at home and abroad, and to bring the global community into the local classroom.

The integration of technology into the arts curriculum represents a natural extension of the learning expectations associated with each art form. An education in the arts will engage students in the use of a wide range of technologies through which artistic expression can be achieved. The most obvious example is the use of multimedia technologies, which primarily involves the process of solving artistic problems through the application of various technologies, such as still and video photography, sound recording, and digital technologies. In the dance curriculum, students are expected to use computer technology as a compositional tool. In drama, students can gain facility in the use of lighting, sound, and other production technologies. Music education includes the use of analog and digital technology. Many visual arts activities engage students in the use of current technologies both as research tools and as creative media. Of particular interest in all of the arts is an analysis of the impact of various technologies on contemporary society.

Whenever appropriate, therefore, students should be encouraged to use ICT to support and communicate their learning. For example, students working individually or in groups can use computer technology and/or Internet websites to gain access to museums and archives in Canada and around the world. Students can also use digital cameras and projectors to design and present multimedia works, as well as to record the process of creating their arts projects.

Although the Internet is a powerful learning tool, all students must be made aware of issues of privacy, safety, and responsible use, as well as of the ways in which the Internet can be used to promote hatred.

ICT tools are also useful for teachers in their teaching practice, both for class instruction and for the design of curriculum units that contain varied approaches to learning to meet diverse student needs. A number of educational software programs to support the arts are licensed through the ministry and are listed on www.osapac.org under the software link.

GUIDANCE IN ARTS EDUCATION

The guidance and career education program should be aligned with the arts curriculum. Teachers need to ensure that classroom learning across all grades and subjects provides ample opportunity for students to learn how to work independently (e.g., complete homework independently), cooperate with others, resolve conflicts, participate in class, solve problems, and set goals to improve their work.

The arts help students learn and apply skills that will be useful throughout their lives – for example, the ability to use a range of modes of communication and representation; to make

qualitative judgements; to act on the awareness that problems can have more than one solution and that there are many ways to see and interpret the world; and to take circumstances into account when solving problems. Research shows that learning about and participating in the arts improves self-esteem, empathy, confidence, and self-motivation. As well, learning through participation in the arts can benefit students across the spectrum of ability, achievement, and interests. Research also shows that, when the arts are an integral part of the school environment, students have better attendance, are more motivated to learn, have improved multicultural understanding, and are more likely to stay in school and graduate.

The arts and cultural industries are among the largest sectors of the Canadian economy. In fact, the work force in the culture sector has increased over a recent twenty-year period at a much faster rate than the total work force in Canada.⁶ Educational and career opportunities related to the arts are consequently many and varied. The arts program can offer opportunities for a variety of career exploration activities, including career mentorships and visits from a wide variety of guest speakers in the arts – for example, actors, animators, architects, artists, audio and video technicians, choreographers, comedians, composers, critics, dancers, designers, directors, educators, gallery or museum curators, graphic artists, illustrators, music arrangers, musicians, photographers, recording engineers, sculptors, video and recording editors, web designers, and individuals working in film, television, special effects, and interactive media (such as game designers and programmers).

⁶ Paul Sereda, “Culture Employment in a North American Context: 1981 to 2001” (Ottawa: Statistics Canada, 2007), p. 18.

HEALTH AND SAFETY IN ARTS EDUCATION

Teachers must model safe practices at all times and communicate safety expectations to students in accordance with school board and Ministry of Education policies. To carry out their responsibilities with regard to safety, it is important that teachers have concern for their own and their students’ safety, and that they ensure that safe practices are followed at all times when using tools, materials, and equipment and when participating in performance tasks. The following are some ways of ensuring that classes in the arts are safe:

- Ensure that all tools are used safely – for example, scissors, linoleum cutters, and other sharp tools, and hot glue guns. Note: Teachers supervising students who are using power tools, such as drills, sanders, and saws, need to have specialized training in handling such tools.
- Choose non-toxic materials for students to use, such as non-toxic glues, glazes, and paints. Avoid toxic materials, such as solvent-based markers or painting materials, and avoid choosing substances that are hazardous if inhaled, such as aerosol paints or fixatives. Also ensure that students follow safe practices when using any materials – for example, washing their hands after handling art materials and not putting materials or tools in their mouths.

- Ensure that students take precautions when using materials that are in a powdered state and that therefore can be inadvertently inhaled. For example, instruct students not to sand plaster or clay when it is in a dry state; not to use paint pigments or wallpaper paste in a powdered state; and not to “blow” chalk pastel off an art work but rather tap the work onto damp newsprint. They should also wet-mop and wipe surfaces after using clay or any other art media that create dust.

- Ensure that all equipment is safe and that it is also handled safely. Props need to be safe – for example, costumes should be short enough so that students will not trip when wearing them, and masks should permit clear vision. Secure sound and lighting equipment. Ensure that kilns are properly ventilated. Instruct students not to play musical instruments close to others’ ears. Make sure that musical instruments are sterilized after use (e.g., brass and woodwind mouthpieces).

- Ensure that safe practices are followed in all performance tasks. For example, have students do warm-up exercises before dance activities, drama activities, and singing. Have them wear appropriate footwear for movement activities (or have them do the activities in bare feet, if appropriate). Choose songs that fall within an appropriate range for the students, and ensure that primary students use their voices in a way that is appropriate for their high, light voices. Ensure that students use proper playing techniques. Also, ensure that ladders are used safely when setting up stages; manage the pace of activities; and manage the use of space (e.g., move obstacles to allow for creative movement or performance).

- Ensure that students feel comfortable emotionally and psychologically. For example, discuss emotional roles in drama; encourage sensitivity to others’ cultural values; and encourage students to be aware of the personal space of others, emphasizing that touching required for a dance or drama activity needs to be respectful.

It is also important that parents ensure that appropriate school staff members are informed of any allergies their children may have, especially in the case of younger children – for example, an allergy to latex. Teachers should take those allergies into consideration when preparing arts lessons – for example, having them use non-latex gloves and masks and other forms of glue and make-up.

Students demonstrate that they have the knowledge, skills, and habits of mind required for safe participation in arts activities when they:

- maintain a well-organized and uncluttered work space;
- follow established safety procedures;
- identify possible safety concerns;
- suggest and implement appropriate safety procedures;

- carefully follow the instructions and example of the teacher;
- consistently show care and concern for their safety and that of others.

It is recommended that teachers not use donated art materials unless the ingredients are clearly labelled and known to meet current safety standards. New materials should also be clearly labelled or have a written product description to accompany them (e.g., information on the box or a material safety data sheet describing the contents of a paint tube).

GRADE 6

A. DANCE

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

- A1. Creating and Presenting: apply the creative process (see pages 19–22) to the composition of short dance pieces, using the elements of dance to communicate feelings and ideas;
- A2. Reflecting, Responding, and Analyzing: apply the critical analysis process (see pages 23–28) to communicate their feelings, ideas, and understandings in response to a variety of dance pieces and experiences;
- A3. Exploring Forms and Cultural Contexts: demonstrate an understanding of a variety of dance forms, traditions, and styles from the past and present, and their sociocultural and historical contexts.

Fundamental Concepts for Grade 6

Students in Grade 6 will develop or extend understanding of the following concepts through participation in various dance experiences (e.g., communicating a variety of ideas through combined elements), with particular emphasis on body, space, time, energy, and relationship.

Elements of dance

- body: body awareness, use of body parts, body shapes, locomotor and non-locomotor movements, body bases, symmetry versus asymmetry, geometric versus organic shape, curved versus angular shape
- space: pathways, directions, positive versus negative space, proximity of dancers to one another, various group formations
- time: tempo, rhythm, pause, stillness, with music, without music, duration (e.g., short, long), acceleration/deceleration

- energy: effort, force, quality (e.g., flick, fold, stab, poke, flow freely)
- relationship: dancers to props/objects (e.g., in front of, inside, over, around), meet/part, follow/lead, emotional connections between dancers, groupings

SPECIFIC EXPECTATIONS

A1. Creating and Presenting

By the end of Grade 6, students will:

A1.1 incorporate the use of props and materials (e.g., fabric, chairs, hats, hula hoops, balls, sticks) into dance pieces they create (e.g., use fabric as a shawl or an extension of an arm gesture or the movement of a ship’s sail; use a stretchy fabric body bag to create abstract shapes; use an artefact like a garbage can to explore rhythm and body movement)

Teacher prompts: “When creating a dance, how could you use chairs to explore relationship (e.g., over, in front of, behind), shape, and levels?” “How can you use the prop (e.g., streamer, fabric) as an extension of your body to make shapes, pathways, and lines to emphasize or extend movement?”

A1.2 use dance as a language to interpret and depict central themes in literature (e.g., develop a movement vocabulary that reinterprets themes such as good versus evil or humans versus nature; construct a dance that explores bravery in a legend or peace in a poem)

Teacher prompts: “What types of shapes or pathways would you use to communicate frustration?” “How could you use level to depict feelings of freedom or authority?”

A1.3 use guided improvisation in a variety of ways as a starting point for choreography (e.g., use exercises such as mirroring, flocking, and body storming to create movement material for choreography)

Teacher prompt: “How can a guided improvisation like flocking expand your movement vocabulary?”

A1.4 combine the elements of dance in different ways to communicate a variety of ideas (e.g., combine a low level and a wavy pathway to show evasion; use the sudden, quick, and indirect movements of a dynamic orchestra conductor and translate them into a whole body expression of the music)

Teacher prompts: “What elements could you combine to show that you are on a dangerous mission?” “What elements could you combine to show that you are excited? Or bored?”

A2. Reflecting, Responding, and Analyzing

By the end of Grade 6, students will:

A2.1 construct personal interpretations of dance pieces that depict stories, issues, and themes, and explain their interpretations, using dance terminology (e.g., write an opinion paragraph on a recorded or live community dance performance [Red Sky]; write a response journal entry on a dance piece performed by peers about a social issue [emotional or physical bullying, friendship, safety, fairness, family, inclusion, equity])

Teacher prompts: “How do we know this dance is about bullying? What elements helped make the theme clear?” “What did this dance mean to you? What themes or stories did you see in it?”

A2.2 analyse, using dance vocabulary, how the elements of dance are used in their own and others’ dance pieces and explain how they help communicate messages and ideas (e.g., pairing free-flowing movements with slow music suggests a dreamy mood; using low levels and quick, short movements suggests busyness; using symmetry and asymmetry conveys the idea of change or transformation)

Teacher prompt: “What elements did the dancers use to communicate joy/surprise? Were the ideas clearly communicated through movement? What does the dancing suggest that couldn’t have been expressed in another way?”

A2.3 identify and give examples of their strengths and areas for growth as choreographers and audience members (e.g., determine how their preparations for a performance improved the performance and what they might do differently to strengthen future performances)

Teacher prompts: “What skills do you need to be a choreographer? How can you hone these skills?” “How could you use a movement web to generate more ideas for your next dance?”

A3. Exploring Forms and Cultural Contexts

By the end of Grade 6, students will:

A3.1 describe, with teacher guidance, types of dances used among Aboriginal peoples in the past and the present that express aspects of their cultural identity (e.g., dances to express prayers and/or gratitude; initiation dances to mark rites of passage; shamans’ dances to assist in physical or spiritual healing; contemporary powwow dances for cultural affirmation and/or revitalization)

Teacher prompt: “How would you describe the regalia and dance styles of powwow dances? How do these features help express the cultural identity and heritage of the dancers?”

A3.2 identify and describe ways in which pop culture and the media influence our awareness, understanding, and appreciation of dance (e.g., by making us aware of different kinds of dance and diverse uses of dance in society; by providing male role models in dance and helping us view dance as a way to have a healthy, active lifestyle)

Teacher prompts: “Do you watch popular TV shows about dance? What influence do these dance shows have on you?” “What are some of the barriers and issues around popular competitive dance shows?”

B. DRAMA

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

B1. Creating and Presenting: apply the creative process (see pages 19–22) to process drama and the development of drama works, using the elements and conventions of drama to communicate feelings, ideas, and multiple perspectives;

B2. Reflecting, Responding, and Analyzing: apply the critical analysis process (see pages 23–28) to communicate feelings, ideas, and understandings in response to a variety of drama works and experiences;

B3. Exploring Forms and Cultural Contexts: demonstrate an understanding of a variety of drama and theatre forms, traditions, and styles from the past and present, and their sociocultural and historical contexts.

Fundamental Concepts for Grade 6

Students in Grade 6 will develop or extend understanding of the following concepts through participation in various drama experiences.

ELEMENTS OF DRAMA

- role/character: considering in depth the inner and outer life in developing a character; differentiating between authentic characters and stereotypes; using gestures and movement to convey character
- relationship: analyzing and portraying how relationships influence character development/change
- time and place: establishing a clear setting; sustaining belief in the fictional setting
- tension: using sound, light, technology, and stage effects to heighten tension/suspense
- focus and emphasis: using drama conventions to reveal or communicate key emotions, motivations, perspectives, and ideas to the audience

SPECIFIC EXPECTATIONS

B1. Creating and Presenting

By the end of Grade 6, students will:

B1.1 engage actively in drama exploration and role play, with a focus on identifying and examining a range of issues, themes, and ideas from a variety of fiction and non-fiction sources and diverse communities, times, and places (e.g., adapt roles and develop improvised scenes based on human rights issues and/or environmental issues such as species extinction; dramatize opinions about cultural appropriation; role-play historical characters; prepare a presentation about peace for Remembrance Day; use choral speaking and role playing to interpret poetry)

Teacher prompts: “What do you hope to learn about this character through role playing?” “What is the theme of our drama?” “How could you use the drama conventions of hot seating or voices in the head or thought tracking to develop a deeper understanding of a character’s intentions and motivations?”

B1.2 demonstrate an understanding of the element of role by selectively using other elements (e.g., time and place; relationship; tension) to build belief in a role and establish its dramatic context (e.g., develop a character in the context of a courtroom drama: judge, lawyer, witness, juror, the accused)

Teacher prompts: “What elements are critically important to build belief in the drama?” “What will the jury be doing when the accused person enters?” “How will we know where and when the action is taking place?” “How can tension be created in this scene?” “What different points of view will be represented by the different roles?”

B1.3 plan and shape the direction of the drama or role play by introducing new perspectives and ideas, both in and out of role (e.g., In role: conduct a “hot seat” interview with the protagonist or antagonist; Out of role: make suggestions and introduce new ideas when planning a drama presentation)

Teacher prompts: Out of role: “What questions might you ask when you go back into role to help us understand the emotions and motivations the character has at this key moment?” In role: “Why do you feel this way? What do you really want to see happen?”

B1.4 communicate feelings, thoughts, and ideas to a specific audience, using audio, visual, and/or technological aids to strengthen the impact on the viewer (e.g., use a data projector to project evocative imagery; use filters and gels to create unusual effects with lighting; use music to suggest a mood; use masks to highlight specific character traits)

Teacher prompts: “What features of your mask have you exaggerated to allow the audience to see the character from a distance (e.g., heavy brows, large nose, large eyes, jutting chin)?” “How can you use a photograph or everyday object from another historical period to communicate an aspect of that person/time/place?” “What visual effect would emphasize what this character is feeling on the inside?”

B2. Reflecting, Responding, and Analyzing

By the end of Grade 6, students will:

B2.1 express personal responses and preferences and make connections to themes and issues presented in their own and others' drama works (e.g., describe their response to the attitudes and beliefs of specific characters in a drama)

Teacher prompts: "How did this drama/play make you feel? Of what does it remind you?" "What did you like/dislike about this play? Why?" "Select one moment that you would like to revisit to change. How would you change it?" "Identify a moment in your drama when you felt fully in role."

B2.2 identify a favourite scene and give reasons for their preference, using correct drama terminology to describe how the elements of drama contribute to its effectiveness (e.g., explain what elements made the final confrontation between the hero and the villain exciting to perform or watch)

Teacher prompts: "How was symbolism used in this scene? How effectively did it help create a particular mood?" "Why was it important for the actor to stop in mid-sentence while speaking?"

B2.3 identify and give examples of their strengths, interests, and areas for improvement as drama creators, performers, and audience members (e.g., write a journal entry about a new strategy they have learned; write a letter to a new student about how to cope with stage fright; respond to interview questions about their growth and development; explain to the teacher how they collaborated and contributed to the group work of developing, planning, and designing a drama)

Teacher prompts: "What advice about (topic X) would you give a student who is new to drama?" "What are some important skills people need to work in drama?" "Describe your own strengths in drama." "How did you give/receive constructive feedback on ways in which space, gesture, and voice are used to communicate within a drama work? Was the feedback used to refine the drama work?" "What ideas did you submit to individual and collective decisions to develop the drama?" "How did you show a commitment to maintaining your role?"

B3. Exploring Forms and Cultural Contexts

By the end of Grade 6, students will:

B3.1 demonstrate an understanding of some drama and theatre themes and traditions from a variety of times, communities, and places (e.g., Aboriginal communities: storytelling forms – the Seven Grandfather teachings, Haida tales, Medicine Wheel stories; theatre forms – Red Sky Performance Theatre, De-ba-jeh-mu-jig Theatre)

Teacher prompt: “Different communities have different versions of this shared story. What elements are the same in many versions? What elements are different? How might we explain some of the similarities and differences?”

B3.2 identify and describe key contributions drama and theatre make to the community (e.g., provide opportunities for self-expression and creativity to both amateurs and professionals; provide employment for a wide variety of workers; encourage tourism; promote strengthening and healing in Aboriginal communities)

Teacher prompts: “What careers related to theatre do not involve acting?” “In what ways can drama and theatre help build community?”

C. MUSIC

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

C1. Creating and Performing: apply the creative process (see pages 19–22) to create and perform music for a variety of purposes, using the elements and techniques of music;

C2. Reflecting, Responding, and Analyzing: apply the critical analysis process (see pages 23–28) to communicate their feelings, ideas, and understandings in response to a variety of music and musical experiences;

C3. Exploring Forms and Cultural Contexts: demonstrate an understanding of a variety of musical genres and styles from the past and present, and their sociocultural and historical contexts.

Fundamental Concepts for Grade 6

In Grade 6, students will build on their knowledge of the elements of music and related musical concepts that were introduced in Grades 1 to 5. Students will develop understanding of musical concepts through participation in musical experiences that involve listening, moving, creating, and performing (vocal and/or instrumental music).

ELEMENTS OF MUSIC

- duration: 9/8 metre (oral count, with primary emphasis on “one” and secondary emphasis on “two” and “three”: “one-and-a-two-and-a-three-and-a”) and other compound metres (e.g., 6/4); 5/4 metre; pick-up note(s) (anacrusis); triplets; common Italian tempo marks (e.g., allegro, adagio) and others encountered in the repertoire performed
- pitch: ledger lines above or below the staff; major, minor, and perfect intervals (e.g. major third, perfect fifth)

- dynamics and other expressive controls: those encountered in repertoire (e.g., very soft [pianissimo – pp], very loud [fortissimo – ff], slurs)
- timbre: electronic sounds; Orff ensemble (xylophone, recorder, pitched and non-pitched percussion); other ensemble sonorities (drum line, choir, guitar, marching band)
- texture/harmony: layering of electronic sounds, chord progressions using I, IV, and V
- form: theme and variations; repeats (e.g., first and second endings)

SPECIFIC EXPECTATIONS

C1. Creating and Performing

By the end of Grade 6, students will:

C1.1 sing and/or play, in tune, from musical notation, unison music and music in two or more parts from a wide variety of cultures, styles, and historical periods (e.g., perform three- and four-part rounds by Canadian choral composers; perform pieces for Orff ensemble using recorder and pitched and non-pitched percussion; perform pieces, using technology to provide the accompaniment)

Teacher prompts: “What are some ways we can use body percussion to create a four-part round?” “What would be an effective ostinato to support your melody?”

C1.2 apply the elements of music when singing and/or playing, composing, and arranging music to create a specific effect (e.g., compose a piece in the theme and variations form, using a well-known song for the theme to engage the listener; change the metre of a familiar eight-bar melody and describe the effect of the change; remove tone bars on a xylophone to create a pentatonic tonality, and then improvise a pentatonic response on the xylophone to a call played on a recorder)

Teacher prompts: “How will you change your theme to create a set of variations?” “What effect will changing the metre of ‘Frère Jacques’ have on the music?” “Explain why your composition should (or should not) include an introduction or coda.”

C1.3 create musical compositions for specific purposes and audiences (e.g., write a melodic composition reflecting a piece of art of their own or by another, such as Norval Morrisseau or Emily Carr; create a rhythmic composition using non-pitched percussion to accompany a First Nation legend, story, or poem; with a partner, compose a song to promote Canada to the rest of the world)

Teacher prompts: “What do the lines in the painting tell you about the direction the pitches should move in?” “How could the rhythm of the syllables in your name be used as the rhythmic base for your composition?” “What is the purpose of selecting specific timbres in your accompaniment of a First Nation legend?”

C1.4 use the tools and techniques of musicianship in musical performances (e.g., conduct pieces in duple and triple metres, listen for balance and blend when singing and/or playing, interpret musical markings and Italian terms during performance)

Teacher prompt: “What are the musical characteristics that you intend to demonstrate in your performance? How will you demonstrate them?”

C1.5 demonstrate an understanding of standard and other types of musical notation through performance and composition (e.g., perform music that includes ledger lines, triplets, simple and compound metres; use original graphic or symbolic systems to represent vocal and instrumental sounds and musical ideas)

Teacher prompts: “What are the steps you need to follow in order to read and interpret this music?” “What are the similarities and differences between this devised notation system and standard notation?”

C2. Reflecting, Responding, and Analyzing

By the end of Grade 6, students will:

C2.1 express detailed personal responses to musical performances in a variety of ways (e.g., write a critical review of a live or recorded performance; write analyses of works they have listened to in a log or journal; create a drawing or graphic representation of their initial reaction to a song)

Teacher prompts: “What do you think is the mood of this piece and how is it created?” “Using musical terms, how would you describe the overall form and effect of the music?”

C2.2 identify the elements of music in the repertoire they perform, listen to, and create, and describe how they are used (e.g., describe the way in which dotted rhythms, the sound quality of brass instruments, higher pitches, loud dynamics, and accented articulation combine to suggest music that introduces royalty)

Teacher prompts: “How would you describe the rhythm?” “What are the primary instruments used by the composer?” “How is the music organized?”

C2.3 identify and give examples of their strengths and areas for improvement as composers, musical performers, interpreters, and audience members (e.g., reflect on their first draft of an original composition and incorporate suggestions from their peers into their final piece)

Teacher prompts: “What type of behaviour would you expect from your audience if you were playing a solo for the class?” “How can you improve your performance next time?”

C3. Exploring Forms and Cultural Contexts

By the end of Grade 6, students will:

C3.1 identify and describe ways in which awareness or appreciation of music is affected by culture and the media (e.g., people attend concerts of music that they know and like or have found out about through the media; people can be influenced to buy products that are advertised with music that they relate to)

Teacher prompts: “What style of music – for example orchestral, jazz, pop, rock, funk, rap, or hip hop – would you use to advertise a new video game? Why?” “Explain the appeal of using rap music to address issues of oppression and identity among Aboriginal youth.”

C3.2 compare some aspects of the music of one culture and/or historical period with aspects of the music of another culture and/or historical period (e.g., compare selected characteristics of music from the baroque and classical periods, using a Venn diagram; write a review of music from another society, comparing the music of that society with the music with which they are familiar)

Teacher prompts: “In what ways is popular music from other cultures different from or similar to North American popular music?” “Which elements of music seem to be common in all cultures?”

D. VISUAL ARTS

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

D1. Creating and Presenting: apply the creative process (see pages 19–22) to produce art works in a variety of traditional two- and three-dimensional forms, as well as multimedia art works, that communicate feelings, ideas, and understandings, using elements, principles, and techniques of visual arts as well as current media technologies;

D2. Reflecting, Responding, and Analyzing: apply the critical analysis process (see pages 23–28) to communicate feelings, ideas, and understandings in response to a variety of art works and art experiences;

D3. Exploring Forms and Cultural Contexts: demonstrate an understanding of a variety of art forms, styles, and techniques from the past and present, and their sociocultural and historical contexts.

Fundamental Concepts for Grade 6

In addition to the concepts introduced in Grades 1 to 5, students in Grade 6 will develop understanding of the following concepts through participation in a variety of hands-on, open-ended visual arts experiences.

ELEMENTS OF DESIGN

Students will develop understanding of all elements of design.

- line: lines that direct the viewer’s attention; lines that create the illusion of force or movement (e.g., wavy and wiggly lines used in op art); contour drawings of objects that are not easily recognizable (e.g., crumpled paper)
- shape and form: exaggerated proportions, motifs, fonts; geometric (e.g., conical, pyramidal) shapes and forms
- space: centre of interest (focal point) and one-point perspective; basic facial proportions; horizontal and vertical symmetry
- colour: the colour wheel; tertiary colours; colour for expressive purposes; colour for creating naturalistic images
- texture: textures created with a variety of tools, materials, and techniques (e.g., gouged marks in a soft-lead print)
- value: shading that suggests volume; gradation

PRINCIPLES OF DESIGN

Students will develop understanding of all principles of design (that is, contrast, repetition and rhythm, variety, emphasis, proportion, balance, unity and harmony, and movement), but the focus in Grade 6 will be on balance.

- balance: arrangement of the elements of design to create the impression of equality in weight or importance (e.g., a formal or symmetrical arrangement produced through distribution of shapes; an informal or asymmetrical arrangement produced through use of colour); colour concepts to be used in creating balance (e.g., light or neutral colours appear lighter in “weight” than dark or brilliant colours; warm colours seem to expand, cool colours seem to contract; transparent areas seem to “weigh” less than opaque areas)

SPECIFIC EXPECTATIONS

D1. Creating and Presenting

By the end of Grade 6, students will:

D1.1 create two-dimensional, three-dimensional, and multimedia art works that explore feelings, ideas, and issues from a variety of points of view (e.g., art work inspired by the motifs in other art forms [dance, music] or by hopes and dreams; a mixed-media piece or one-minute video “short” about adaptation and survival; a still-life painting that offers a social commentary on fast-food packaging)

Teacher prompts: “How does the music make you feel? Now, close your eyes and try to see the music. How does what you hear, feel, and see (e.g., an abstract painting by Wassily

Kandinsky) influence what you create?” “How will you convey the movement of the dancer in your sculpture?” “How will you edit the text and images in your art work to capture the viewer’s attention and convey your ideas?” “How can you compose your image to represent a particular point of view?”

D1.2 demonstrate an understanding of composition, using selected principles of design to create narrative art works or art works on a theme or topic (e.g., use a larger area of a lighter tint and a smaller area of a darker tone of one colour in an asymmetrically balanced painting; use repetition, simplification, and exaggeration of proportion and shape to create a sense of rhythm in a graphite-and-pastel drawing of musical instruments and their shadows)

Teacher prompts: “How have you used line and the repetition of shape and colour to create a sense of rhythm and the illusion of movement? What else could you repeat to create rhythm?” “How can you use small areas of brilliant, warm colour to visually balance large areas of either neutral or cool colours?”

D1.3 use elements of design in art works to communicate ideas, messages, and understandings (e.g., a design of a letter of the alphabet using shapes, symbols, colour, and font style to represent a selected animal and its habitat; a DVD cover design or movie poster that uses line, shape, space, colour, and value to communicate information about the content)

Teacher prompts: “How can colour be used in your letter design to separate your letter shape from the background?” “What images will you select and will they symbolize something in your design?” “How would you change the images and colours in your poster to appeal to younger students?” “What is the message of your work, and how has it been conveyed to the audience?”

D1.4 use a variety of materials, tools, techniques, and technologies to determine solutions to design challenges (e.g.

- drawing: use charcoal to create a shaded drawing of the exaggerated details of a face, a figure, or natural objects [e.g., shells, pods] on earth-toned papers [e.g., tan construction paper]

- mixed media: create a collage that uses a limited colour palette by cutting, pasting, and layering to combine images, symbols, textured papers, and text about consumerism or cultural pride

- painting: use a variety of paint techniques [e.g., blending, scumbling, glazing] in a mural of a landscape or cityscape incorporating stylistic elements from contemporary pop culture

- printmaking: cut and gouge a variety of lines and marks to enhance the background and negative spaces in a softoleum, linoleum, or block print that depicts an endangered animal species

- sculpture: create an assemblage on a topic or theme, using found objects that are painted or otherwise unified through colour, in the style of a sculpture by Louise Nevelson

- technology: create a digital photo montage that represents aspects of environmentalism)

Teacher prompts: “How can you arrange photographs to create balance and harmony in your collage or montage?” “How can you manipulate the relationship of shape or form in your collage by gluing some paper flat and some in relief?”

D2. Reflecting, Responding, and Analyzing

By the end of Grade 6, students will:

D2.1 interpret a variety of art works and identify the feelings, issues, themes, and social concerns that they convey (e.g., describe Ted Harrison’s use of line, colour, brushstrokes, and rhythm to create a feeling of movement and excitement; compare the themes and the emotions conveyed in selected Western animations and in Japanese animations such as those by Hayao Miyazaki)

Teacher prompts: “How does the artist convey a particular emotion through this art work?” “How does each comic style use facial expression, body language, and colour to express emotion? How have current media technologies influenced the expression of ideas in animations and comics?”

D2.2 explain how the elements and principles of design are used in their own and others’ art work to communicate meaning or understanding (e.g., identify the point of view or gaze of the main subject, and explain how it is used to influence an intended audience of an art work or a media work; explain how Kenojuak Ashevak’s use of formal balance (symmetry) in *The World Around Me* conveys a sense of harmony in nature; explain how a rough texture can be used to represent strength, anger, or something unpleasant)

Teacher prompts: “How could you show the same message in another art form, such as a sculpture, a digital medium, or a painting?” “How does Bill Reid’s *The Raven and the First Men* depict the relationship of form to its surroundings through the use of positive and negative space?”

D2.3 demonstrate an understanding of how to read and interpret signs, symbols, and style in art works (e.g., symbolism for sending messages and telling stories in Egyptian hieroglyphs, Agawa rock paintings, or graffiti art; symbols on currency or in advertisements that have specific national or other connotations; meanings associated with colour in different cultures [white dresses symbolize purity in Western culture but mourning and death in some Asian cultures])

Teacher prompts: “What are some of the feelings and ideas associated with Canadian symbols (e.g., maple leaf, beaver), and what are some of the things that they say about us as a

nation?” “What assumptions do you make about a product when its advertisement shows a man and woman holding hands? How can designers change the image to manipulate those assumptions?”

D2.4 identify and explain their strengths, their interests, and areas for improvement as creators, interpreters, and viewers of art (e.g., reflect on challenges and successes in the form of an artist’s statement; maintain a sketchbook or collection of ideas and images for art works; do peer reviews of each other’s art works, using a checklist of criteria created by the class to help them identify areas that need revision, and provide suggestions)

Teacher prompts: “How did you adapt these new ideas, situations, media, materials, processes, or technologies to help you convey your ideas?” “How did you use imagination, observation, and the study of other art works to help you develop your ideas?” “How did you negotiate designs with other members of the group and agree on the techniques, ideas, and composition you used?” “How did you approach the challenges you faced in making sure your sculpture was interesting to look at from more than one side? What would you do differently next time?”

D3. Exploring Forms and Cultural Contexts

By the end of Grade 6, students will:

D3.1 identify and describe some of the ways in which art forms and styles reflect the beliefs and traditions of a variety of communities, times, and places (e.g., art can represent ways in which people view their personal identity; contemporary Aboriginal artists use their artistic traditions to comment on identity, society, and the world; art can be a record of human experience; differences in style among different artists can be associated with a specific reason, intent, or motivation)

Teacher prompts: “How do contemporary artists use the influences of various global and/or historical art forms to explore ideas and themes that have personal relevance?” “How does Jane Ash Poitras’ combining of autobiographical elements, traditional Cree iconography, text, photographs, newspaper clippings, and painted elements address ideas about identity and acculturation?” “Describe some of the differences and similarities between the depictions of men and the depictions of women in historical and contemporary art works.”

D3.2 demonstrate an understanding of key contributions and functions of visual and media arts in various contexts at both the local and the national levels (e.g., community art schools or programs provide opportunities for creative expression and instruction by and for both amateurs and professionals; a wide variety of workers are employed by arts industries such as advertising, design, movie making, and broadcast media; artists contribute to Canada’s economy by providing both goods and services)

Teacher prompts: “In what ways do the visual arts contribute to the economies of urban and rural communities?” “In what ways are the visual arts involved in international trade?” “What are the various professions or careers that have a basis in visual arts, and what education is required? How can we find out more about these careers?”

7.4 Science and Technology

INTRODUCTION

This document replaces The Ontario Curriculum, Grades 1–8: Science and Technology, 1998. Beginning in September 2008, all science and technology programs for Grades 1 to 8 will be based on the expectations outlined in this document.

THE GOALS OF THE SCIENCE AND TECHNOLOGY PROGRAM

A scientifically and technologically literate person is one who can read and understand common media reports about science and technology, critically evaluate the information presented, and confidently engage in discussions and decision-making activities that involve science and technology.

Science Co-ordinators' and Consultants' Association of Ontario (SCCAO) and Science Teachers' Association of Ontario (STAO/APS0), "Position Paper: The Nature of Science" (2006), p. 1

During the twentieth century, science and technology played an increasingly important role in the lives of all Canadians. Science and technology underpin much of what we take for granted, including clean water, the places in which we live and work, and the ways in which we communicate with others. The impact of science and technology on our lives will continue to grow. Consequently, scientific and technological literacy for all has become the overarching objective of science and technology education throughout the world.

Achievement of both excellence and equity underlies the three major goals of the science and technology program at the elementary level. Accordingly, The Ontario Curriculum, Grades 1–8: Science and Technology, 2007 outlines the skills and knowledge that students will develop, as well as the attitudes that they need to develop in order to use their knowledge and skills responsibly. The three goals are the following:

1. to relate science and technology to society and the environment
2. to develop the skills, strategies, and habits of mind required for scientific inquiry and technological problem solving
3. to understand the basic concepts of science and technology

THE NATURE OF SCIENCE AND TECHNOLOGY

The primary goal of science is to understand the natural and human-designed worlds. Science refers to certain processes used by humans for obtaining knowledge about nature, and to an organized body of knowledge about nature obtained by these processes. Science is a dynamic and creative activity with a long and interesting history. Many societies have contributed to the development of scientific knowledge and understanding....Scientists continuously assess and judge the soundness of scientific knowledge claims by testing laws and theories, and modifying them in light of compelling new evidence or a re-conceptualization of existing evidence.

Technology involves the development and use of materials, tools, and processes for solving human problems and helping to satisfy human needs and desires. Many of the products of technology help humans accomplish tasks that would otherwise be very difficult or impossible to carry out. Although technology provides many benefits, it also produces associated costs and risks. Science often uses and requires tools and processes developed by technology, and conversely, technology often employs principles, laws, theories, and processes developed by science.

SCCAO and STAO/APSO, "Position Paper: The Nature of Science" (2006), pp. 1–2

Science is a way of knowing that seeks to describe and explain the natural and physical world. An important part of scientific and technological literacy is an understanding of the nature of science, which includes an understanding of the following:

- what scientists, engineers, and technologists do as individuals and as a community
- how scientific knowledge is generated and validated, and what benefits, costs, and risks are involved in using this knowledge
- how science interacts with technology, society, and the environment

Occasionally, theories and concepts undergo change but, for the most part, the basic ideas of science – ideas such as the cellular basis of life, the laws of energy, and the particle theory of matter – have proven to be stable.

Technology is also a way of knowing, and is also a process of exploration and experimentation. Technology is both a form of knowledge that uses concepts and skills from other disciplines (including science) and the application of this knowledge to meet an identified need or to solve a specific problem using materials, energy, and tools (including computers). Technological methods consist of inventing or modifying devices, structures, systems, and/or processes.

An understanding of the nature of technology includes knowing the following:

- what technology is, in its broadest terms (much more than the knowledge and skills related to computers and their applications)
- how technology and science are interrelated

- how thinking about technology's benefits, costs, and risks can contribute to using it wisely

Science and technology are closely linked, especially through the skills of scientific inquiry, technological problem solving, and communication. The world as we know it today has been affected in many important ways by science and technology. For example, science has radically altered and expanded our understanding of Earth and space, of the workings of the human mind and body, and of the ways in which living organisms interact; and technology has revolutionized the way we communicate and has made vast changes in our lives through the discovery of new drugs and materials. It is important, therefore, that students see science and technology in this wider context – as endeavours with important consequences for people and other living things – and that they learn to connect their knowledge of science and technology to the world beyond the school.

Fundamental Concepts

Fundamental concepts are key ideas that provide a framework for the acquisition of all scientific and technological knowledge. They also help students to integrate scientific and technological knowledge with knowledge in other subject areas, such as mathematics and social studies. The fundamental concepts that are addressed in the curricula for science and technology in Grades 1 to 8 and for science in Grades 9 to 12 are matter, energy, systems and interactions, structure and function, sustainability and stewardship, and change and continuity.

As students progress through the curriculum from Grades 1 to 12, they extend and deepen their understanding of these fundamental concepts and learn to apply their understanding with increasing sophistication. These fundamental concepts are described in the following chart.

Matter: Matter is anything that has mass and occupies space. Matter has particular structural and behavioural characteristics.

Energy: Energy comes in many forms, and can change forms. It is required to make things happen (to do work). Work is done when a force causes movement.

Systems and Interactions: A system is a collection of living and/or non-living things and processes that interact to perform some function. A system includes inputs, outputs, and relationships among system components. Natural and human systems develop in response to, and are limited by, a variety of environmental factors.

Structure and Function: This concept focuses on the interrelationship between the function or use of a natural or human-made object and the form that the object takes.

Sustainability and Stewardship: Sustainability is the concept of meeting the needs of the present without compromising the ability of future generations to meet their needs.

Stewardship involves understanding that we need to use and care for the natural environment in a responsible way and making the effort to pass on to future generations no less than what

we have access to ourselves. Values that are central to responsible stewardship are: using non-renewable resources with care; reusing and recycling what we can; switching to renewable resources where possible.

Change and Continuity: Change is the process of becoming different over time, and can be quantified. Continuity represents consistency and connectedness within and among systems over time. Interactions within and among systems result in change and variations in consistency.

"Big Ideas"

Big ideas "go beyond discrete facts or skills to focus on larger concepts, principles, or processes."

Grant Wiggins and Jay McTighe, *Understanding by Design* (1998), p. 10

"Big ideas" are the broad, important understandings that students should retain long after they have forgotten many of the details of something that they have studied. In this document, big ideas describe aspects of the fundamental concepts that are addressed at each grade level. Developing a deeper understanding of the big ideas requires students to understand basic concepts, develop inquiry and problem-solving skills, and connect these concepts and skills to the world beyond the classroom. For example, in the Understanding Life Systems strand in Grade 3, one fundamental concept addressed is systems and interactions, and two big ideas related to this concept are the following:

- Plants are the primary source of food for humans.
- Humans need to protect plants and their habitats.

The relationships between the fundamental concepts, big ideas, goals of the science and technology program, and the overall and specific expectations are indicated in the chart that follows.

Graphic from page 6 is omitted (but text information is available)

Fundamental Concepts = Matter Energy Systems and Interactions Structure and Function

Sustainability and Stewardship Change and Continuity = Big ideas

Big ideas:

Goal 1 = To relate science and technology to society and the environment

Overall Expectation 1: Specific Expectations Relating Science and Technology to Society and the Environment

Goal 2 = To develop the skills, strategies, and habits of mind required for scientific inquiry and technological problem solving

Overall Expectation 2: Specific Expectations Developing Investigation and Communication Skills

Goal 3 = To understand the basic concepts of science and technology

Overall Expectation 3: Specific Expectations Understanding Basic Concepts

ROLES AND RESPONSIBILITIES IN THE SCIENCE AND TECHNOLOGY PROGRAM

Students

Students have many responsibilities with regard to their learning, and these increase as they advance through elementary and secondary school. Students who are willing to make the effort required, and who are able to monitor their thinking and learning strategies and to apply themselves, will soon discover that there is a direct relationship between this effort and their achievement, and will therefore be more motivated to work. Students who develop mental attitudes and ways of behaving that contribute to success in life will benefit as learners.

Successful mastery of concepts, scientific investigation skills, and technological problem-solving skills requires a sincere commitment to work and the development of skills of cooperation. Furthermore, students should actively pursue opportunities outside the classroom to extend and enrich their understanding of science and technology. For example, it is recommended that they explore subject-related recreational reading materials, and be aware of scientific and technological events happening in their community and beyond.

Parents

Studies show that students perform better in school when their parents¹ are involved in their education. Parents who are familiar with the curriculum expectations know what is being taught in each grade and what their child is expected to learn. With such information, parents can better understand how their child is progressing in school and can work with teachers to improve their child's learning.

Effective ways in which parents can support their children's learning include the following: attending parent-teacher interviews, participating in parent workshops and school council activities (including becoming a school council member), and encouraging their children to complete their assignments at home.

The science and technology curriculum has the potential to stimulate interest in lifelong learning not only for students, but also for their parents and all those with an interest in education. In addition to supporting regular school activities, parents may wish to take an active interest in current events and issues in the fields of science and technology, and to provide their children with opportunities to question and reflect on the impact of these developments on their immediate lives, the environment, and society. Parents can also provide valuable support by encouraging their children to take part in activities that develop responsible citizenship (such as participating in an environmental clean-up program in their neighbourhood) or that further their interest in science and technology (such as volunteering at local science centres and/or children's museums).

Throughout the elementary science and technology program, students will have opportunities to interact with living things and to work with a variety of tools, materials, and equipment. To help ensure students' safety, parents can inform teachers of any allergies that their children may have. Parents can also encourage their children to go to school prepared to participate safely in technology activities. Simple precautions such as wearing closed-toe shoes, tying back long hair, and removing loose jewellery (or taping it down in the case of Medic Alert bracelets) contribute to a safe environment when working with technological equipment.

1. In this document, parent(s) is used to refer to parent(s) and guardian(s).

Teachers

Teaching is key to student success. Teachers are responsible for developing appropriate instructional strategies to help students achieve the curriculum expectations, as well as appropriate methods for assessing and evaluating student learning. Teachers bring enthusiasm and varied teaching and assessment approaches to the classroom, addressing individual students' needs and ensuring sound learning opportunities for every student.

Using a variety of instructional, assessment, and evaluation strategies, teachers provide numerous hands-on opportunities for students to develop and refine their inquiry skills, problem-solving skills, critical and creative thinking skills, and communication skills, while discovering fundamental concepts through investigation, exploration, observation, and experimentation. The activities offered should enable students to relate and apply these concepts to the social, environmental, and economic conditions and concerns of the world in which they live. Opportunities to relate knowledge and skills to these wider contexts will motivate students to learn in a meaningful way and to become lifelong learners.

Teachers can help students understand that problem solving of any kind often requires a considerable expenditure of time and energy and a good deal of perseverance. Teachers can also encourage students to investigate, to reason, and to explore alternative solutions, and to take the risks necessary to become successful problem-solvers.

Science and technology can play a key role in shaping students' views about life and learning. Science and technology exist in a broader social and economic context. Both are affected by the values and choices of individuals, businesses, and governments, and in turn have a significant impact on society and the environment. Teachers must provide opportunities for students to develop habits of mind appropriate for science and technology, which include a commitment to precision and integrity in observation, experimentation, and reporting; respect for evidence; adherence to safety procedures; and respect for living things and the environment.

Teachers are also responsible for ensuring the safety of students during classroom activities and for encouraging and motivating students to assume responsibility for their own safety and the safety of others. They must also ensure that students acquire the knowledge and skills needed for safe participation in science and technology activities.

Principals

The principal works in partnership with teachers and parents to ensure that each student has access to the best possible educational experience. The principal is also a community builder who creates an environment that is welcoming to all, and who ensures that all members of the school community are kept well informed.

To support student learning, principals ensure that the Ontario curriculum is being properly implemented in all classrooms through the use of a variety of instructional approaches, and that appropriate resources are made available for teachers and students. To enhance teaching and student learning in all subjects, including science and technology, principals promote learning teams and work with teachers to facilitate teacher participation in professional development activities. Principals are also responsible for ensuring that every student who has an Individual Education Plan (IEP) is receiving the modifications and/or accommodations described in his or her plan – in other words, for ensuring that the IEP is properly developed, implemented, and monitored.

Community Partners

Community partners in the areas of science and technology can be an important resource for schools and students. They can provide support for students in the classroom, and can be models of how the knowledge and skills acquired through study of the curriculum relate to life beyond school. As mentors, they can enrich not only the educational experience of students, but also the life of the community. For example, schools can make use of community groups that recruit practicing scientists and technology experts (e.g., engineers, optometrists, veterinarians) to provide in-class workshops for students that are based on topics, concepts, and skills from the curriculum.

Schools and school boards can play a role by coordinating efforts with community partners. They can involve community volunteers in supporting science and technology instruction and in promoting a focus on scientific and technological literacy in and outside the school. Community partners can be included in events held in the school (such as parent education nights, science fairs, and technological skill competitions), and school boards can collaborate with leaders of existing community science and technology programs for students, including programs offered in community centres, libraries, and local museums and science centres.

THE PROGRAM IN SCIENCE AND TECHNOLOGY CURRICULUM EXPECTATIONS

The Ontario Curriculum, Grades 1–8: Science and Technology, 2007 identifies the expectations for each grade and describes the knowledge and skills that students are expected to acquire, demonstrate, and apply in their class work and investigations, on tests, and in various other activities on which their achievement is assessed and evaluated.

Two sets of expectations are listed for each grade in each strand, or broad area of the curriculum, in science and technology for Grades 1 to 8 – overall expectations and specific expectations.

The overall expectations describe in general terms the knowledge and skills that students are expected to demonstrate by the end of each grade. There are three overall expectations for each strand in each grade in science and technology.

The specific expectations describe the expected knowledge and skills in greater detail. The specific expectations are organized under numbered headings, each of which indicates the overall expectation to which the group of specific expectations corresponds. Taken together, the overall expectations and specific expectations represent the mandated curriculum. The organization of expectations into groups is not meant to imply that the expectations in any one group are achieved independently of the expectations in the other groups. The subheadings are used merely to help teachers focus on particular aspects of knowledge and skills as they develop and present various lessons and learning activities for their students.

Many of the specific expectations are accompanied by examples, given in parentheses, as well as "sample issues", "sample guiding questions", "sample problems", and "sample prompts". (Prompts consist variously of questions and ideas, and are designed to stimulate student thinking, especially in the primary grades.) The examples and the sample issues, questions, problems, and prompts help to clarify the requirements specified in the expectations, and suggest the intended depth and level of complexity of the expectations. They have been developed to model appropriate practice for the grade and are meant to serve as illustrations for teachers. Teachers can choose to use the examples and samples that are appropriate for their classrooms, or they may develop their own approaches that reflect a similar level of complexity. Whatever the specific ways in which the requirements outlined in the expectations are implemented in the classroom, they must, wherever possible, be inclusive and reflect the diversity of the student population and the population of the province.

The Expectations and the Goals of the Science and Technology Program

In each grade, the three overall expectations in each strand, and their related sets of specific expectations, are closely connected with the three goals of the science and technology program (see page 3). The relationship between the goals and the expectations is briefly described below:

1. to relate science and technology to society and the environment

The overall expectation of relating science and technology to society and the environment (STSE) and the related cluster of specific expectations are placed first to better align the curriculum with the teaching and learning of science and technology, and to emphasize the importance of scientific, technological, and environmental literacy for all students. In addition, the STSE expectations set the context for developing the related skills and conceptual

knowledge that are necessary for making connections between scientific, technological, social, and environmental issues. Many of the STSE expectations also focus on various aspects of environmental education.

2. to develop the skills, strategies, and habits of mind required for scientific

inquiry and technological problem solving the skills needed for developing scientific and technological literacy are outlined in the second overall expectation and in the related specific expectations found under the heading Developing Investigation and Communication Skills.

3. to understand the basic concepts of science and technology

The conceptual knowledge requirements are outlined in the third overall expectation and in the related specific expectations found under the heading Understanding Basic Concepts.

The three goals and their interrelationship within the curriculum expectations reinforce the notion that learning in science and technology cannot be viewed as merely the learning of facts. Rather, science and technology is a subject in which students learn, in age-appropriate ways, to consider both the knowledge and skills that will help them to understand and consider critically the impact of developments in science and technology on modern society and the environment.

STRANDS IN THE SCIENCE AND TECHNOLOGY CURRICULUM

The science and technology curriculum expectations are organized in four strands, which are the major areas of knowledge and skills in the science and technology curriculum. The four strands are as follows:

- Understanding Life Systems
- Understanding Structures and Mechanisms
- Understanding Matter and Energy
- Understanding Earth and Space Systems

THE SKILL CONTINUA FOR SCIENTIFIC INQUIRY AND TECHNOLOGICAL PROBLEM SOLVING

Learning science [and technology] is something students do, not something that is done to them.

National Science Education Standards (1996), p. 20

Along with a knowledge foundation, the study of science and technology offers students varied opportunities to learn and master skills that are relevant to their everyday world.

In the specific expectations, reference is made to the following three skill areas:

- scientific inquiry/experimentation skills

- scientific inquiry/research skills
- technological problem-solving skills

Skill continua are provided on the following pages for these skill areas. The continua present an ordered series of descriptive statements that mark out students' development along the road to mastery of these specific skills. The continua provide teachers with a way of looking at what students can do so that they can plan for further development of their students' skills. In general terms, the skills involved in scientific inquiry and technological problem solving are the following:

- initiating and planning (e.g., asking questions, clarifying problems, planning procedures)
- performing and recording (e.g., following procedures, accessing information, recording observations and findings)
- analyzing and interpreting (e.g., organizing data, reflecting on the effectiveness of actions performed, drawing conclusions)
- communicating (e.g., using appropriate vocabulary, communicating findings in a variety of ways)

The Scientific Inquiry/Experimentation Skill Continuum

Although there is no single scientific method, there are scientific methodologies – practices that are followed when investigating questions in a scientific manner.

In scientific inquiry, students engage in activities that allow them to develop knowledge and understanding of scientific ideas in much the same way as scientists would. Like scientists, students must also develop skills in the two major components of scientific inquiry – experimentation and research. Experimentation involves conducting "fair tests" to determine whether changing one factor in the experimental set-up affects the results, and, if so, in what ways. In a fair test, the scientist/student identifies variables that may affect the results of the experiment; selects one variable to be altered (tested), and keeps other variables constant; measures all trials in the same way; and repeats tests to determine the validity of the results.

CONTINUUM FOR SCIENTIFIC INQUIRY/EXPERIMENTATION SKILLS

Beginning = Exploring = Emerging = Competent = Proficient

Initiating and Planning

- The student: asks questions that demonstrate curiosity about the world around him or her
- asks questions that can be answered through tests/experimentation, and chooses one to investigate

- asks questions that can be answered through tests/experimentation, and formulates a specific question to investigate
- asks questions that arise from practical problems and issues, and formulates a specific question to investigate
- with support, follows the steps in a simple, teacher-prepared procedure for a test/experiment
- follows the steps in a simple, teacher-prepared procedure for a test/experiment
- creates, from a variety of possible methods, a plan to find an answer to the question he or she has formulated
- plans for safe experimentation, showing some awareness of variables to be considered
- recognizes when a test is fair or unfair
- recognizes when a test is fair or unfair
- with support, builds fair testing elements into plans for an experimental procedure designed to answer the question he or she has formulated
- builds fair testing elements into plans for an experimental procedure designed to answer the question he or she has formulated
- makes "guesses" about possible outcomes of simple procedures
- with support, makes simple predictions about the outcome of the procedure prepared by the teacher
- makes predictions, based on personal experience, about the results of the investigation
- makes predictions, based on prior knowledge from explorations and investigations, about the results of the investigation

Performing and Recording

The student:

- safely uses teacher-selected tools and equipment to extend the senses for observation
- selects, with support, and safely uses tools and equipment to extend the senses for observation
- selects and safely uses tools and equipment to observe and measure
- selects and safely uses tools and equipment to observe and measure
- records data orally, in pictures, in written words, and/or in tally charts

- records data orally, in pictures, and/or in written words or sentences
- records and organizes data using standard measurements, sentences, lists, and/or simple labelled diagrams
- records and organizes data using standard measurements in simple tables, graphs, or charts, or in labelled diagrams

Analyzing and Interpreting

The student:

- discusses data, and asks new questions based on data
- identifies patterns in the data, and summarizes the data
- identifies patterns and discrepancies in the data, and summarizes the data
- identifies patterns in the data, suggests explanations for discrepancies, and summarizes the data
- proposes an answer to the question being investigated, on the basis of observations
- draws a simple conclusion on the basis of observations
- draws simple conclusions on the basis of data gathered
- draws conclusions on the basis of data gathered
- describes what was done and what was observed
- makes a simple evaluation of the experiment
- evaluates the experimental procedure, explains changes that could be made to improve it, and gives reasons for the changes
- evaluates the experimental procedure, explains changes that could be made to improve it, and gives reasons for the changes

Communicating

The student:

- orally recounts steps in and results of an investigation to answer a specific question
- orally presents steps in and results of an investigation to answer a specific question
- presents steps in and results of an experimental procedure orally; in charts, graphs, or diagrams; and/or in sentences

- presents steps in and results of an experimental procedure using numeric, symbolic, graphical, and/or linguistic methods

The Scientific Inquiry/Research Skill Continuum

Research includes both primary research, which is done through first-hand, direct observation of objects and processes, and secondary research, which is done by reviewing the work and the findings of others.

CONTINUUM FOR SCIENTIFIC INQUIRY/RESEARCH SKILLS*

Beginning = Exploring = Emerging = Competent = Proficient

Initiating and Planning

The student:

- asks questions that demonstrate curiosity about the world around him or her
- asks questions that could lead to investigations, and chooses one that will be the basis for an investigation
- asks questions that could lead to investigations, and formulates a specific question that will be the basis for an investigation
- asks questions that arise from practical problems and issues, and formulates a specific question that will be the basis for an investigation
- uses a teacher-prepared organizational system for gathering and organizing information
- plans an organizational system for gathering and organizing information, using a variety of graphic organizers (e.g., Venn diagram) and organizational patterns (e.g., cause and effect)
- plans an organizational system for gathering and organizing information, using a variety of strategies (e.g., sketchboard outlines of a series of events) and organizational patterns (e.g., order of importance)
- with support, selects print and multimedia resources from those provided by the teacher
- independently selects print, multimedia, and electronic resources from those provided by the teacher
- independently selects print, multimedia, and electronic resources

Performing and Recording

The student:

- selects information from prior knowledge, other people, and observations made during his or her explorations
- with support, selects information from print and multimedia resources provided by the teacher
- selects information from print and multimedia resources that he or she has found independently, and from electronic resources provided by the teacher
- selects information from print, multimedia, and electronic resources that he or she has found independently
- records information gathered, using a teacher-prepared organizational system
- records information gathered, using a variety of graphic organizers (e.g., Venn diagram) and organizational patterns (e.g., cause and effect)
- records information gathered, using a variety of strategies (e.g., sketchboard outlines of a series of events) and organizational patterns (e.g., order of importance)
- matches information to research needs (e.g., differentiates between factual information and information based on opinion)
- reviews information for currency and bias
- selects sources of information, showing awareness of currency and bias

Performing and Recording (continued)

The student:

acknowledges the use of information sources (e.g., specific people)

references sources by title, author, date

references sources by title, author, date, URL

uses appropriate academic referencing, including publisher, volume, date of document, location and date of interview

Analyzing and Interpreting

The student:

- proposes an answer to the question being investigated, on the basis of information gathered

- states a simple conclusion in answer to the question being investigated, on the basis of information gathered

- states a conclusion in answer to the question being investigated, on the basis of information gathered
- states a conclusion in answer to the question being investigated, on the basis of information gathered
- describes steps taken to answer the question
- makes a simple evaluation of research procedures used
- makes an evaluation of the research procedure used, suggests changes that could be made to it, and gives reasons for the suggested changes
- makes an evaluation of the research procedure used, suggests changes that could be made to it, and gives reasons for the suggested changes
- demonstrates understanding that the accuracy and value of information will
- vary from source to source considers and compares information from different sources
- verifies the validity of and compares information gathered from research
- summarizes the information, using pictures and words
- summarizes relevant information, using words, T-charts, pictures
- summarizes relevant information, using jot notes, outlines

Communicating

The student:

- recounts steps and shares results of research orally, in pictures, and/or in written words to answer the question investigated
- presents research orally; in charts, graphs, or labelled drawings; and/or in written words to - answer the question investigated
- presents research orally; in charts, graphs, or diagrams; and/or in written sentences to answer the question investigated
- presents research in numeric, symbolic, graphical, and/or linguistic forms of communication to answer the question investigated

The Technological Problem-Solving Skill Continuum

Through technological problem solving, students develop the ability to design solutions to problems. Students create models of new devices or new processes to help address human

needs and desires, as well as new knowledge about those devices or processes. When engaged in technological problem solving, students should be given opportunities to be creative in their thinking, rather than merely to find a prescribed answer. Critical aspects of technological problem solving are: careful planning; purposeful selection of tools and materials; testing, retesting, and modifications of a product or process; communicating about the solution; and recommending of changes or improvements.

Beginning = Exploring = Emerging = Competent = Proficient

Initiating and Planning

The student:

- recognizes a practical problem in a given context
- identifies practical problems to solve in the immediate environment
- identifies practical problems to solve in the local community
- identifies practical problems to solve
- with support (e.g., as a class or in small groups), brainstorms possible solutions to a practical problem
- with support (e.g., as a class or in small groups), generates a list of possible solutions to a practical problem and determines which are realistic in the classroom and/or the real world
- identifies possible solutions to a practical problem and explains how each might solve the problem
- identifies possible solutions to a practical problem and prioritizes them with regard to their potential for solving the problem
- with support (e.g., as a class or in small groups), selects one possible solution to implement
- selects a possible solution to implement
- selects a possible solution to implement, and provides reasons for the choice
- selects a possible solution, and provides reasons for the choice that take into account considerations such as function, aesthetics, environmental impact
- with support (e.g., as a class or in small groups), makes a simple plan to carry out the solution
- makes a simple plan (individually or in small groups), including simple drawings and/or diagrams, to carry out the solution

- outlines (individually or in small groups) the steps of a plan, including labelled drawings and/or diagrams, to solve the problem
- outlines in detail, including technical drawings and/or diagrams, each step of a plan to solve the problem
- with support (e.g., as a class or in small groups), establishes a limited number of criteria for evaluating proposed solutions to the problem
- with support (e.g., as a class or in small groups), establishes a limited number of criteria for evaluating proposed solutions to the problem
- contributes to establishing general criteria for evaluating objects or devices designed to solve the problem
- contributes to establishing general criteria for evaluating objects or devices designed to solve the problem

Performing and Recording

The student:

- with support (e.g., as a class or in small groups), carries out the pre-determined plan
- with support, designs, builds, and tests (on the basis of pre-determined criteria) a device or an object to solve the problem
- with support, designs, builds, and tests (on the basis of pre-determined criteria) a device or an object to solve the problem
- designs, builds, and tests (on the basis of pre-determined criteria) a device or an object to solve the problem
- designs, builds, and tests (on the basis of pre-determined criteria) a device or an object to solve the problem
- records results using pictures and/or tally charts
- records results in a variety of ways, such as sentences, simple drawings, diagrams, and/or charts
- records results in a variety of ways, such as sentences, drawings, labelled diagrams, graphs, and/or charts
- records results in a variety of ways, such as sentences, technical drawings, labelled diagrams, graphs, and/or charts

Analyzing and Interpreting

The student:

- with support, identifies how well the chosen solution solved the practical problem, using the pre-determined criteria
- identifies how well the chosen solution solved the practical problem, using the pre-determined criteria
- explains how well the chosen solution solved the practical problem, and suggests possible changes to the criteria and the solution
- explains how well the chosen solution solved the practical problem, using qualitative and/or quantitative data, and suggests possible changes to the criteria and the solution with support, suggests something that might be changed about the solution to the problem
- identifies some things that could be done differently to improve the solution to the problem
- identifies and explains what changes could be made to the plan and how to improve the solution to the problem, and gives reasons for the changes
- identifies and explains what changes could be made to the plan and the testing process, and how to improve the solution to the problem, and gives reasons for the changes
- identifies some possible beneficial and non-beneficial impacts of the chosen solution for himself/herself or others
- identifies the effects of the chosen solution on himself/herself, others, and/or the environment, considering things such as cost, materials, time, and/or space
- identifies the effects of the chosen solution on himself/herself, others, and/or the environment, considering things such as cost, materials, time, and/or space, and suggests ways in which undesirable effects could be lessened or eliminated

Communicating

The student:

- describes orally, and/or using drawings, pictures, and/or simple sentences, the problem and how he or she solved it
- describes orally, and using labelled drawings and diagrams, charts, graphs, and/or written descriptions, the problem and how he or she solved it
- uses grade-appropriate science and technology vocabulary correctly

TOPICS IN SCIENCE AND TECHNOLOGY

The charts on pages 19 and 20 provide an outline of the topics in Grade 1–8 science and technology, and also show the broad connections between Grade 1–8 topics and the topics in Grade 9 and 10 science and Grade 9 and 10 technological education.

SCIENCE

Elementary Science and Technology Curriculum Overview

Grade 6

Understanding Life Systems: Biodiversity

Understanding Structures and Mechanisms: Flight

Understanding Matter and Energy: Electricity and Electrical Devices

Understanding Earth and Space Systems: Space

TECHNOLOGY

Elementary Science and Technology Curriculum Overview

Grade 6

Understanding Life Systems: Biodiversity

Understanding Structures and Mechanisms: Flight

Understanding Matter and Energy: Electricity and Electrical Devices

Understanding Earth and Space Systems: Space

ASSESSMENT AND EVALUATION OF STUDENT ACHIEVEMENT BASIC CONSIDERATIONS

The primary purpose of assessment and evaluation is to improve student learning. Information gathered through assessment helps teachers to determine students' strengths and weaknesses in their achievement of the curriculum expectations in each subject in each grade. This information also serves to guide teachers in adapting curriculum and instructional approaches to students' needs and in assessing the overall effectiveness of programs and classroom practices.

Assessment is the process of gathering information from a variety of sources (including assignments, day-to-day observations, conversations or conferences, demonstrations, projects, performances, and tests) that accurately reflects how well a student is achieving the curriculum expectations in a subject. As part of assessment, teachers provide students with descriptive feedback that guides their efforts towards improvement. Evaluation refers to the process of judging the quality of student work on the basis of established criteria, and assigning a value to

represent that quality. In Ontario elementary schools, the value assigned will be in the form of a letter grade for Grades 1 to 6 and a percentage grade for Grades 7 and 8.

Assessment and evaluation will be based on the provincial curriculum expectations and the achievement levels outlined in this document.

In order to ensure that assessment and evaluation are valid and reliable, and that they lead to the improvement of student learning, teachers must use assessment and evaluation strategies that:

- address both what students learn and how well they learn;
- are based both on the categories of knowledge and skills and on the achievement level descriptions given in the achievement chart on pages 26–27;
- are varied in nature, administered over a period of time, and designed to provide opportunities for students to demonstrate the full range of their learning;
- are appropriate for the learning activities used, the purposes of instruction, and the needs and experiences of the students;
- are fair to all students;
- accommodate students with special education needs, consistent with the strategies outlined in their Individual Education Plan;
- accommodate the needs of students who are learning the language of instruction;
- ensure that each student is given clear directions for improvement;
- promote students' ability to assess their own learning and to set specific goals;
- include the use of samples of students' work that provide evidence of their achievement;
- are communicated clearly to students and parents at the beginning of the school year and at other appropriate points throughout the school year.

All curriculum expectations must be accounted for in instruction, but evaluation focuses on students' achievement of the overall expectations. A student's achievement of the overall expectations is evaluated on the basis of his or her achievement of related specific expectations. The overall expectations are broad in nature, and the specific expectations define the particular content or scope of the knowledge and skills referred to in the overall expectations. Teachers will use their professional judgement to determine which specific expectations should be used to evaluate achievement of the overall expectations, and which ones will be covered in instruction and assessment (e.g., through direct observation) but not necessarily evaluated.

The characteristics given in the achievement chart (pages 26–27) for level 3 represent the "provincial standard" for achievement of the expectations. A complete picture of achievement at level 3 in science and technology can be constructed by reading from top to bottom in the shaded column of the achievement chart, headed "Level 3". Parents of students achieving at level 3 can be confident that their children will be prepared for work in the next grade.

Level 1 identifies achievement that falls much below the provincial standard, while still reflecting a passing grade. Level 2 identifies achievement that approaches the standard. Level 4 identifies achievement that surpasses the standard. It should be noted that achievement at level 4 does not mean that the student has achieved expectations beyond those specified for a particular grade. It indicates that the student has achieved all or almost all of the expectations for that grade, and that he or she demonstrates the ability to use the knowledge and skills specified for that grade in more sophisticated ways than a student achieving at level 3.

The Ministry of Education has provided teachers with materials that will assist them in improving their assessment methods and strategies and, hence, their assessment of student achievement. These materials include samples of student work (exemplars) that illustrate achievement at each of the four levels. (Adaptations can be made in the exemplar documents to align them with the revised curriculum.)

THE ACHIEVEMENT CHART FOR SCIENCE AND TECHNOLOGY

The achievement chart that follows identifies four categories of knowledge and skills in science and technology. The achievement chart is a standard province-wide guide to be used by teachers. It enables teachers to make judgements about student work that are based on clear performance standards and on a body of evidence collected over time.

The achievement chart is designed to:

- provide a framework that encompasses all curriculum expectations for all grades and subjects represented in this document;
- guide the development of assessment tasks and tools (including rubrics);
- help teachers to plan instruction for learning;
- assist teachers in providing meaningful feedback to students;
- provide various categories and criteria with which to assess and evaluate student learning.

Categories of Knowledge and Skills

The categories, defined by clear criteria, represent four broad areas of knowledge and skills within which the subject expectations for any given grade are organized. The four categories

should be considered as interrelated, reflecting the wholeness and interconnectedness of learning.

The categories of knowledge and skills are described as follows:

Knowledge and Understanding. Subject-specific content acquired in each grade (knowledge), and the comprehension of its meaning and significance (understanding).

Thinking and Investigation. The use of critical and creative thinking skills and inquiry and problem-solving skills and/or processes.

Communication. The conveying of meaning through various forms.

Application. The use of knowledge and skills to make connections within and between various contexts.

Teachers will ensure that student work is assessed and/or evaluated in a balanced manner with respect to the four categories, and that achievement of particular expectations is considered within the appropriate categories.

Criteria

Within each category in the achievement chart, criteria are provided, which are subsets of the knowledge and skills that define each category. The criteria for each category are listed below:

Knowledge and Understanding

- knowledge of content (e.g., facts; terminology; definitions; safe use of tools, equipment, and materials)
- understanding of content (e.g., concepts, ideas, theories, principles, procedures, processes)

Thinking and Investigation

- use of initiating and planning skills and strategies (e.g., formulating questions, identifying the problem, developing hypotheses, scheduling, selecting strategies and resources, developing plans)
- use of processing skills and strategies (e.g., performing and recording, gathering evidence and data, observing, manipulating materials and using equipment safely, solving equations, proving)
- use of critical/creative thinking processes, skills, and strategies (e.g., analyzing, interpreting, problem solving, evaluating, forming and justifying conclusions on the basis of evidence)

Communication

- expression and organization of ideas and information (e.g., clear expression, logical organization) in oral, visual, and/or written forms (e.g., diagrams, models)

- communication for different audiences (e.g., peers, adults) and purposes (e.g., to inform, to persuade) in oral, visual, and/or written forms
- use of conventions, vocabulary, and terminology of the discipline in oral, visual, and written forms (e.g., symbols, formulae, scientific notation, SI units)

Application

- application of knowledge and skills (e.g., concepts and processes, use of equipment and technology, investigation skills) in familiar contexts
- transfer of knowledge and skills (e.g., concepts and processes, use of equipment and technology, investigation skills) to unfamiliar contexts
- making connections between science, technology, society, and the environment (e.g., assessing the impact of science and technology on people, other living things, and the environment)
- proposing courses of practical action to deal with problems relating to science, technology, society, and the environment

Descriptors

A "descriptor" indicates the characteristic of the student's performance, with respect to a particular criterion, on which assessment or evaluation is focused. In the achievement chart, effectiveness is the descriptor used for each criterion in the Thinking and Investigation, Communication, and Application categories. What constitutes effectiveness in any given performance task will vary with the particular criterion being considered. Assessment of effectiveness may therefore focus on a quality such as appropriateness, clarity, accuracy, precision, logic, relevance, significance, fluency, flexibility, depth, or breadth, as appropriate for the particular criterion. For example, in the Thinking and Investigation category, assessment of effectiveness might focus on the degree of relevance or depth apparent in an analysis; in the Communication category, on clarity of expression or logical organization of information and ideas; or in the Application category, on appropriateness or breadth in the making of connections. Similarly, in the Knowledge and Understanding category, assessment of knowledge might focus on accuracy, and assessment of understanding might focus on the depth of an explanation. Descriptors help teachers to focus their assessment and evaluation on specific knowledge and skills for each category and criterion, and help students to better understand exactly what is being assessed and evaluated.

Qualifiers

A specific "qualifier" is used to define each of the four levels of achievement – that is, limited for level 1, some for level 2, considerable for level 3, and a high degree or thorough for level 4. A qualifier is used along with a descriptor to produce a description of performance at a particular

level. For example, the description of a student's performance at level 3 with respect to the first criterion in the Thinking category would be: "The student uses initiating and planning skills and strategies with considerable effectiveness".

The descriptions of the levels of achievement given in the chart should be used to identify the level at which the student has achieved the expectations. Students should be provided with numerous and varied opportunities to demonstrate the full extent of their achievement of the curriculum expectations, across all four categories of knowledge and skills.

ACHIEVEMENT CHART – SCIENCE AND TECHNOLOGY, GRADES 1– 8

Knowledge and Understanding – Subject-specific content acquired in each grade (knowledge), and the comprehension of its meaning and significance (understanding)

The student:

Category: Knowledge of content (e.g., facts; terminology; definitions; safe use of tools, equipment, and materials)

Level 1: demonstrates limited knowledge of content

Level 2: demonstrates some knowledge of content

Level 3: demonstrates considerable knowledge of content

Level 4: demonstrates thorough knowledge of content

Category: Understanding of content (e.g., concepts, ideas, theories, principles, procedures, processes)

Level 1: demonstrates limited understanding of content

Level 2: demonstrates some understanding of content

Level 3: demonstrates considerable understanding of content

Level 4: demonstrates thorough understanding of content

Thinking and Investigation – The use of critical and creative thinking skills and inquiry and problem-solving skills and/or processes

The student:

Category: Use of initiating and planning skills and strategies (e.g., formulating questions, identifying the problem, developing hypotheses, scheduling, selecting strategies and resources, developing plans)

Level 1: uses initiating and planning skills and strategies with limited effectiveness

Level 2: uses initiating and planning skills and strategies with some effectiveness

Level 3: uses initiating and planning skills and strategies with considerable effectiveness

Level 4: uses initiating and planning skills and strategies with a high degree of effectiveness

Category: Use of processing skills and strategies (e.g., performing and recording, gathering evidence and data, observing, manipulating materials and using equipment safely, solving equations, proving)

Level 1: uses processing skills and strategies with limited effectiveness

Level 2: uses processing skills and strategies with some effectiveness

Level 3: uses processing skills and strategies with considerable effectiveness

Level 4: uses processing skills and strategies with a high degree of effectiveness

Category: Use of critical/creative thinking processes, skills, and strategies (e.g., analyzing, interpreting, problem solving, evaluating, forming and justifying conclusions on the basis of evidence)

Level 1: uses critical/creative thinking processes, skills, and strategies with limited effectiveness

Level 2: uses critical/creative thinking processes, skills, and strategies with some effectiveness

Level 3: uses critical/creative thinking processes, skills, and strategies with considerable effectiveness

Level 4: uses critical/creative thinking processes, skills, and strategies with a high degree of effectiveness

Communication – The conveying of meaning through various forms

The student:

Category: Expression and organization of ideas and information (e.g., clear expression, logical organization) in oral, visual, and/or written forms (e.g., diagrams, models)

Level 1: expresses and organizes ideas and information with limited effectiveness

Level 2: expresses and organizes ideas and information with some effectiveness

Level 3: expresses and organizes ideas and information with considerable effectiveness

Level 4: expresses and organizes ideas and information with a high degree of effectiveness

The student:

Category: Communication for different audiences (e.g., peers, adults) and purposes (e.g., to inform, to persuade) in oral, visual, and/or written forms

Level 1: communicates for different audiences and purposes with limited effectiveness

Level 2: communicates for different audiences and purposes with some effectiveness

Level 3: communicates for different audiences and purposes with considerable effectiveness

Level 4: communicates for different audiences and purposes with a high degree of effectiveness

Category: Use of conventions, vocabulary, and terminology of the discipline in oral, visual, and/or written forms (e.g., symbols, formulae, scientific notation, SI units)

Level 1: uses conventions, vocabulary, and terminology of the discipline with limited effectiveness

Level 2: uses conventions, vocabulary, and terminology of the discipline with some effectiveness

Level 3: uses conventions, vocabulary, and terminology of the discipline with considerable effectiveness

Level 4: uses conventions, vocabulary, and terminology of the discipline with a high degree of effectiveness

Application – The use of knowledge and skills to make connections within and between various contexts

The student:

Category: Application of knowledge and skills (e.g., concepts and processes, safe use of equipment and technology, investigation skills) in familiar contexts

Level 1: applies knowledge and skills in familiar contexts with limited effectiveness

Level 2: applies knowledge and skills in familiar contexts with some effectiveness

Level 3: applies knowledge and skills in familiar contexts with considerable effectiveness

Level 4: applies knowledge and skills in familiar contexts with a high degree of effectiveness

Category: Transfer of knowledge and skills (e.g., concepts and processes, safe use of equipment and technology, investigation skills) to unfamiliar contexts

Level 1: transfers knowledge and skills to unfamiliar contexts with limited effectiveness

Level 2: transfers knowledge and skills to unfamiliar contexts with some effectiveness

Level 3: transfers knowledge and skills to unfamiliar contexts with considerable effectiveness

Level 4: transfers knowledge and skills to unfamiliar contexts with a high degree of effectiveness

Category: Making connections between science, technology, society, and the environment (e.g., assessing the impact of science and technology on people, other living things, and the environment)

Level 1: makes connections between science, technology, society, and the environment with limited effectiveness

Level 2: makes connections between science, technology, society, and the environment with some effectiveness

Level 3: makes connections between science, technology, society, and the environment with considerable effectiveness

Level 4: makes connections between science, technology, society, and the environment with a high degree of effectiveness

Category: Proposing courses of practical action to deal with problems relating to science, technology, society, and the environment

Level 1: proposes courses of practical action of limited effectiveness

Level 2: proposes courses of practical action of some effectiveness

Level 3: proposes courses of practical action of considerable effectiveness

Level 4: proposes highly effective courses of practical action

SOME CONSIDERATIONS FOR PROGRAM PLANNING IN SCIENCE AND TECHNOLOGY

When planning a program in science and technology, teachers must take into account considerations in a number of important areas, including those discussed below.

INSTRUCTIONAL APPROACHES

Trying to understand how the world works is what children do naturally, and it is what you need to take advantage of when teaching science [and technology]. Just remember: Avoid being the knowledge authority. ... Instead, cultivate a sense of excitement for exploring and inquiring about our world and for generating and testing possible explanations.

Jeffrey W. Bloom, *Creating a Classroom Community of Young Scientists*, 2nd ed. (2006), p. 4

One of the primary objectives of elementary science and technology curricula has always been, and must continue to be, development of curiosity and wonder. Students come to school with a natural curiosity. They also bring with them individual interests and abilities as well as diverse personal and cultural experiences, all of which have an impact on their prior knowledge about

science, technology, the environment, and the world in which they live. Effective instructional approaches and learning activities draw on students' prior knowledge, capture their interest, and encourage meaningful practice both inside and outside the classroom. Students will be engaged when they are able to see the connection between the scientific and technological concepts they are learning and their application in the world around them and in real-life situations.

Typically, students demonstrate diversity in the ways they learn best. It is important, therefore, that students have opportunities to learn in a variety of ways – individually, cooperatively, independently, with teacher direction, through hands-on experiences, and through examples followed by practice. In addition, science and technology requires students to learn concepts and procedures, acquire skills, and learn and apply scientific and technological processes. These different areas of learning may involve different teaching and learning strategies. Thus, the strategies teachers employ will vary according to both the object of the learning and the needs of the students.

At its most basic level, differentiating instruction means "shaking up" what goes on in the classroom so that students have multiple options for taking in information, making sense of ideas, and expressing what they learn. In other words, a differentiated classroom provides different avenues to acquiring content, to processing or making sense of ideas, and to developing products so that each student can learn effectively.

Carol Ann Tomlinson, *How to Differentiate Instruction in Mixed-Ability Classrooms*, 2nd ed. (2001), p. 1

In order to learn science and technology and to apply their knowledge and skills effectively, students must develop a solid understanding of scientific and technological concepts. Research and successful classroom practice have shown that an inquiry approach, with emphasis on learning through concrete, hands-on experiences, best enables students to develop the conceptual foundation they need. When planning science and technology programs, teachers will provide activities and challenges that actively engage students in inquiries that honour the ideas and skills students bring to them, while further deepening their conceptual understanding and essential skills.

Students will investigate scientific and technological concepts using a variety of equipment, materials, and strategies, and both manual and technological tools and skills. Equipment, tools, and materials are necessary for supporting the effective learning of science and technology by all students. These concrete learning tools invite students to explore and investigate abstract scientific and technological ideas in rich, varied, concrete, and hands-on ways. Moreover, using a variety of equipment, tools, and materials helps deepen and extend students' understanding of scientific and technological concepts and further extends the development of scientific inquiry and technological problem-solving skills.

All learning, especially new learning, should be embedded in well-chosen contexts for learning – that is, contexts that are broad enough to allow students to investigate initial understandings, identify and develop relevant supporting skills, and gain experience with varied and interesting applications of the new knowledge. In the elementary science and technology curriculum, many of these contexts come from the Relating Science and Technology to Society and the Environment (STSE) expectations. Such rich contexts for learning enable students to see the "big ideas" of science and technology. This understanding of "big ideas" will enable and encourage students to use scientific and technological thinking throughout their lives. As well, teachers can gain useful insights into their students' thinking, their understanding of concepts, and their ability to reflect on what they have done. This insight allows teachers to provide supports to help enhance students' thinking.

HEALTH AND SAFETY IN SCIENCE AND TECHNOLOGY EDUCATION

Teachers must model safe practices at all times and communicate safety expectations to students in accordance with school board and Ministry of Education policies.

To carry out their responsibilities with regard to safety, it is important not only that teachers have concern for their own safety and that of their students, but also that they have:

- the knowledge necessary to use the materials, tools, and procedures involved in science and technology safely;
- knowledge concerning the care of living things – plants and animals – that are brought into the classroom;
- the skills needed to perform tasks efficiently and safely.

Note: Teachers supervising students using power equipment such as drills, sanders, and saws need to have specialized training in handling such tools.

Students demonstrate that they have the knowledge, skills, and habits of mind required for safe participation in science and technology activities when they:

- maintain a well-organized and uncluttered work space;
- follow established safety procedures;
- identify possible safety concerns;
- suggest and implement appropriate safety procedures;
- carefully follow the instructions and example of the teacher;
- consistently show care and concern for their safety and that of others.

CROSS-CURRICULAR AND INTEGRATED LEARNING

In cross-curricular learning, students are provided with opportunities to learn and use related content and/or skills in two or more subjects. All subjects, including science and technology, can be related to the language curriculum. For example, teachers can use science and technology reading material in their language lessons, and incorporate instruction in how to read non-fiction materials into their science and technology lessons. In science and technology, students use a range of language skills: they build subject-specific vocabulary, interpret diagrams and charts, and read instructions relating to investigations and procedures. Moreover, they communicate what they have learned, orally, graphically, and in writing.

In integrated learning, students are provided with opportunities to work towards meeting expectations from two or more subjects within a single unit, lesson, or activity. By linking expectations from different subject areas, teachers can provide students with multiple opportunities to reinforce and demonstrate their knowledge and skills in a range of settings. One example would be a unit linking expectations from the science and technology curriculum and the social studies curriculum. Connections can be made between these curricula in a number of areas, including expectations relating to variations in habitat and ecosystems across the regions of Canada, the use of natural resources, historical changes in technology, and the impact of science and technology on different peoples and the environment. In addition, a unit combining science and technology and social studies expectations could focus on inquiry/research skills common to the two subjects.

PLANNING SCIENCE AND TECHNOLOGY PROGRAMS FOR STUDENTS WITH SPECIAL EDUCATION NEEDS

Classroom teachers are the key educators of students who have special education needs. They have a responsibility to help all students learn, and they work collaboratively with special education teachers, where appropriate, to achieve this goal. They commit to assisting every student to prepare for living with the highest degree of independence possible.

Education for All: The Report of the Expert Panel on Literacy and Numeracy Instruction for Students with Special Education Needs, Kindergarten to Grade 6, 2005 describes a set of beliefs, based in research that should guide all program planning for students with special education needs. Teachers planning science and technology programs need to pay particular attention to these beliefs, which are as follows:

- All students can succeed.
- Universal design and differentiated instruction are effective and interconnected means of meeting the learning or productivity needs of any group of students.
- Successful instructional practices are founded on evidence-based research, tempered by experience.
- Classroom teachers are key educators for a student's literacy and numeracy development.

- Each student has his or her own unique patterns of learning.
- Classroom teachers need the support of the larger community to create a learning environment that supports students with special education needs.
- Fairness is not sameness.

In any given classroom, students may demonstrate a wide range of learning styles and needs. Teachers plan programs that recognize this diversity and give students performance tasks that respect their particular abilities so that all students can derive the greatest possible benefit from the teaching and learning process. The use of flexible groupings for instruction and the provision of ongoing assessment are important elements of programs that accommodate a diversity of learning needs.

In planning science and technology programs for students with special education needs, teachers should begin by examining both the curriculum expectations for the appropriate grade level of the individual student and his or her strengths and learning needs to determine which of the following options is appropriate for the student:

- no accommodations² or modifications; or
- accommodations only; or
- modified expectations, with the possibility of accommodations; or
- alternative expectations, which are not derived from the curriculum expectations for a grade and which constitute alternative programs.

If the student requires either accommodations or modified expectations, or both, the relevant information, as described in the following paragraphs, must be recorded in his or her Individual Education Plan (IEP). More detailed information about planning programs for students with special education needs, including students who require alternative programs, can be found in *The Individual Education Plan (IEP): A Resource Guide, 2004* (referred to hereafter as the IEP Resource Guide, 2004). For a detailed discussion of the ministry's requirements for IEPs, see *Individual Education Plans: Standards for Development, Program Planning, and Implementation, 2000* (referred to hereafter as IEP Standards, 2000). (Both documents are available at www.edu.gov.on.ca.)

2. "Accommodations" refers to individualized teaching and assessment strategies, human supports, and/or individualized equipment.

Students Requiring Accommodations Only

Some students with special education needs are able, with certain accommodations, to participate in the regular curriculum and to demonstrate learning independently. (Accommodations do not alter the provincial curriculum expectations for the grade level.) The

accommodations required to facilitate the student's learning must be identified in his or her IEP (see IEP Standards, 2000, page 11). A student's IEP is likely to reflect the same accommodations for many, or all, subject areas.

Providing accommodations to students with special education needs should be the first option considered in program planning. Instruction based on principles of universal design and differentiated instruction focuses on the provision of accommodations to meet the diverse needs of learners.

There are three types of accommodations:

- Instructional accommodations are changes in teaching strategies, including styles of presentation, methods of organization, or use of technology and multimedia
- Environmental accommodations are changes that the student may require in the classroom and/or school environment, such as preferential seating or special lighting.
- Assessment accommodations are changes in assessment procedures that enable the student to demonstrate his or her learning, such as allowing additional time to complete tests or assignments or permitting oral responses to test questions (see page 29 of the IEP Resource Guide, 2004 for more examples).

If a student requires "accommodations only" in science and technology, assessment and evaluation of his or her achievement will be based on the appropriate grade-level curriculum expectations and the achievement levels outlined in this document. The IEP box on the student's Provincial Report Card will not be checked, and no information on the provision of accommodations will be included.

Students Requiring Modified Expectations

In science and technology, for most students with special education needs, modified expectations will be based on the regular grade-level curriculum, with changes in the number and/or complexity of the expectations. Modified expectations must represent specific, realistic, observable, and measurable achievements, and must describe specific knowledge and/or skills that the student can demonstrate independently, given the appropriate assessment accommodations.

Modified expectations must indicate the knowledge and/or skills the student is expected to demonstrate and have assessed in each reporting period (IEP Standards, 2000, pages 10 and 11). Modified expectations should be expressed in such a way that the student and parents can understand exactly what the student is expected to know or be able to do, on the basis of which his or her performance will be evaluated and a grade or mark recorded on the Provincial Report Card. The student's learning expectations must be reviewed in relation to the student's progress at least once every reporting period, and must be updated as necessary (IEP Standards, 2000, page 11).

If a student requires modified expectations in science and technology, assessment and evaluation of his or her achievement will be based on the learning expectations identified in the IEP and on the achievement levels outlined in this document. On the Provincial Report Card, the IEP box must be checked for any subject in which the student requires modified expectations, and the appropriate statement from the Guide to the Provincial Report Card, Grades 1–8, 1998 (page 8) must be inserted. The teacher's comments should include relevant information on the student's demonstrated learning of the modified expectations, as well as next steps for the student's learning in the subject.

Students Requiring Alternative Programs With Alternative Expectations

Alternative expectations are developed to help students acquire knowledge and skills that are not represented in the Ontario curriculum. Because they are not part of a subject outlined in the provincial curriculum policy documents, alternative expectations are considered to constitute alternative programs.

Examples of alternative programs include speech remediation, daily living skills, social skills, orientation/mobility training, and personal care programs. For the vast majority of students, alternative expectations are provided in addition to modified or regular grade-level expectations from the Ontario curriculum. Alternative programs are provided in both the elementary and secondary school panels.

"Alternative" (ALT) is the term used to identify alternative programs on the IEP form.

PROGRAM CONSIDERATIONS FOR ENGLISH LANGUAGE LEARNERS

Ontario schools have some of the most multilingual student populations in the world. The first language of approximately 20 per cent of the children in Ontario's English-language schools is a language other than English. Ontario's linguistic heritage includes several Aboriginal languages; many African, Asian, and European languages; and some varieties of English, such as Jamaican Creole. Many English language learners (children who are learning English as a second or additional language in English-language schools) were born in Canada and raised in families and communities in which languages other than English were spoken, or in which the variety of English spoken differed significantly from the English of Ontario classrooms. Other English language learners arrive in Ontario as newcomers from other countries; they may have experience of highly sophisticated educational systems, or they may have come from regions where access to formal schooling was limited.

When they start school in Ontario, many of these children are entering a new linguistic and cultural environment. All teachers share in the responsibility for their English-language development.

English language learners bring a rich diversity of background knowledge and experience to the classroom. These students' linguistic and cultural backgrounds not only support their learning in

their new environment but also become a cultural asset in the classroom community. Teachers will find positive ways to incorporate this diversity into their instructional programs and into the classroom environment.

Most English language learners in Ontario schools have an age-appropriate proficiency in their first language. Although they need frequent opportunities to use English at school, there are important educational and social benefits associated with continued development of their first language while they are learning English. Teachers need to encourage parents to continue to use their own language at home in rich and varied ways as a foundation for language and literacy development in English. It is also important for teachers to find opportunities to bring students' languages into the classroom, using parents and community members as a resource.

During their first few years in Ontario schools, English language learners may receive support through one of two distinct programs from teachers who specialize in meeting their language-learning needs:

English as a Second Language (ESL) programs are for students born in Canada or newcomers whose first language is a language other than English, or is a variety of English significantly different from that used for instruction in Ontario schools.

English Literacy Development (ELD) programs are primarily for newcomers whose first language is a language other than English, or is a variety of English significantly different from that used for instruction in Ontario schools, and who arrive with significant gaps in their education. These children generally come from countries where access to education is limited or where there are limited opportunities to develop language and literacy skills in any language. Some Aboriginal students from remote communities in Ontario may also have had limited opportunities for formal schooling, and they also may benefit from ELD instruction.

In planning programs for children with linguistic backgrounds other than English, teachers need to recognize the importance of the orientation process, understanding that every learner needs to adjust to the new social environment and language in a unique way and at an individual pace. For example, children who are in an early stage of English-language acquisition may go through a "silent period" during which they closely observe the interactions and physical surroundings of their new learning environment. They may use body language rather than speech or they may use their first language until they have gained enough proficiency in English to feel confident of their interpretations and responses. Students thrive in a safe, supportive, and welcoming environment that nurtures their self-confidence while they are receiving focused literacy instruction. When they are ready to participate, in paired, small-group, or whole-class activities, some students will begin by using a single word or phrase to communicate a thought, while others will speak quite fluently.

With exposure to the English language in a supportive learning environment, most young children will develop oral fluency quite quickly, making connections between concepts and skills acquired in their first language and similar concepts and skills presented in English. However,

oral fluency is not a good indicator of a student's knowledge of vocabulary or sentence structure, reading comprehension, or other aspects of language proficiency that play an important role in literacy development and academic success. Research has shown that it takes five to seven years for most English language learners to catch up to their English-speaking peers in their ability to use English for academic purposes. Moreover, the older the children are when they arrive, the greater the language knowledge and skills that they have to catch up on, and the more direct support they require from their teachers.

Responsibility for students' English-language development is shared by the classroom teacher, the ESL/ELD teacher (where available), and other school staff. Volunteers and peers may also be helpful in supporting English language learners in the science and technology classroom. Teachers must adapt the instructional program in order to facilitate the success of these students in their classrooms. Appropriate adaptations include:

- modification of some or all of the subject expectations so that they are challenging but attainable for the learner at his or her present level of English proficiency, given the necessary support from the teacher;
- use of a variety of instructional strategies (e.g., extensive use of visual cues, graphic organizers, scaffolding; previewing of textbooks; pre-teaching of key vocabulary; peer tutoring; strategic use of students' first languages);
- use of a variety of learning resources (e.g., visual material, simplified text, bilingual dictionaries, and materials that reflect cultural diversity);
- use of assessment accommodations (e.g., granting of extra time; use of oral interviews, demonstrations or visual representations, or tasks requiring completion of graphic organizers or cloze sentences instead of essay questions and other assessment tasks that depend heavily on proficiency in English).

While the degree of program adaptation required will decrease over time, students who are no longer receiving ESL or ELD support may still need some program adaptations to be successful. If a student's program has been modified, a checkmark must be placed in the ESL/ELD box on the student's report card. If the student requires modified expectations, the appropriate statement from the Guide to the Provincial Report Card, Grades 1–8, 1998 (page 8) must be inserted.

For further information on supporting English language learners, refer to English Language Learners – ESL and ELD Programs and Services: Policies and Procedures for Ontario Elementary and Secondary Schools, Kindergarten to Grade 1 (2007); Supporting English Language Learners in Kindergarten: A Practical Guide for Ontario Educators (resource guide, 2007); Many Roots, Many Voices: Supporting English Language Learners in Every Classroom (resource guide, 2005); and The Ontario Curriculum, Grades 1–8: English As a Second Language and English Literacy Development – A Resource Guide (2001).

ENVIRONMENTAL EDUCATION

Environmental education is education about the environment, for the environment, and in the environment that promotes an understanding of, rich and active experience in, and an appreciation for the dynamic interactions of:

- The Earth's physical and biological systems
- The dependency of our social and economic systems on these natural systems
- The scientific and human dimensions of environmental issues
- The positive and negative consequences, both intended and unintended, of the interactions between human-created and natural systems.

Shaping Our Schools, Shaping Our Future: Environmental Education in Ontario Schools (June 2007), p. 6

As noted in Shaping Our Schools, Shaping Our Future: Environmental Education in Ontario Schools, environmental education "is the responsibility of the entire education community. It is a content area and can be taught. It is an approach to critical thinking, citizenship, and personal responsibility, and can be modelled. It is a context that can enrich and enliven education in all subject areas, and offer students the opportunity to develop a deeper connection with themselves, their role in society, and their interdependence on one another and the Earth's natural systems" (page 10).

The increased emphasis on science, technology, society, and the environment (STSE) within this curriculum document provides numerous opportunities for teachers to integrate environmental education effectively into the curriculum. The STSE expectations provide meaningful contexts for applying what has been learned about the environment, for thinking critically about issues related to the environment, and for considering personal action that can be taken to protect the environment. Throughout the grades and strands, teachers have opportunities to take students out of the classroom and into the world beyond the school, to observe, explore, and investigate. One effective way to approach environmental literacy is through examining critical inquiry questions related to students' sense of place, to the impact of human activity on the environment, and/or to systems thinking. This can be done at numerous points within the science and technology curriculum. The following are some examples:

- A sense of place can be developed as students investigate structures and their functions in their neighbourhood, consider different ways in which food is grown in their community, and explore the impact of industries on local water systems.
- An understanding of the effects of human activity on the environment can develop as students consider the impact of their actions (e.g., taking part in tree planting at a local park, walking or

biking to school instead of riding in the car, packing a litterless lunch) on their local environment.

- Systems thinking can be developed as students understand what a system is and how changing one part of it (e.g., introducing zebra mussels into a local lake or non-native invasive plants into a wetland) can affect the whole system.

ANTIDISCRIMINATION EDUCATION IN THE SCIENCE AND TECHNOLOGY PROGRAM

The implementation of antidiscrimination principles in education influences all aspects of school life. It promotes a school climate that encourages all students to work to high standards, affirms the worth of all students, and helps students strengthen their sense of identity and develop a positive self-image. It encourages staff and students alike to value and show respect for diversity in the school and the wider society. It requires schools to adopt measures to provide a safe environment for learning, free from harassment, violence, and expressions of hate. Antidiscrimination education encourages students to think critically about themselves and others in the world around them in order to promote fairness, healthy relationships, and active, responsible citizenship.

Schools also have the opportunity to ensure that school–community interaction reflects the diversity in the local community and wider society. Consideration should be given to a variety of strategies for communicating and working with parents and community members from diverse groups, in order to ensure their participation in such school activities as plays, concerts, and teacher interviews. Families new to Canada, who may be unfamiliar with the Ontario school system, or parents of Aboriginal students may need special outreach and encouragement in order to feel comfortable in their interactions with the school.

The science and technology program provides students with access to materials that reflect diversity with respect to gender, race, culture, and ability. Diverse groups of people involved in scientific and technological activities and careers should be prominently displayed. In planning the science and technology program, teachers should consider issues such as access to laboratory experiences and equipment. Laboratory benches and lighting should be adjustable and appropriate for students with physical disabilities. Tools, equipment, and construction materials can also be adapted in ways that make them accessible to all students.

The examples used to illustrate knowledge and skills, and the practical applications and topics that students explore as part of the learning process, should vary so they appeal to both boys and girls and relate to students' diverse backgrounds, interests, and experiences. For example, cooking activities can be used to teach concepts relating to physical properties, heat, and energy. Cooking utensils can be considered as tools, and many technological applications can be grounded in domestic contexts.

In many instances, variations in culture and location (whether rural, urban, or suburban) can be found in a single classroom. Students living in apartment buildings will have different access to

plants and animals than students living in a rural setting or on a Native reserve. There may be cultural sensitivities for some students in areas such as the use of biological specimens. For example, a number of religions have prohibitions regarding pigs. It may be important for some Muslim students to have a lab partner of the same sex. Although it is impossible to anticipate every contingency, teachers should be open to adjusting their instruction, if feasible, when concerns are brought to their attention.

It is important that learning activities include opportunities for students to describe, study, or research how women and men from a variety of backgrounds, including Aboriginal peoples, have contributed to science and technology or used science and technology to solve problems in their daily life and work. The calendar systems of various cultures or the use that Aboriginal peoples have made of medicinal plants might be considered. Different technologies and scientific processes from around the world, such as methods for making paper, metal, glass, dyes, and perfumes, could be compared, or the impact of technologies or technological processes in use in different countries can be explored in relation to the food chain, the environment, or the ozone layer. There are also expectations in the curriculum that require students to look at the perspectives or world views of Aboriginal cultures as they relate to science and technology.

All students should learn to operate equipment and use a variety of hand tools. This can be accomplished, in part, by booking specific times for each student, or for groups of students, to use the tool centre or specific tools. Access to computers should be monitored, and a range of software applications provided. A problem-solving approach can benefit students who are having difficulties with technology or equipment. For example, rather than demonstrating a specific solution to a technological problem, a teacher might begin by referring students to a manual or providing a series of guiding questions (e.g., "Have you tried ___." "You might think about ___." "I wonder what would happen if ___.") in order to help students develop self-confidence in their own competence. For younger students, offering building materials and construction toys in pastel colours serves to widen their appeal. Because access to equipment at home will vary, it is important to offer challenges for or support to students whose levels of prior knowledge differ.

CRITICAL THINKING AND CRITICAL LITERACY IN SCIENCE AND TECHNOLOGY

Critical thinking is the process of thinking about ideas or situations in order to understand them fully, identify their implications, and/or make a judgement about what is sensible or reasonable to believe or do. Critical thinking includes skills such as questioning, predicting, hypothesizing, analyzing, synthesizing, examining opinions, identifying values and issues, detecting bias, and distinguishing between alternatives.

Students use critical thinking skills in science and technology when they assess, analyse, and/or evaluate the impact of something on society and the environment; when they form an opinion about something and support that opinion with logical reasons; or when they create personal

plans of action with regard to making a difference. In order to do these things, students need to examine the opinions and values of others, detect bias, look for implied meaning in their readings, and use the information gathered to form a personal opinion or stance.

As they work to achieve the STSE expectations, students are frequently asked to identify the implications of an action. As they gather information from a variety of sources, they need to be able to interpret what they are reading, to look for instances of bias, and to determine why that source might express that particular bias.

In developing the skills of scientific inquiry/research, students must ask good questions to frame their research, interpret information, and detect bias. Depending on the topic, they may be required to consider the values and perspectives of a variety of groups and individuals.

Critical literacy is the capacity for a particular type of critical thinking that involves looking beyond the literal meaning of a text to determine what is present and what is missing, in order to analyse and evaluate the text's complete meaning and the author's intent. Critical literacy goes beyond conventional critical thinking by focusing on issues related to fairness, equity, and social justice. Critically literate students adopt a critical stance, asking what view of the world the text advances and whether they find this view acceptable.

In science and technology, students who are critically literate are able, for example, to read or view reports from a variety of sources on a common issue. They are able to assess how fairly the facts have been reported, what biases might be contained in each report and why that might be, how the content of the report was determined and by whom, and what might have been left out of the report and why. These students would then be equipped to produce their own interpretation of the issue.

LITERACY AND NUMERACY IN THE SCIENCE AND TECHNOLOGY PROGRAM

Aside from developing students' scientific, technological, and environmental literacy, the activities and tasks undertaken by students in the science and technology curriculum build on, reinforce, and enhance certain aspects of the language and mathematics curricula. Care has been taken to ensure that expectations in science and technology are consistent with the expectations for language and mathematics in the same grade.

Fostering students' communication skills is an important part of the teachers' role in the science and technology classroom. Students need to be able to use oral communication, reading, writing, and media literacy skills to gain new learning in science and technology and to communicate their understanding of what they have learned.

Oral communication skills are fundamental to the development of scientific and technological literacy and are essential for thinking and learning. Through purposeful talk, students not only learn to communicate information but also explore and come to understand ideas and concepts,

identify and solve problems, organize their experience and knowledge, and express and clarify their thoughts, feelings, and opinions.

To develop their oral communication skills, students need numerous opportunities to listen to information and talk about a range of subjects in science and technology. The science and technology program provides opportunities for students to engage in various oral activities in connection with expectations in all the strands, such as brainstorming to identify what they know about a new topic they are studying, discussing strategies for solving a technological problem, presenting and defending ideas or debating issues, and offering critiques of models and results produced by their peers.

Students' understanding is revealed through both oral and written communication, but it is not necessary for all science and technology learning to involve a written communication component. Young students especially need opportunities to focus on their oral communication without adding the additional responsibility of writing.

Whether students are talking or writing about their scientific and technological learning, teachers can prompt them to explain their thinking and reasoning behind a particular solution, design, or strategy, or to reflect on what they have done, by asking questions. Because a rich, open-ended question provides the starting point for an effective scientific inquiry or for addressing a technological problem, it is important that teachers model rich, open-ended questions for their students and allow students multiple opportunities to ask, and find answers to, their own questions.

When reading science texts, students use a different set of skills than they do when reading fiction. They need to understand vocabulary and terminology that are unique to science and technology, and must be able to interpret symbols, charts, and diagrams. In addition, as they progress through the grades, the ability to make sense of the organization of science and technology textbooks becomes critical. To help students construct meaning, it is essential that teachers of science and technology model and teach the strategies that support learning to read while students are reading to learn in this subject area.

Writing in science and technology employs special forms and therefore also requires specific and direct learning opportunities. Students may be asked, for example, to write step-by-step instructions for replicating an experiment with plants or for building a mousetrap car. The purpose of these instructions is two-fold: to record what they have done, and to allow someone else to replicate their experiment or design. Therefore their instructions need to be organized, clear, and precise.

Scientific writing serves many purposes: "... scientists ... take meticulous notes to form hypotheses, document observations, conduct experiments, and solve problems. Writing for them is much more than data collection; it is exploring, revising, and thinking on paper. Writing helps them learn facts, work out what the facts mean, and use facts to make new discoveries

and refine old theories" (Laura Robb, *Teaching Reading in Social Studies, Science and Math* [2003], page 59).

SOME CONSIDERATIONS FOR PROGRAM PLANNING

The Ministry of Education has facilitated the development of materials to support literacy instruction across the curriculum. Helpful advice for integrating literacy instruction in science and technology may be found in the following resource documents:

- Think Literacy: Cross-Curricular Approaches, Grades 7–12, 2003
- Think Literacy: Cross-Curricular Approaches – Subject-Specific Examples: Science and Technology, Grades 7 and 8, Reading Strategies, 2004
- Think Literacy: Cross-Curricular Approaches – Subject-Specific Examples: Science and Technology, Grades 7 and 8, Writing Strategies, 2005

Whether students are talking or writing about their scientific and technological learning, teachers can ask questions to prompt them to explain their thinking and reasoning behind a particular solution, design, or strategy, or to reflect on what they have done.

In addition to providing opportunities for literacy development, science and technology provides many valuable opportunities for students to apply the concepts and skills of mathematics and deepen their mathematical understanding. Science and technology also supports the development of a student's ability to apply the mathematical processes of problem solving, communicating, representing, connecting, reasoning and proving, reflecting, and selecting appropriate tools and strategies. For example, clear, concise communication often involves representing quantitative information numerically using charts and tables or graphically using diagrams and graphs. The science and technology curriculum provides opportunities for students to interpret and use graphic texts. Students apply the knowledge and skills they acquire in their study of data management in mathematics to gather, interpret, and describe data collected through hands-on investigations of relationships in science and technology.

Making real-world connections between science and technology and mathematics is extremely important. Students in Grade 2 should begin to make connections between the study of movement (in the Understanding Structures and Mechanisms strand) in science and technology and the study of location and movement (in the Geometry and Spatial Sense strand) in mathematics. When comparing and ordering the growth of germinated seeds, students in Grade 3 should be making connections to measurement by estimating, measuring, and recording lengths in centimetres and to data management by collecting and organizing categorical and discrete primary data. Grade 6 students can use proportional reasoning and the concept of unit rates when thinking about energy consumption and the cost of using electricity. The relationship between the distribution of weights on a lever and the position of the fulcrum can be used to

develop a better understanding of the relationship between the distribution of data and the mean of the data.

THE ROLE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY IN SCIENCE AND TECHNOLOGY EDUCATION

Information and communications technologies (ICT) provide a range of tools that can significantly extend and enrich teachers' instructional strategies and support students' learning in science and technology. Computer programs can help students collect, organize, and sort the data they gather and to write, edit, and present reports on their findings.

ICT can also be used to connect students to other schools, at home and abroad, and to bring the global community into the local classroom. Technology also makes it possible to use simulations when field studies on a particular topic are not feasible.

Whenever appropriate, therefore, students should be encouraged to use ICT to support and communicate their learning. For example, students working individually or in groups can use computer technology and/or Internet websites to gain access to museums and archives in Canada and around the world. Students can also use digital cameras and projectors to present multimedia presentations that document the testing and retesting of their design projects.

Although the Internet is a powerful learning tool, all students must be made aware of issues of privacy, safety, and responsible use, as well as of the ways in which the Internet can be used to promote hatred.

Teachers will find the various ICT tools useful in their teaching practice, both for whole class instruction and for the design of curriculum units that contain varied approaches to learning to meet diverse student needs.

THE ROLE OF THE SCHOOL LIBRARY IN SCIENCE AND TECHNOLOGY PROGRAMS

The school library program can help to build and transform students' knowledge to support a lifetime of learning in an information- and knowledge-based society. The school library program supports student success in the science and technology curriculum by encouraging students to read widely, teaching them to read for understanding and enjoyment, and helping them to improve their research skills and to use information gathered through research effectively. The school library program enables students to:

- develop a love of reading for learning and for pleasure;
- acquire an understanding of the richness and diversity of literary and informational texts produced in Canada and around the world;
- obtain access to programs, resources, and integrated technologies that support all curriculum areas;

- understand and value the role of public library systems as a resource for lifelong learning.

The school library program plays a key role in the development of information literacy and research skills. In collaboration with classroom or content-area teachers, teacher-librarians develop, teach, and provide students with authentic information and research tasks that foster learning, including the ability to:

- access, select, gather, critically evaluate, create, and communicate information;
- use the information obtained to solve problems, make decisions, build knowledge, • create personal meaning, and enrich their lives;
- communicate their findings for different audiences, using a variety of formats and technologies;
- use information and research with understanding, responsibility, and imagination.

GUIDANCE IN SCIENCE AND TECHNOLOGY EDUCATION

The guidance and career education program should be aligned with the science and technology curriculum. Teachers need to ensure that classroom learning across all grades and subjects provides ample opportunity for students to learn how to work independently (e.g., complete homework independently), cooperate with others, resolve conflicts, participate in class, solve problems, and set goals to improve their work.

The science and technology program can also offer opportunities for a variety of career exploration activities, including contacts with career mentors and visits from guest speakers whose occupations make use of scientific and technological knowledge and skills. These might include veterinarians, opticians, sound engineers, architects, city planners, road builders, or car designers.

GRADE 6

GRADE 6 | UNDERSTANDING LIFE SYSTEMS

BIODIVERSITY

OVERVIEW

Because all living things (including humans) are connected, maintaining biodiversity is critical to the health of the planet. Students will learn that biodiversity includes diversity among individuals, species, and ecosystems. Through observations of a specific habitat and the classification of organisms, students will have a first-hand opportunity to appreciate the diversity of living things while recognizing the roles and interactions of individual species within the whole. Care must be taken to ensure that all students, including students with special education needs, have comparable opportunities to explore the natural world.

When assessing human impacts on species and ecosystems, especially at a local level, students must be given opportunities to look at a variety of points of view. They should consider how and why the perspectives of developers, people concerned about the environment, and residents of the local community might be similar or different. Through thoughtful consideration of various viewpoints and biases, students not only can look for ways in which people might come to agreement on how to minimize the negative impact of their actions, but also will be able to make more informed decisions about their own positions and about action they can take.

In preparation for working outside the school, it is important that students be able to identify and demonstrate an understanding of practices that ensure their personal safety and the safety of others. This includes making the teacher aware of any potential personal dangers of being outside (e.g., allergic reactions to bee stings), knowing why it is important to wear clothing and footwear appropriate for the conditions, and staying within the area of study.

Fundamental Concepts: Systems and Interactions

Big Ideas: Biodiversity includes diversity of individuals, species, and ecosystems. (Overall expectations 2 and 3)

Fundamental Concepts: Sustainability and Stewardship

Big Ideas: • Classification of the components within a diverse system is a beginning point for understanding the interrelationships among the components. (Overall expectations 2 and 3)

- Because all living things are connected, maintaining diversity is critical to the health of the planet. (Overall expectations 1 and 3)

- Humans make choices that can have an impact on biodiversity. (Overall expectation 1)

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

1. assess human impacts on biodiversity, and identify ways of preserving biodiversity;
2. investigate the characteristics of living things, and classify diverse organisms according to specific characteristics;
3. demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans.

SPECIFIC EXPECTATIONS

1. Relating Science and Technology to Society and the Environment

By the end of Grade 6, students will:

1.1 analyse a local issue related to biodiversity (e.g., the effects of human activities on urban biodiversity, flooding of traditional Aboriginal hunting and gathering areas as a result of dam construction), taking different points of view into consideration (e.g., the points of view of members of the local community, business owners, people concerned about the environment, mine owners, local First Nations, Métis, Inuit), propose action that can be taken to preserve biodiversity, and act on the proposal

Sample issue: A local forest is slated to be cut down to make room for a new shopping plaza.

Sample guiding questions: What are the positive and negative aspects of the issue (e.g., a community will have access to goods and services in the new shopping plaza that were not there before; getting the land for the shopping plaza means losing a local forest)? Who might have differing opinions on this issue? Why? What are some things that you might do as an individual, or that we might do as a class, to make others aware of the issues and concerns (e.g., write a letter to the local newspaper, the mayor, or the Member of Parliament; design and hang awareness posters in the community)?

1.2 assess the benefits that human societies derive from biodiversity (e.g., thousands of products such as food, clothing, medicine, and building materials come from plants and animals) and the problems that occur when biodiversity is diminished (e.g., monocultures are more vulnerable to pests and diseases)

Sample issue: Monoculture systems on farms allow crops to be grown in the soil that is best for them. But monoculture systems reduce diversity, and so more soil and pest problems result. In turn, farmers apply more chemical fertilizers and pesticides, which pollute the land, the water, and the food they are producing.

2. Developing Investigation and Communication Skills

By the end of Grade 6, students will:

2.1 follow established safety procedures for outdoor activities and field work (e.g., stay with a partner when exploring habitats; wash hands after exploring a habitat)

2.2 investigate the organisms found in a specific habitat and classify them according to a classification system

2.3 use scientific inquiry/research skills (see page 15) to compare the characteristics of organisms within the plant or animal kingdoms (e.g., compare the characteristics of a fish and a mammal, of coniferous and deciduous trees, of ferns and flowering plants)

Sample guiding questions: What are the criteria you will use to compare organisms? Why are these good criteria to use to compare the organisms? How might the criteria change if you picked two different organisms? Why is it important to be able to compare organisms in some organized way?

2.4 use appropriate science and technology vocabulary, including classification, biodiversity, natural community, interrelationships, vertebrate, invertebrate, stability, characteristics, and organism, in oral and written communication

2.5 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., use a graphic organizer to show comparisons between organisms in various communities)

3. Understanding Basic Concepts

By the end of Grade 6, students will:

3.1 identify and describe the distinguishing characteristics of different groups of plants and animals (e.g., invertebrates have no spinal column; insects have three basic body parts; flowering plants produce flowers and fruits), and use these characteristics to further classify various kinds of plants and animals (e.g., invertebrates – arthropods – insects; vertebrates – mammals – primates; seed plants – flowering plants – grasses)

3.2 demonstrate an understanding of biodiversity as the variety of life on earth, including variety within each species of plant and animal, among species of plants and animals in communities, and among communities and the physical landscapes that support them

3.3 describe ways in which biodiversity within species is important for maintaining the resilience of those species (e.g., because of genetic differences, not all squirrels are affected equally by infectious diseases such as mange; some species of bacteria have become resistant to antibiotics because resistant individuals have survived and reproduced)

3.4 describe ways in which biodiversity within and among communities is important for maintaining the resilience of these communities (e.g., having a variety of species of wheat allows for some part of the crop to survive adverse conditions)

3.5 describe interrelationships within species (e.g., wolves travel in packs to defend their territory, raise their cubs, and hunt large prey), between species (e.g., the brightly-coloured anemone fish protects its eggs by laying them among the poisonous tentacles of the sea anemone, and in return the fish's bright colours attract prey for the anemone to eat; birds and bees take sustenance from plants and carry pollen between plants), and between species and their environment (e.g., algae and water lilies compete for sunlight in a pond), and explain how these interrelationships sustain biodiversity

3.6 identify everyday products that come from a diversity of organisms (e.g., traditional pain relievers are derived from the bark of the white willow tree; tofu is made from soybeans; silk is made from silkworm cocoons; nutritional supplements, shampoos, toothpastes, and deodorants contain pollen collected by bees)

3.7 explain how invasive species (e.g., zebra mussel, Asian longhorned beetle, purple loosestrife) reduce biodiversity in local environments

GRADE 6 | UNDERSTANDING STRUCTURES AND MECHANISMS

FLIGHT

OVERVIEW

The use of flight technologies has substantial effects on both society and the environment. In order to understand the principles of flight, students must first learn about the properties of air that make flight possible. Through investigations, observations, and experiments, students will discover that flight occurs when the characteristics of structures take advantage of certain properties of air (for example, air takes up space, has mass, expands, and can exert a force when compressed). They will then apply their newly acquired knowledge to design and test a flying device.

It is important that students be able to identify practices that ensure their personal safety and the safety of others and demonstrate an understanding of these practices. As students explore flying things, it is important that they understand why projectiles of any kind should always be aimed away from spectators, and why buildings, trees, and overhead wires present hazards to anyone flying kites or airplanes.

Fundamental Concepts: Structure and Function

Big Ideas: Flight occurs when the characteristics of structures take advantage of certain properties of air. (Overall expectations 1, 2, and 3)

Fundamental Concepts: Matter

Big Ideas: Air has many properties that can be used for flight and for other purposes. (Overall expectations 1, 2, and 3)

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

1. assess the societal and environmental impacts of flying devices that make use of properties of air;
2. investigate ways in which flying devices make use of properties of air;
3. explain ways in which properties of air can be applied to the principles of flight and flying devices.

SPECIFIC EXPECTATIONS

1. Relating Science and Technology to Society and the Environment

By the end of Grade 6, students will:

1.1 assess the benefits and costs of aviation technology for society and the environment, taking different social and economic perspectives into account (e.g., the perspectives of farmers, airline workers, doctors, home owners, tour operators)

Sample issues: (a) Crop dusting from planes allows the chemicals to spread quickly over large crop areas, which is critical to pest control and crop protection. However, the planes cannot direct the chemicals onto the target crop with precision, so the chemicals spread where they are not wanted.

(b) The speed and ease of air travel allow quick transportation of organs for lifesaving transplants, quick transportation of injured patients to hospitals, and trips for business and pleasure. However, air travel also increases the risk of spreading infectious diseases and creates noise and air pollution.

2. Developing Investigation and Communication Skills

By the end of Grade 6, students will:

2.1 follow established safety procedures for using tools and materials and operating flying devices (e.g., aim flying devices away from each other when launching them; fly kites and airplanes a safe distance from overhead hydro wires)

2.2 use scientific inquiry/experimentation skills (see page 12) to investigate the properties of air (e.g., air takes up space, has mass, can be compressed)

Sample guiding questions: How do we know that air is there? When have you felt the force or pressure of air? Where might you see some of these principles applied in daily life?

2.3 investigate characteristics and adaptations that enable living things to fly (e.g., a bat's wings are made up of long, thin bones covered with a very light membrane that forms an airfoil surface; insects can twist and turn their wings, which helps them to hover in the air or even fly backwards; some seeds, such as the keys of a maple tree or dandelion seeds, have parachutes or wings like a glider that allow them to be carried by the wind)

2.4 use technological problem-solving skills (see page 16) to design, build, and test a flying device (e.g., a kite, a paper airplane, a hot air balloon)

Sample guiding questions: How does your device use the principles of flight? What were some challenges in getting your device off the ground? How might you change your device to make it fly better?

2.5 use appropriate science and technology vocabulary, including aerodynamics, compress, flight, glide, propel, drag, thrust, and lift, in oral and written communication

2.6 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., using technological conventions, make a drawing of the flying device they constructed)

3. Understanding Basic Concepts

By the end of Grade 6, students will:

3.1 identify the properties of air that make flight possible (e.g., air takes up space, has mass, expands, can exert a force when compressed)

3.2 identify common applications of the properties of air, such as its compressibility and insulating qualities (e.g., home insulation, tires, sleeping bags, layered clothing)

3.3 identify and describe the four forces of flight – lift, weight, drag, and thrust

3.4 describe, in qualitative terms, the relationships between the forces of lift, weight, thrust, and drag that are required for flight (e.g., lift must be greater than weight for a plane to take off; thrust must be greater than drag for a plane to take off; lift must be less than weight for a plane to land; thrust must be less than drag for a plane to land)

3.5 describe ways in which flying devices or living things use unbalanced forces to control their flight (e.g., a plane can be steered up or down by tilting the elevators on the tail; when a bird flaps its wings, the wings develop lift as well as forward and upward force, thus causing it to take off)

3.6 describe ways in which the four forces of flight can be altered (e.g., increasing the angle of attack increases the lift; lightweight materials help to keep the overall mass of the plane down, so that it can fly with smaller lift force; jet engines can vary the amount of thrust, which enables the plane to move forward; using the flaps on airplane wings changes the amount of drag, which reduces the speed of the plane)

GRADE 6 | UNDERSTANDING MATTER AND ENERGY

ELECTRICITY AND ELECTRICAL DEVICES

OVERVIEW

Electricity is a form of energy that students encounter every day. Students will already be familiar with many of the uses of this convenient source of energy. Building on their prior learning, students will explore devices that convert electricity to other forms of energy. The building of circuits should further strengthen students' understanding of how electrical systems work.

We live in an age when everyone is concerned about how we use electrical energy and how we will continue to meet the demand for it. Students need opportunities to think about how electrical energy can be conserved both at home and at school and about alternative ways of producing energy. They must learn to think critically about the information and ideas they encounter. Throughout their investigations, they should also be encouraged to examine the opinions of others and to question those opinions as they form their own opinions and plans of action.

It is important that students be able to identify and demonstrate an understanding of practices that ensure their personal safety and the safety of others when working with and around electricity. This includes knowing why hands should be dry when handling alternating current (AC) equipment and why equipment with frayed plugs should be reported to the teacher.

Fundamental Concepts: Energy

Big Ideas: Electrical energy can be transformed into other forms of energy. (Overall expectations 2 and 3)

Fundamental Concepts: Systems and Interactions

Big Ideas: Other forms of energy can be transformed into electrical energy. (Overall expectations 2 and 3)

Fundamental Concepts: Sustainability and Stewardship

Big Ideas: • Electrical energy plays a significant role in society, and its production has an impact on the environment. (Overall expectation 1)

• Society must find ways to minimize the impact of energy production on the environment. (Overall expectation 1)

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

1. evaluate the impact of the use of electricity on both the way we live and the environment;
2. investigate the characteristics of static and current electricity, and construct simple circuits;
3. demonstrate an understanding of the principles of electrical energy and its transformation into and from other forms of energy.

SPECIFIC EXPECTATIONS

1. Relating Science and Technology to Society and the Environment

By the end of Grade 6, students will:

1.1 assess the short- and long-term environmental effects of the different ways in which electricity is generated in Canada (e.g., hydro, thermal, nuclear, wind, solar), including the effect of each method on natural resources and living things in the environment

Sample problems: (a) Electricity in Ontario is generated by nuclear plants, hydroelectric plants, coal-fired plants, and natural gas plants, and a small percentage is obtained through alternative energy sources. Choose an electricity-generating plant that supplies electricity in your community, and compare the environmental effects of the generating

method it uses with a method used in another part of the province.

(b) The James Bay Hydroelectric Project was one of the biggest hydroelectric developments of the past century, but it has also had a serious impact on the environment and the James Bay Cree people. Investigate both sides of this issue, and suggest how things might be approached differently today.

1.2 assess opportunities for reducing electricity consumption at home or at school that could affect the use of non-renewable resources in a positive way or reduce the impact of electricity generation on the environment

Sample issue: Peak demand times for electricity are morning and early evening. Because electricity cannot be stored in a cost-effective way, it must be supplied as it is being used. This means that almost all of a utility's available power plants must run to meet the demand and prevent system outages. Some utility companies are considering a plan to pay consumers to reduce their electricity consumption, especially during peak hours. This plan would not only reduce demand but would also reduce the cost of electricity for all customers and the impact of electricity production on the environment.

2. Developing Investigation and Communication Skills

By the end of Grade 6, students will:

2.1 follow established safety procedures for working with electricity (e.g., ensure hands are completely dry when working with electricity; be aware of electrical hazards at home, at school, and in the community)

2.2 design and build series and parallel circuits, draw labelled diagrams identifying the components used in each, and describe the role of each component in the circuit

2.3 use scientific inquiry/experimentation skills (see page 12) to investigate the characteristics of static electricity

Sample guiding questions: Is static electricity really static? Explain. What causes static electricity? Is it easier to generate static electricity in a dry room or a humid room? Why? Which materials accept a charge better than others? Where would you find static electricity in action?

2.4 design, build, and test a device that produces electricity (e.g., a battery built from a lemon or potato; a wind turbine)

Sample guiding questions: How can you find the positive and negative ends of your battery? How much voltage does your battery produce? How can you increase the voltage? What would happen if you exchanged the lemon for an apple? For a potato or a carrot? For other fruits or vegetables? How does a wind turbine produce electricity? Is this a good method of producing electricity? Why? Why not?

2.5 use technological problem-solving skills (see page 16) to design, build, and test a device that transforms electrical energy into another form of energy in order to perform a function (e.g., a device that makes a sound, that moves, that lights up)

Sample guiding questions: What function will your device perform? What does your device transform the electrical energy into? How does your device work?

2.6 use appropriate science and technology vocabulary, including current, battery, circuit, transform, static, electrostatic, and energy, in oral and written communication

2.7 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., using scientific and technological conventions, create a labelled diagram showing the component parts of the device they created to transform electrical energy into another form of energy and perform a function)

3. Understanding Basic Concepts

By the end of Grade 6, students will:

3.1 distinguish between current and static electricity

3.2 use the principles of static electricity to explain common electrostatic phenomena (e.g., the attraction of hairs to a comb that has been rubbed on a piece of wool; the attraction of small pieces of paper to a plastic ruler that has been rubbed with a rag; the attraction of pieces of clothing to each other when they come out of a clothes dryer)

3.3 identify materials that are good conductors of electricity (e.g., copper, gold, silver, aluminum, water [when it has a high mineral content]) and good insulators (e.g., glass, plastic, rubber, ceramics)

3.4 describe how various forms of energy can be transformed into electrical energy (e.g., batteries use chemical energy; hydroelectric plants use water power; nuclear generating

stations use nuclear energy; wind turbines use wind power; solar panels use energy from the sun; wave power stations use energy from ocean waves)

3.5 identify ways in which electrical energy is transformed into other forms of energy (e.g., electrical energy is transformed into heat energy in a toaster, light and sound energy in a television, mechanical energy in a blender)

3.6 explain the functions of the components of a simple electrical circuit (e.g., a battery is the power source; a length of wire is the conductor that carries the electrical current to the load; a light bulb or motor is the load)

3.7 describe series circuits (components connected in a daisy chain) and parallel circuits (components connected side by side like the rungs of a ladder), and identify where each is used (e.g., some strings of patio lights are in series circuits – when one light burns out, the whole string goes out; parallel circuits are used for wiring lighting and electrical outlets in your house – when one light burns out, the others keep burning)

3.8 describe ways in which the use of electricity by society, including the amount of electrical energy used, has changed over time (e.g., drying clothes in a dryer instead of using a clothesline; playing video games instead of playing board games; using electric lights instead of candles)

GRADE 6 | UNDERSTANDING EARTH AND SPACE SYSTEMS

SPACE

OVERVIEW

Our ability to observe and study objects in space has been greatly enhanced by the use of technological devices. The application of these technologies affects our lives in many ways. Space science involves learning about objects in the sky, particularly their form, movements, and interactions. In learning about space, students will focus on past and present-day contributions of space science to the quality of human life while developing an understanding of the phenomena that result from the movement of different bodies in space. Investigations will involve working with models of the different bodies to allow students to explore their size, position, and motion and help them gain an understanding of Earth as a component of larger systems.

It is important that students be able to identify and demonstrate an understanding of practices that ensure their personal safety and the safety of others. As students design, build, and test models, for example, it is important that they understand why Styrofoam needs to be cut in a well-ventilated space and how to use equipment safely and correctly.

Fundamental Concepts: Systems and Interactions

Big Ideas: Earth is a part of a large interrelated system. (Overall expectations 2 and 3)

Technological and scientific advances that enable humans to study space affect our lives.
(Overall expectations 1 and 2)

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

1. assess the impact of space exploration on society and the environment;
2. investigate characteristics of the systems of which the earth is a part and the relationship between the earth, the sun, and the moon;
3. demonstrate an understanding of components of the systems of which the earth is a part, and explain the phenomena that result from the movement of different bodies in space.

SPECIFIC EXPECTATIONS

1. Relating Science and Technology to Society and the Environment

By the end of Grade 6, students will:

1.1 assess the contributions of Canadians (e.g., astronauts Marc Garneau and Roberta Bondar; astronomers Richard Bond, David Levy, and Helen Hogg; Spar Aerospace Limited's development of the Canadarm; the University of British Columbia's development of the "Hubble" space telescope) to the exploration and scientific understanding of space

1.2 evaluate the social and environmental costs and benefits of space exploration, taking different points of view into account (e.g., the point of view of health care workers and workers in other agencies that compete with space programs for public money; astronauts and their families; the general public; scientists)

Sample issue: Space exploration has brought many benefits to society. High-quality radio and television signals are now relayed around the globe by satellite. Biological experiments in space, such as the growing of insulin crystals, are contributing to our ability to fight disease. The technology used for space shuttle fuel pumps is now being used to make better artificial hearts. Geographical data obtained by satellites have improved the quality of maps and made navigation safer. But space exploration is also very expensive, involves risks to the lives of astronauts and others, produces pollution, and creates space junk that may eventually fall back to Earth. Are the benefits worth the costs and risks?

2. Developing Investigation and Communication Skills

By the end of Grade 6, students will:

2.1 follow established safety procedures for handling tools and materials and observing the sun (e.g., use appropriate eye protection when testing a sundial)

2.2 use technological problem-solving skills (see page 16) to design, build, and test devices (e.g., a sundial, a model of the earth's rotation around the sun) for investigating the motions of different bodies in the solar system

Sample guiding questions: In what direction does your sundial fin need to point? Why? In what direction might you expect the shadow to move? How would daylight saving time affect the accuracy of your sundial? How might your model of the earth and sun best be used to explain the reason for day and night? What impact does the tilt of the earth's axis have on cycles on earth? What does the earth do to cause the day and night cycle?

2.3 use scientific inquiry/research skills (see page 15) to investigate scientific and technological advances that allow humans to adapt to life in space

Sample guiding questions: Why is life in space a challenge for humans? How might some of those challenges be overcome? What technologies exist now to allow us to overcome the challenges? In what ways does the International Space Station mimic conditions on Earth? What technologies create conditions similar to Earth's on the space station, and what differences remain? How might robotics play a role in human adaptation to space life? Under what circumstances might robots replace humans in space exploration?

2.4 use appropriate science and technology vocabulary, including axis, tilt, rotation, revolution, planets, moons, comets, and asteroids, in oral and written communication

2.5 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., use a graphic organizer to identify and order main ideas and supporting details for a report about how science and technology can help humans adapt to life in space)

3. Understanding Basic Concepts

By the end of Grade 6, students will:

3.1 identify components of the solar system, including the sun, the earth, and other planets, natural satellites, comets, asteroids, and meteoroids, and describe their physical characteristics in qualitative terms (e.g., The earth's surface is very young; much of it is covered with water. The moon is the earth's only natural satellite. Comets are the largest objects in our solar system; their centres contain rock particles trapped in frozen liquid; their tails are made up of gas and dust.)

3.2 identify the bodies in space that emit light (e.g., stars) and those that reflect light (e.g., moons and planets)

3.3 explain how humans meet their basic biological needs in space (e.g., obtaining air, water, and food and managing bodily functions)

3.4 identify the technological tools and devices needed for space exploration (e.g., telescopes, spectrometers, spacecraft, life-support systems)

3.5 describe the effects of the relative positions and motions of the earth, moon, and sun (e.g., use models or simulations to show solar and lunar eclipses, phases of the moon, tides)

7.5 English Language

REVISED 2006

INTRODUCTION

This document replaces The Ontario Curriculum, Grade 1- 8: Language, 1997. Beginning in September 2006, all language programs for Grades 1 to 8 will be based on the expectations outlined in this document.

THE IMPORTANCE OF LITERACY, LANGUAGE, AND THE LANGUAGE CURRICULUM

Literacy is about more than reading or writing - it is about how we communicate in society. It is about social practices and relationships, about knowledge, language and culture.

Those who use literacy take it for granted - but those who cannot use it are excluded from much communication in today's world. Indeed, it is the excluded who can best appreciate the notion of "literacy as freedom".

UNESCO, Statement for the United Nations Literacy Decade, 2003-2012

Literacy development lies at the heart of the Grade 1- 8 language curriculum. Literacy learning is a communal project and the teaching of literacy skills is embedded across the curriculum; however, it is the language curriculum that is dedicated to instruction in the areas of knowledge and skills - listening and speaking, reading, writing, and viewing and representing - on which literacy is based.

Language development is central to students' intellectual, social, and emotional growth, and must be seen as a key element of the curriculum. When students learn to use language in the elementary grades, they do more than master the basic skills. They learn to value the power of language and to use it responsibly. They learn to express feelings and opinions and, as they mature, to support their opinions with sound arguments and research. They become aware of the many purposes for which language is used and the diverse forms it can take to appropriately serve particular purposes and audiences. They learn to use the formal language appropriate for debates and essays, the narrative language of stories, the figurative language of poetry, the technical language of instructions and manuals. They develop an awareness of how language is used in different formal and informal situations. In sum, they come to appreciate language both as an important medium for communicating ideas and information and as a source of enjoyment.

Language is the basis for thinking, communicating, and learning. Students need language skills in order to comprehend ideas and information, to interact socially, to inquire into areas of interest and study, and to express themselves clearly and demonstrate their learning. Learning to communicate with clarity and precision, orally, in writing, and through a variety of media, will help students to thrive in the world beyond school.

Language is a fundamental element of identity and culture. As students read and reflect on a rich variety of literary, informational, and media texts, ¹ they develop a deeper understanding of themselves and others and of the world around them. If they see themselves and others in the texts they read and the oral and media works they engage in, they are able to feel that the works are genuinely for and about them and they come to appreciate the nature and value of a diverse, multicultural society. They also develop the ability to understand and critically interpret a range of texts and to recognize that a text conveys one particular perspective among many.

1. The word text is used in this document in its broadest sense, as a means of communication that uses words, graphics, sounds, and/or images, in print, oral, visual, or electronic form, to present information and ideas to an audience.

Language skills are developed across the curriculum and, cumulatively, through the grades. Students use and develop important language skills as they read and think about topics, themes, and issues in various subject areas. Language facility helps students to learn in all subject areas, and using language for a broad range of purposes increases both their ability to communicate with precision and their understanding of how language works. Students develop flexibility and proficiency in their understanding and use of language over time. As they move through the grades, they are required to use language with ever greater accuracy and fluency in an ever-expanding range of situations. They are also expected to assume responsibility for their own learning and to apply their language skills in more challenging and complex ways.

PRINCIPLES UNDERLYING THE LANGUAGE CURRICULUM

The language curriculum is based on the belief that literacy is critical to responsible and productive citizenship, and that all students can become literate. The curriculum is designed to provide students with the knowledge and skills that they need to achieve this goal. It aims to help students become successful language learners, who share the following characteristics.

Successful language learners:

- understand that language learning is a necessary, life-enhancing, reflective process;
- communicate - that is, read, listen, view, speak, write, and represent - effectively and with confidence;
- make meaningful connections between themselves, what they encounter in texts, and the world around them;

- think critically;
- understand that all texts advance a particular point of view that must be recognized, questioned, assessed, and evaluated;
- appreciate the cultural impact and aesthetic power of texts;
- use language to interact and connect with individuals and communities, for personal growth, and for active participation as world citizens.

This curriculum organizes the knowledge and skills that students need to become literate in four strands, or broad areas of learning - Oral Communication, Reading, Writing, and Media Literacy. These areas of learning are closely interrelated, and the knowledge and skills described in the four strands are interdependent and complementary. Teachers are expected to plan activities that blend expectations from the four strands in order to provide students with the kinds of experiences that promote meaningful learning and that help students recognize how literacy skills in the four areas reinforce and strengthen one another.

The study of language and the acquisition of literacy skills are not restricted to the language program, and this curriculum promotes the integration of the study of language with the study of other subjects. Examples are used throughout this document that illustrate ways in which teachers can achieve this goal in the classroom.

The language curriculum is also based on the understanding that students learn best when they can identify themselves and their own experience in the material they read and study at school. Students in Ontario come from a wide variety of backgrounds, each with his or her own set of perspectives, strengths, and needs. Instructional strategies and resources that recognize and reflect the diversity in the classroom and that suit individual strengths and needs are therefore critical to student success.

Reading activities should expose students to materials that reflect the diversity of Canadian and world cultures, including those of Aboriginal peoples. Students need to become familiar with the works of recognized writers from their own and earlier eras. By reading a wide range of materials and being challenged by what they read, students become receptive to new and widely varying ideas and perspectives and develop their ability to think independently and critically. It is also important to give students opportunities to choose what they read and what they write about, in order to encourage the development of their own interests and pursuits.

In recent years, research has shown that effective readers and writers unconsciously use a range of skills and strategies as they read and write, and that these strategies and skills can be identified and taught to enable all students to become effective communicators. The language curriculum focuses on comprehension strategies for listening, viewing, and reading; on the most effective reading and writing processes; on skills and techniques for effective oral and written communication and for the creation of effective media texts; and on the language conventions

needed for clear and coherent communication. In addition, it emphasizes the use of higher-level thinking skills, including critical literacy skills, to enable students not only to understand, appreciate, and evaluate what they read and view at a deeper level, but also to help them become reflective, critical, and independent learners and, eventually, responsible citizens.

In implementing this curriculum, teachers can help students - particularly students in Grades 7 and 8 - to see that language skills are lifelong learning skills that will enable them to better understand themselves and others, unlock their potential as human beings, find fulfilling careers, and become responsible world citizens.

ROLES AND RESPONSIBILITIES IN LANGUAGE EDUCATION

Students

Students' responsibilities with respect to their own learning develop gradually and increase over time, as students progress through elementary and secondary school. With appropriate instruction and with experience, students come to see how making an effort can enhance learning and improve achievement. As they mature and develop their ability to persist, to manage their own impulses, to take responsible risks, and to listen with understanding, students become better able to engage with their own learning. Learning to take responsibility for their progress and achievement is an important part of every student's education.

Mastering the concepts and skills connected with the language curriculum requires work, study, and the development of cooperative skills. In addition, students who actively pursue opportunities outside the classroom will extend and enrich their understanding of the communication process. Their understanding and skills will grow as they explore their world and engage in activities, for their own purposes that involve reading, writing, speaking, listening, viewing, and representing. Students develop their literacy skills when they seek out recreational reading materials and multimedia works that relate to their personal interests and to other subject areas, and when they engage in conversation with parents, peers, and teachers about what they are reading, writing, viewing, representing, and thinking in their daily lives.

Parents

Studies show that students perform better in school when their parents² are involved in their education. Parents who are familiar with the curriculum expectations know what is being taught in each grade and what their child is expected to learn. This information allows parents to understand how their child is progressing in school and to work with teachers to improve their child's learning.

2. In this document, parent(s) is used to refer to parent(s) and guardian(s).

Effective ways in which parents can support students' learning include: attending parent-teacher interviews, participating in parent workshops and school council activities (including becoming a school council member), and encouraging students to complete their assignments at home.

In addition to supporting regular school activities, parents may wish to encourage their sons and daughters to take an active interest in using language for meaningful purposes as a regular part of their activities outside school. They might encourage their children to read every day; talk and play together at home; take out a library membership; join a book club, a computer club, a camera club, or a community group; participate in an online pen pal program; or subscribe to an age-appropriate magazine.

Teachers

Teaching is key to student success. Teachers are responsible for developing appropriate instructional strategies to help students achieve the curriculum expectations, and appropriate methods for assessing and evaluating student learning. They bring enthusiasm and varied teaching and assessment approaches to the classroom, addressing individual students' needs and ensuring sound learning opportunities for every student.

Using a variety of instructional, assessment, and evaluation strategies, teachers provide numerous opportunities for students to develop the skills and knowledge in reading, writing, listening, speaking, viewing, and representing that will enable them to make meaningful connections between what they already know and what they need to know. They provide students with frequent opportunities to practice and apply new learning and, through regular and varied assessment, give them the specific feedback they need in order to further develop and refine their skills. By assigning tasks that promote the development of higher-order thinking skills, teachers enable students to become thoughtful and effective communicators. In addition, teachers encourage students to think out loud about their own language processes, and support them in developing the language and techniques they need to assess their own learning. Opportunities to relate knowledge and skills in language learning to wider contexts, both across the curriculum and in the world beyond the school, motivate students to learn and to become lifelong learners.

Principals

The principal works in partnership with teachers and parents to ensure that each student has access to the best possible educational experience. The principal is also a community builder who creates an environment that is welcoming to all, and who ensures that all members of the school community are kept well informed.

To support student learning, principals ensure that the Ontario curriculum is being properly implemented in all classrooms through the use of a variety of instructional approaches, and that appropriate resources are made available for teachers and students. To enhance teaching and student learning in all subjects, including language, principals promote learning teams and work with teachers to facilitate teacher participation in professional development activities. Principals are also responsible for ensuring that every student who has an Individual Education Plan (IEP) is receiving the modifications and/or accommodations described in his or her plan - in other words, for ensuring that the IEP is properly developed, implemented, and monitored.

Community Partners

Community partners can be an important resource in students' language development. They can provide support for students with literacy needs, both in the classroom and as living models of how the curriculum relates to life beyond school. Such modelling and mentoring can enrich not only the educational experience of students but also the life of the community.

Schools and school boards can play a role by coordinating efforts with community partners. They can involve community volunteers in supporting language instruction and in promoting a focus on literacy in and outside the school. Community partners can be included in literacy events held in the school, and school boards can collaborate with leaders of existing community-based literacy programs for youth, including programs offered in public libraries and community centres.

THE PROGRAM IN LANGUAGE EDUCATION

CURRICULUM EXPECTATIONS

The Ontario Curriculum, Grades 1-8: Language, 2006 identifies the expectations for each grade and describes the knowledge and skills that students are expected to acquire, demonstrate, and apply in their class work and investigations, on tests, and in various other activities on which their achievement is assessed and evaluated.

Two sets of expectations are listed for each grade in each strand, or broad area of the curriculum, in language for Grades 1- 8 - overall expectations and specific expectations. The overall expectations describe in general terms the knowledge and skills that students are expected to demonstrate by the end of each grade. The specific expectations describe the expected knowledge and skills in greater detail. The specific expectations are grouped under numbered headings, each of which indicates the overall expectation to which the group of specific expectations corresponds. Taken together, the overall and specific expectations represent the mandated curriculum.

In the language curriculum, the overall expectations outline standard sets of knowledge and skills required for effective listening and speaking, reading and writing, and viewing and representing. They encompass the types of understanding, skills, approaches, and processes that are applied by effective communicators of all ages and levels of development, and are therefore described in constant terms from grade to grade. The language curriculum focuses on developing the depth and level of sophistication of students' knowledge and skills associated with each of these key overall expectations by increasing the complexity of the texts they work with and the tasks they perform over time.

The specific expectations reflect this progression in knowledge and skills from grade to grade through (1) the wording of the expectation itself, (2) the examples that are given in parentheses in the expectation, and/or (3) the teacher prompts that may follow the expectation. The

examples and teacher prompts help to clarify the requirements specified in the expectations and suggest the intended depth and level of complexity of the expectations. They have been developed to model appropriate practice for the grade and are meant to serve as illustrations for teachers. Teachers can choose to use the examples and teacher prompts that are appropriate for their classrooms or they may develop their own approaches that reflect a similar level of complexity. Whatever the specific ways in which the requirements outlined in the expectations are implemented in the classroom, they must, wherever possible, be inclusive and reflect the diversity of the student population and the population of the province.

STRANDS IN THE LANGUAGE CURRICULUM

The expectations in the language curriculum are organized into four strands: Oral Communication, Reading, Writing, and Media Literacy. The program in all grades is designed to develop a range of essential skills in these four interrelated areas, built on a solid foundation of knowledge of the conventions of standard English and incorporating the use of analytical, critical, and metacognitive thinking skills. Students learn best when they are encouraged to consciously monitor their thinking as they learn, and each strand includes expectations that call for such reflection.

The knowledge and skills described in the expectations in the four strands of the language curriculum will enable students to understand, respond to, create, and appreciate a full range of literary, informational, and media texts.

Oral Communication

Oral communication skills are fundamental to the development of literacy and essential for thinking and learning. Through talk, students not only communicate information but also explore and come to understand ideas and concepts; identify and solve problems; organize their experience and knowledge; and express and clarify their thoughts, feelings, and opinions. Listening and speaking skills are essential for social interaction at home, at school, and in the community.

To develop their oral communication skills, students need numerous opportunities to listen and to talk about a range of subjects, including personal interests, school work, and current affairs. The language program should provide opportunities for students to engage in various oral activities in connection with expectations in all the strands, such as brainstorming to identify what they know about the topic of a new text they are about to read, discussing strategies for solving a problem in a writing assignment, presenting and defending ideas or debating issues, and offering critiques of work produced by their peers.

In order for all students to benefit from the opportunities provided for listening and speaking, differences in the norms and conventions associated with oral communication in different cultures must be taken into account.

Although children normally start to develop oral language skills before they learn to read and write, the development of reading and writing skills can enhance their ability to use and understand oral language clearly, accurately, and critically.

The Oral Communication strand has three overall expectations, as follows:

Students will:

1. listen in order to understand and respond appropriately in a variety of situations for a variety of purposes;
2. use speaking skills and strategies appropriately to communicate with different audiences for a variety of purposes;
3. reflect on and identify their strengths as listeners and speakers, areas for improvement, and the strategies they found most helpful in oral communication situations.

This strand focuses on the identification and development of the skills and strategies effective listeners and speakers use to understand and interact with others. It also emphasizes the use of higher-order thinking skills to stimulate students' interest and engage them in their own learning.

Reading

The Ontario curriculum focuses on developing the knowledge and skills that will enable students to become effective readers. An effective reader is one who not only grasps the ideas communicated in a text but is able to apply them in new contexts. To do this, the reader must be able to think clearly, creatively, and critically about the ideas and information encountered in texts in order to understand, analyse, and absorb them and to recognize their relevance in other contexts. Students can develop the skills necessary to become effective readers by applying a range of comprehension strategies as they read and by reading a wide variety of texts. It is also important that they read a range of materials that illustrate the many uses of writing. By reading widely, students will develop a richer vocabulary and become more attuned to the conventions of written language. Reading various kinds of texts in all areas of the curriculum will also help students to discover what interests them most and to pursue and develop their interests and abilities.

As students develop their reading skills, it is important that they have many opportunities to read for a variety of purposes. A well-balanced reading program will provide students with opportunities to read for the pleasure of discovering interesting information as well as for the pleasure of self-discovery, for self-enrichment, and for the sheer fun of it. Such reading activities are particularly important in the elementary grades, when attitudes towards reading and reading habits are first being formed. Reading experiences that invite students to discover new worlds and new experiences and to develop their imaginative powers will go a long way towards convincing them that reading can be a rich source of pleasure and knowledge. Such experiences

are likely to lead to a love of reading, which is among the most valuable resources students can take with them into adult life.

Reading is a complex process that involves the application of many strategies before, during, and after reading. For example, before reading, students might prepare by identifying the purpose of the reading activity and by activating their prior knowledge about the topic of the text. Teachers help build the necessary background knowledge for students whose life experiences may not have provided them with the information they need to understand the text. During reading, students may use "cueing systems" - that is, clues from context or from their understanding of language structures and/or letter-sound relationships - to help them solve unfamiliar words, and comprehension strategies to help them make meaning of the text. Comprehension strategies include predicting, visualizing, questioning, drawing inferences, identifying main ideas, summarizing, and monitoring and revising comprehension. After reading, students may analyse, synthesize, make connections, evaluate, and use other critical and creative thinking skills to achieve a deeper understanding of the material they have read. It is important to note that although the specific expectations for each grade may focus on particular strategies that emphasize grade-appropriate skills, they do not impose a restriction on the range of strategies students will apply in that grade. Teachers must use their professional judgement in deciding which comprehension strategies to model and teach, based on the identified learning needs of the students in their classrooms and on the nature of the particular texts students are reading.

To become fluent, independent readers, students need to read frequently and develop the skills used in reading for a variety of different purposes - to follow directions, to get advice, to locate information, for enjoyment, for practice, to build vocabulary, to satisfy curiosity, for research, or for personal interest. The purpose for reading will be determined by the teacher in some cases and by the student in others. The reading program should include a wide variety of literary, informational, and graphic texts - for example, picture books and novels; poetry; myths, fables, and folk tales; textbooks and books on topics in science, history, mathematics, geography, and other subjects; biographies, autobiographies, memoirs, and journals; plays and radio, film, or television scripts; encyclopaedia entries; graphs, charts, and diagrams in textbooks or magazine articles; recipes, instructions, and manuals; graphic novels, comic books, cartoons, and baseball cards; newspaper articles and editorials; and essays and reports. Teachers routinely use materials that reflect the diversity of Canadian and world cultures, including the cultures of Aboriginal peoples, and make those resources available to students. Within each grade and from one grade to another, students should be assigned texts of increasing complexity as they develop their reading skills, and should also have many opportunities to select their own reading materials. Frequent exposure to good writing will inspire students to work towards high standards in their own writing and will help them develop an appreciation for the power and beauty of the written word.

The Reading strand has four overall expectations, as follows:

Students will:

1. read and demonstrate an understanding of a variety of literary, graphic, and informational texts, using a range of strategies to construct meaning;
2. recognize a variety of text forms, text features, and stylistic elements and demonstrate understanding of how they help communicate meaning;
3. use knowledge of words and cueing systems to read fluently;
4. reflect on and identify their strengths as readers, areas for improvement, and the strategies they found most helpful before, during, and after reading.

This strand helps students learn to read with understanding, to read critically, to become familiar with various text forms and their characteristic elements, and to recognize the function and effects of various text features and stylistic devices. It helps students understand that reading is a process of constructing meaning and equips them with the strategies that good readers use to understand and appreciate what they read.

Writing

Writing ... provides students with powerful opportunities to learn about themselves and their connections to the world. Through writing, students organize their thoughts, remember important information, solve problems, reflect on a widening range of perspectives, and learn how to communicate effectively for specific purposes and audiences. They find their voice and have opportunities to explore other voices. By putting their thoughts into words and supporting the words with visual images in a range of media, students acquire knowledge and deepen their understanding of the content in all school subjects. Writing also helps students to better understand their own thoughts and feelings and the events in their lives.

Literacy for Learning: The Report of the Expert Panel on Literacy in Grades 4 to 6 in Ontario, 2004, p. 79

Writing is a complex process that involves a range of skills and tasks. Students need to become disciplined thinkers in order to communicate their ideas clearly and effectively. Conversely, they need numerous opportunities to write, as the process of writing enables them to clarify their thinking and sort out and express their thoughts and feelings. As they learn to select and organize their ideas, they must also keep in mind the purpose for which they are writing and the audience they are addressing. To communicate clearly and effectively, they need to learn to use standard written forms and language conventions. However, learning to write as clearly, correctly, and precisely as possible is only part of the goal of writing instruction for students. Students should be given the kinds of assignments that provide opportunities to produce writing that is interesting and original and that reflects their capacity for independent critical thought.

Writing activities that students see as meaningful and that challenge them to think creatively about topics and concerns of interest to them will lead to a fuller and more lasting command of the essential skills of writing.

Writing competence develops hand in hand with skills in other areas of language, especially reading. In many ways, the development of writing and reading skills is reciprocal. As students read a variety of inclusive texts, they build and develop a command of their vocabulary, and learn to vary and adapt their sentence structure, organizational approach, and voice to suit their purpose for writing. To become good writers who are able to communicate ideas with ease and clarity, students need frequent opportunities to write for various purposes and audiences and to master the skills involved in the various tasks associated with the writing process. The more students read and write, the more likely they will be to develop an essential understanding of the power of the written word.

The Writing strand has four overall expectations, as follows;

Students will:

1. generate, gather, and organize ideas and information to write for an intended purpose and audience;
2. draft and revise their writing, using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience;
3. use editing, proofreading, and publishing skills and strategies, and knowledge of language conventions, to correct errors, refine expression, and present their work effectively;
4. reflect on and identify their strengths as writers, areas for improvement, and the strategies they found most helpful at different stages in the writing process.

The overall expectations focus on the elements of effective writing (ideas/content, organization, voice, word choice, sentence fluency, language conventions, and presentation) and on the stages of the recursive writing process (planning for writing, drafting, revising, editing and proofreading, and publishing).

The specific expectations identify writing forms and language conventions that are appropriate for instruction in the given grade. The forms and conventions identified are not, however, the only ones that may be taught in that grade, nor are they exclusive to that grade. Teachers will continue to make professional decisions about which writing forms and language conventions they will cover in every grade, based on the identified learning needs of the students in their classrooms.

Media Literacy

"Media literacy" is the result of study of the art and messaging of various forms of media texts. Media texts can be understood to include any work, object, or event that communicates meaning to an audience. Most media texts use words, graphics, sounds, and/or images, in print, oral, visual, or electronic form, to communicate information and ideas to their audience. Whereas traditional literacy may be seen to focus primarily on the understanding of the word, media literacy focuses on the construction of meaning through the combination of several media "languages" - images, sounds, graphics, and words.

Media literacy explores the impact and influence of mass media and popular culture by examining texts such as films, songs, video games, action figures, advertisements, CD covers, clothing, billboards, television shows, magazines, newspapers, photographs, and websites.³ These texts abound in our electronic information age, and the messages they convey, both overt and implied, can have a significant influence on students' lives. For this reason, critical thinking as it applies to media products and messages assumes a special significance. Understanding how media texts are constructed and why they are produced enables students to respond to them intelligently and responsibly. Students must be able to differentiate between fact and opinion; evaluate the credibility of sources; recognize bias; be attuned to discriminatory portrayals of individuals and groups, including women and minorities; and question depictions of violence and crime.

3. Teachers should make students aware that images, print materials, music, or video clips used in connection with tasks and assignments may be subject to copyright, and the appropriate releases should be obtained prior to use. This applies to items downloaded from the Internet as well.

Students' repertoire of communication skills should include the ability to critically interpret the messages they receive through the various media and to use these media to communicate their own ideas effectively as well. Skills related to high-tech media such as the Internet, film, and television are particularly important because of the power and pervasive influence these media wield in our lives and in society. Becoming conversant with these and other media can greatly expand the range of information sources available to students, their expressive and communicative capabilities, and their career opportunities.

To develop their media literacy skills, students should have opportunities to view, analyse, and discuss a wide variety of media texts and relate them to their own experience. They should also have opportunities to use available technologies to create media texts of different types (e.g., computer graphics, cartoons, graphic designs and layouts, radio plays, short videos, web pages).

The Media Literacy strand has four overall expectations, as follows;

Students will:

1. demonstrate an understanding of a variety of media texts;

2. identify some media forms and explain how the conventions and techniques associated with them are used to create meaning;
3. create a variety of media texts for different purposes and audiences, using appropriate forms, conventions, and techniques;
4. reflect on and identify their strengths, areas for improvement, and the strategies they found most helpful in understanding and creating media texts.

This strand focuses on helping students develop the skills required to understand, create, and critically interpret media texts. It examines how images (both moving and still), sound, and words are used, independently and in combination, to create meaning. It explores the use and significance of particular conventions and techniques in the media and considers the roles of the viewer and the producer in constructing meaning in media texts. Students apply the knowledge and skills gained through analysis of media texts as they create their own texts.

The specific expectations identify media forms and conventions that are appropriate for instruction in the given grade. These are not, however, the only forms and conventions that students may explore in that grade, nor are they exclusive to that grade. Teachers will continue to use their professional judgement to decide on the forms and conventions to examine in every grade, based on the identified learning needs of the students in their classrooms.

ASSESSMENT AND EVALUATION OF STUDENT ACHIEVEMENT

BASIC CONSIDERATIONS

The primary purpose of assessment and evaluation is to improve student learning. Information gathered through assessment helps teachers to determine students' strengths and weaknesses in their achievement of the curriculum expectations in each subject in each grade. This information also serves to guide teachers in adapting curriculum and instructional approaches to students' needs and in assessing the overall effectiveness of programs and classroom practices.

Assessment is the process of gathering information from a variety of sources (including assignments, day-to-day observations, conversations or conferences, demonstrations, projects, performances, and tests) that accurately reflects how well a student is achieving the curriculum expectations in a subject. As part of assessment, teachers provide students with descriptive feedback that guides their efforts towards improvement. Evaluation refers to the process of judging the quality of student work on the basis of established criteria, and assigning a value to represent that quality. In Ontario elementary schools, the value assigned will be in the form of a letter grade for Grades 1 to 6 and a percentage grade for Grades 7 and 8.

Assessment and evaluation will be based on the provincial curriculum expectations and the achievement levels outlined in this document.

In order to ensure that assessment and evaluation are valid and reliable, and that they lead to the improvement of student learning, teachers must use assessment and evaluation strategies that:

- address both what students learn and how well they learn;
- are based both on the categories of knowledge and skills and on the achievement level descriptions given in the achievement chart on pages 20-21;
- are varied in nature, administered over a period of time, and designed to provide opportunities for students to demonstrate the full range of their learning;
- are appropriate for the learning activities used, the purposes of instruction, and the needs and experiences of the students;
- are fair to all students;
- accommodate students with special education needs, consistent with the strategies outlined in their Individual Education Plan;
- accommodate the needs of students who are learning the language of instruction;
- ensure that each student is given clear directions for improvement;
- promote students' ability to assess their own learning and to set specific goals;
- include the use of samples of students' work that provide evidence of their achievement;
- are communicated clearly to students and parents at the beginning of the school year and at other appropriate points throughout the school year.

All curriculum expectations must be accounted for in instruction, but evaluation focuses on students' achievement of the overall expectations. A student's achievement of the overall expectations is evaluated on the basis of his or her achievement of related specific expectations. The overall expectations are broad in nature, and the specific expectations define the particular content or scope of the knowledge and skills referred to in the overall expectations. Teachers will use their professional judgement to determine which specific expectations should be used to evaluate achievement of the overall expectations, and which ones will be covered in instruction and assessment (e.g., through direct observation) but not necessarily evaluated.

The characteristics given in the achievement chart (pages 20-21) for level 3 represent the "provincial standard" for achievement of the expectations. A complete picture of achievement at level 3 in language can be constructed by reading from top to bottom in the shaded column of the achievement chart, headed "Level 3". Parents of students achieving at level 3 can be confident that their children will be prepared for work in the next grade.

Level 1 identifies achievement that falls much below the provincial standard, while still reflecting a passing grade. Level 2 identifies achievement that approaches the standard. Level 4 identifies achievement that surpasses the standard. It should be noted that achievement at level 4 does not mean that the student has achieved expectations beyond those specified for a particular grade. It indicates that the student has achieved all or almost all of the expectations for that grade, and that he or she demonstrates the ability to use the knowledge and skills specified for that grade in more sophisticated ways than a student achieving at level 3.

The Ministry of Education has provided teachers with materials that will assist them in improving their assessment methods and strategies and, hence, their assessment of student achievement. These materials include samples of student work (exemplars) that illustrate achievement at each of the four levels. (Adaptations can be made in the exemplar documents to align them with the revised curriculum.)

THE ACHIEVEMENT CHART FOR LANGUAGE

The achievement chart that follows identifies four categories of knowledge and skills in language. The achievement chart is a standard province-wide guide to be used by teachers. It enables teachers to make judgements about student work that are based on clear performance standards and on a body of evidence collected over time.

The achievement chart is designed to:

- provide a framework that encompasses all curriculum expectations for all grades and subjects represented in this document;
- guide the development of assessment tasks and tools (including rubrics);
- help teachers to plan instruction for learning;
- assist teachers in providing meaningful feedback to students;
- provide various categories and criteria with which to assess and evaluate student learning.

Categories of Knowledge and Skills

The categories, defined by clear criteria, represent four broad areas of knowledge and skills within which the subject expectations for any given grade are organized. The four categories should be considered as interrelated, reflecting the wholeness and interconnectedness of learning.

The categories of knowledge and skills are described as follows:

Knowledge and Understanding. Subject-specific content acquired in each grade (knowledge), and the comprehension of its meaning and significance (understanding). **Thinking.** The use of

critical and creative thinking skills and/or processes. Communication. The conveying of meaning through various forms. Application. The use of knowledge and skills to make connections within and between various contexts.

Teachers will ensure that student work is assessed and/or evaluated in a balanced manner with respect to the four categories, and that achievement of particular expectations is considered within the appropriate categories.

Criteria

Within each category in the achievement chart, criteria are provided, which are subsets of the knowledge and skills that define each category. The criteria for each category are listed below:

Knowledge and Understanding

- knowledge of content (e.g., forms of text; strategies associated with reading, writing, speaking, and listening; elements of style; terminology; conventions)
- understanding of content (e.g., concepts; ideas; opinions; relationships among facts, ideas, concepts, themes)

Thinking

- use of planning skills (e.g., generating ideas, gathering information, focusing research, organizing information)
- use of processing skills (e.g., making inferences, interpreting, analyzing, detecting bias, synthesizing, evaluating, forming conclusions)
- use of critical/creative thinking processes (e.g., reading process, writing process, oral discourse, research, critical/creative analysis, critical literacy, metacognition, invention)

Communication

- expression and organization of ideas and information (e.g., clear expression, logical organization) in oral, visual, and written forms, including media forms
- communication for different audiences and purposes (e.g., use of appropriate style, voice, point of view, tone) in oral, visual, and written forms, including media forms
- use of conventions (e.g., grammar, spelling, punctuation, usage), vocabulary, and terminology of the discipline in oral, visual, and written forms, including media forms

Application

- application of knowledge and skills (e.g., concepts, strategies, processes) in familiar contexts
- transfer of knowledge and skills (e.g., concepts, strategies, processes) to new contexts

- making connections within and between various contexts (e.g., between the text and personal knowledge or experience, other texts, and the world outside the school; between disciplines)

Descriptors

A "descriptor" indicates the characteristic of the student's performance, with respect to a particular criterion, on which assessment or evaluation is focused. In the achievement chart, effectiveness is the descriptor used for each criterion in the Thinking, Communication, and Application categories. What constitutes effectiveness in any given performance task will vary with the particular criterion being considered. Assessment of effectiveness may therefore focus on a quality such as appropriateness, clarity, accuracy, precision, logic, relevance, significance, fluency, flexibility, depth, or breadth, as appropriate for the particular criterion. For example, in the Thinking category, assessment of effectiveness might focus on the degree of relevance or depth apparent in an analysis; in the Communication category, on clarity of expression or logical organization of information and ideas; or in the Application category, on appropriateness or breadth in the making of connections. Similarly, in the Knowledge and Understanding category, assessment of knowledge might focus on accuracy, and assessment of understanding might focus on the depth of an explanation. Descriptors help teachers to focus their assessment and evaluation on specific knowledge and skills for each category and criterion, and help students to better understand exactly what is being assessed and evaluated.

Qualifiers

A specific "qualifier" is used to define each of the four levels of achievement - that is, limited for level 1, some for level 2, considerable for level 3, and a high degree or thorough for level 4. A qualifier is used along with a descriptor to produce a description of performance at a particular level. For example, the description of a student's performance at level 3 with respect to the first criterion in the Thinking category would be: "The student uses planning skills with considerable effectiveness".

The descriptions of the levels of achievement given in the chart should be used to identify the level at which the student has achieved the expectations. Students should be provided with numerous and varied opportunities to demonstrate the full extent of their achievement of the curriculum expectations, across all four categories of knowledge and skills.

ACHIEVEMENT CHART - LANGUAGE, GRADES 1-8

Categories:

1. Knowledge and Understanding - Subject-specific content acquired in each grade (knowledge), and the comprehension of its meaning and significance (understanding)

The student:

Knowledge of content (e.g., forms of text; strategies associated with reading, writing, speaking, and listening; elements of style; terminology; conventions)

- Level 1: demonstrates limited knowledge of content
- Level 2: demonstrates some knowledge of content
- Level 3: demonstrates considerable knowledge of content
- Level 4: demonstrates thorough knowledge of content

Understanding of content (e.g., concepts; ideas; opinions; relationships among facts, ideas, concepts, themes)

- Level 1: demonstrates limited understanding of content
- Level 2: demonstrates some understanding of content
- Level 3: demonstrates considerable understanding of content
- Level 4: demonstrates thorough understanding of content

2. Thinking - The use of critical and creative thinking skills and/or processes

The student:

Use of planning skills (e.g., generating ideas, gathering information, focusing research, organizing information)

- Level 1: uses planning skills with limited effectiveness
- Level 2: uses planning skills with some effectiveness
- Level 3: uses planning skills with considerable effectiveness
- Level 4: uses planning skills with a high degree of effectiveness

Use of processing skills (e.g., making inferences, interpreting, analyzing, detecting bias, synthesizing, evaluating, forming conclusions)

- Level 1: uses processing skills with limited effectiveness
- Level 2: uses processing skills with some effectiveness
- Level 3: uses processing skills with considerable effectiveness
- Level 4: uses processing skills with a high degree of effectiveness

Use of critical/creative thinking processes (e.g., reading process, writing process, oral discourse, research, critical/creative analysis, critical literacy, metacognition, invention)

- Level 1: uses critical/creative thinking processes with limited effectiveness
- Level 2: uses critical/creative thinking processes with some effectiveness
- Level 3: uses critical/creative thinking processes with considerable effectiveness
- Level 4: uses critical/creative thinking processes with a high degree of effectiveness

3. Communication - The conveying of meaning through various forms

The student:

Expression and organization of ideas and information (e.g., clear expression, logical organization) in oral, visual, and written forms, including media forms

- Level 1: expresses and organizes ideas and information with limited effectiveness
- Level 2: expresses and organizes ideas and information with some effectiveness
- Level 3: expresses and organizes ideas and information with considerable effectiveness
- Level 4: expresses and organizes ideas and information with a high degree of effectiveness

Communication for different audiences and purposes (e.g., use of appropriate style, voice, point of view, tone) in oral, visual, and written forms, including media forms

- Level 1: communicates for different audiences and purposes with limited effectiveness
- Level 2: communicates for different audiences and purposes with some effectiveness
- Level 3: communicates for different audiences and purposes with considerable effectiveness
- Level 4: communicates for different audiences and purposes with a high degree of effectiveness

Use of conventions (e.g., grammar, spelling, punctuation, usage), vocabulary, and terminology of the discipline in oral, visual, and written forms, including media forms

- Level 1: uses conventions, vocabulary, and terminology of the discipline with limited effectiveness
- Level 2: uses conventions, vocabulary, and terminology of the discipline with some effectiveness
- Level 3: uses conventions, vocabulary, and terminology of the discipline with considerable effectiveness

- Level 4: uses conventions, vocabulary, and terminology of the discipline with a high degree of effectiveness

4. Application - The use of knowledge and skills to make connections within and between various contexts

The student:

Application of knowledge and skills (e.g., concepts, strategies, processes) in familiar contexts

- Level 1: applies knowledge and skills in familiar contexts with limited effectiveness
- Level 2: applies knowledge and skills in familiar contexts with some effectiveness
- Level 3: applies knowledge and skills in familiar contexts with considerable effectiveness
- Level 4: applies knowledge and skills in familiar contexts with a high degree of effectiveness

Transfer of knowledge and skills (e.g., concepts, strategies, processes) to new contexts

- Level 1: transfers knowledge and skills to new contexts with limited effectiveness
- Level 2: transfers knowledge and skills to new contexts with some effectiveness
- Level 3: transfers knowledge and skills to new contexts with considerable effectiveness
- Level 4: transfers knowledge and skills to new contexts with a high degree of effectiveness

Making connections within and between various contexts (e.g., between the text and personal knowledge or experience, other texts, and the world outside the school; between disciplines)

- Level 1: makes connections within and between various contexts with limited effectiveness
- Level 2: makes connections within and between various contexts with some effectiveness
- Level 3: makes connections within and between various contexts with considerable effectiveness
- Level 4: makes connections within and between various contexts with a high degree of effectiveness

SOME CONSIDERATIONS FOR PROGRAM PLANNING

When planning a program in language, teachers must take into account considerations in a number of important areas, including those discussed below.

The Ministry of Education has produced or supported the production of a variety of resource documents that teachers may find helpful as they plan programs based on the expectations outlined in this curriculum document. Those resources include the following:

- Early Reading Strategy: The Report of the Expert Panel on Early Reading in Ontario, 2003
- Literacy for Learning: The Report of the Expert Panel on Literacy in Grades 4 to 6 in Ontario, 2004
- Think Literacy Success, Grades 7-12: Report of the Expert Panel on Students at Risk in Ontario, 2003
- A Guide to Effective Instruction in Reading, Kindergarten to Grade 3, 2003
- A Guide to Effective Instruction in Writing, Kindergarten to Grade 3, 2005
- A Guide to Effective Literacy Instruction, Grades 4-6. Volume 1: Foundations of Literacy Instruction for the Junior Learner, 2006
- Think Literacy: Cross-Curricular Approaches, Grades 7-12 - Reading, Writing, Communicating, 2003
- Think Literacy: Cross-Curricular Approaches, Grades 7-12 - Subject-Specific Examples: Media, Grades 7-10, 2005
- Me Read? No Way! A Practical Guide to Improving Boys' Literacy Skills, 2004

INSTRUCTIONAL APPROACHES

High-quality instruction is a key to student success in mastering language skills. It is based on the belief that all students can be successful language learners. Teachers who provide quality instruction respect students' strengths and identify their learning needs, using assessment information to plan instruction. They clarify the purpose for learning, help students activate prior knowledge, scaffold instruction, and differentiate instruction for individual students and small groups according to need. Teachers explicitly teach and model learning strategies and encourage students to talk through their thinking and learning processes. They also provide many opportunities for students to practice and apply their developing knowledge and skills.

Effective teaching approaches involve students in the use of higher-level thinking skills and encourage them to look beyond the literal meaning of texts and to think about fairness, equity, social justice, and citizenship in a global society.

Motivating students and instilling positive habits of mind, such as a willingness and determination to persist, to think and communicate with clarity and precision, to take responsible risks, and to question and pose problems, are integral parts of high-quality language instruction.

Teaching approaches should be informed by the findings of current research into best practices in literacy instruction, as described in the Expert Panel reports on literacy instruction in Ontario (see the list of resources on the preceding page). Instruction should include a balance of direct,

explicit instruction; teacher modelling; shared and guided instruction; and opportunities for students to rehearse, practice, and apply skills and strategies and make choices.

Whenever possible, students should be given opportunities to experience reading and writing, listening and speaking, and viewing and representing as interconnected processes requiring a set of skills and strategies that cannot be separated and that build on and reinforce one another. Students can monitor this interconnectedness by asking themselves questions such as "How does my skill as a reader make me a better writer?", "How does my skill as a writer make me a more effective speaker?", and "How does my ability to listen critically help me as a writer?".

CROSS-CURRICULAR AND INTEGRATED LEARNING

Students need well-developed language skills to succeed in all subject areas. The development of skills and knowledge in language is often enhanced by learning in other subject areas. Teachers should ensure that all students have ample opportunities to explore a subject from multiple perspectives by emphasizing cross-curricular learning and integrated learning, as explained below.

In cross-curricular learning, students are provided with opportunities to learn and use related content and/or skills in two or more subjects. For example, teachers can use social studies reading material in their language lessons, and incorporate instruction in how to read non-fiction materials into their social studies lessons. In mathematics, students learn to identify the relevant information in a word problem in order to clarify what is being asked. In science and technology, they build subject-specific vocabulary, interpret diagrams and charts, and read instructions relating to investigations and procedures. All subjects require that students communicate what they have learned, orally and in writing. Their studies in the different subject areas help students develop their language skills, providing them with authentic purposes for reading, writing, listening, speaking, viewing, and representing.

In integrated learning, students are provided with opportunities to work towards meeting expectations from two or more subjects within a single unit, lesson, or activity. By linking expectations from different subject areas, teachers can provide students with multiple opportunities to reinforce and demonstrate their knowledge and skills in a range of settings.

SOME CONSIDERATIONS FOR PROGRAM PLANNING

One example would be a unit linking expectations from the science and technology curriculum and the language curriculum. Every strand in each of Grades 1 to 8 in the science and technology curriculum has a set of specific expectations under the heading "Developing Skills of Inquiry, Design, and Communication". These expectations mirror many of the expectations in the Oral Communication, Writing, and Media Literacy strands in the language document. The science and technology expectations focus on tasks such as using appropriate vocabulary, designing graphic texts, and communicating results through oral and written descriptions. There

is, therefore, a good fit between the expectations in the two disciplines, affording an opportunity for developing integrated units.

Expectations from the arts curriculum can also be linked with language expectations to create integrated units. The arts curriculum provides students with rich opportunities to engage in auditory, visual, and kinaesthetic experiences that would also support learning required in expectations in all four strands of the language curriculum. For example, role-playing, a key component of the Drama and Dance curriculum, can be used to enhance students' understanding as they learn to communicate their thoughts, feelings, and ideas; identify and present a variety of points of view; or explore new interpretations of texts. Similarly, students can create drawings or devise dramatic scenes as they rehearse, evaluate, and revise ideas before writing. Conversely, students can use language to respond critically and creatively to music or works of art.

PLANNING LANGUAGE PROGRAMS FOR STUDENTS WITH SPECIAL EDUCATION NEEDS

Classroom teachers are the key educators of students who have special education needs. They have a responsibility to help all students learn, and they work collaboratively with special education teachers, where appropriate, to achieve this goal. They commit to assisting every student to prepare for living with the highest degree of independence possible.

Education for All: The Report of the Expert Panel on Literacy and Numeracy Instruction for Students with Special Education Needs, Kindergarten to Grade 6, 2005 describes a set of principles, based in research that should guide all program planning for students with special education needs. Teachers planning language programs need to pay particular attention to these principles, which are as follows.

Program planning for students with special education needs:

- is premised on the belief that all students can succeed;
- incorporates evidence-based best practices for effective instruction;
- involves a support team for the classroom teacher that includes the principal, other teachers, and professional resources (families and community agencies should be active contributors);
- incorporates universal design;
- involves differentiated instruction.

In any given classroom, students may demonstrate a wide range of learning styles and needs. Teachers plan programs that recognize this diversity and give students tasks that respect their particular abilities so that all students can derive the greatest benefits possible from the teaching and learning process. The use of flexible groupings for instruction and the provision of

ongoing assessment are important elements of programs that accommodate a diversity of learning needs.

In planning language programs for students with special education needs, teachers should begin by examining both the curriculum expectations for the appropriate grade level and the needs of the individual student to determine which of the following options is appropriate for the student:

- no accommodations⁴ or modifications; or
- accommodations only; or
- modified expectations, with the possibility of accommodations.

4. "Accommodations" refers to individualized teaching and assessment strategies, human supports, and/or individualized equipment.

If the student requires either accommodations or modified expectations, or both, the relevant information, as described in the following paragraphs, must be recorded in his or her Individual Education Plan (IEP). For a detailed discussion of the ministry's requirements for IEPs, see *Individual Education Plans: Standards for Development, Program Planning, and Implementation, 2000* (referred to hereafter as *IEP Standards, 2000*). More detailed information about planning programs for exceptional students can be found in *The Individual Education Plan (IEP): A Resource Guide, 2004* (referred to hereafter as the *IEP Resource Guide, 2004*). (Both documents are available at www.edu.gov.on.ca.)

Students Requiring Accommodations Only

With the aid of accommodations alone, some students with special education needs are able to participate in the regular grade-level curriculum and to demonstrate learning independently. (Accommodations do not alter the provincial curriculum expectations for the grade level.) The accommodations required to facilitate the student's learning must be identified in his or her IEP (see *IEP Standards, 2000*, page 11). A student's IEP is likely to reflect the same accommodations for many, or all, subject areas.

There are three types of accommodations. Instructional accommodations are changes in teaching strategies, including styles of presentation, methods of organization, or use of technology and multimedia. Environmental accommodations are changes that the student may require in the classroom and/or school environment, such as preferential seating or special lighting. Assessment accommodations are changes in assessment procedures that enable the student to demonstrate his or her learning, such as allowing additional time to complete tests or assignments or permitting oral responses to test questions (see page 29 of the *IEP Resource Guide, 2004*, for more examples).

If a student requires "accommodations only" in language, assessment and evaluation of his or her achievement will be based on the appropriate grade-level curriculum expectations and the achievement levels outlined in this document.

Students Requiring Modified Expectations

Some students with special education needs will require modified expectations, which differ from the regular grade-level expectations. In language, modified expectations will usually be based on the knowledge and skills outlined in curriculum expectations for a different grade level. Modified expectations must indicate the knowledge and/or skills the student is expected to demonstrate and have assessed in each reporting period (IEP Standards, 2000, pages 10 and 11). Students requiring modified expectations need to develop knowledge and skills in all four strands of the language curriculum. Modified expectations must represent specific, realistic, observable, and measurable achievements and must describe specific knowledge and/or skills that the student can demonstrate independently, given the appropriate assessment accommodations. They should be expressed in such a way that the student and parents can understand exactly what the student is expected to know or be able to do, on the basis of which his or her performance will be evaluated and a grade or mark recorded on the Provincial Report Card. The grade level of the learning expectations must be identified in the student's IEP. The student's learning expectations must be reviewed in relation to the student's progress at least once every reporting period, and must be updated as necessary (IEP Standards, 2000, page 11).

If a student requires modified expectations in language, assessment and evaluation of his or her achievement will be based on the learning expectations identified in the IEP and on the achievement levels outlined in this document. On the Provincial Report Card, the IEP box must be checked for any subject in which the student requires modified expectations, and the appropriate statement from the Guide to the Provincial Report Card, Grades 1-8, 1998 (page 8) must be inserted. The teacher's comments should include relevant information on the student's demonstrated learning of the modified expectations, as well as next steps for the student's learning in the subject.

PLANNING LANGUAGE PROGRAMS FOR ENGLISH LANGUAGE LEARNERS

Ontario schools have some of the most multilingual student populations in the world. The first language of approximately 20 per cent of the children in Ontario's English-language schools is a language other than English. Ontario's linguistic heritage includes several Aboriginal languages; many African, Asian, and European languages; and some varieties of English, such as Jamaican Creole. Many English language learners were born in Canada and raised in families and communities in which languages other than English were spoken, or in which the variety of English spoken differed significantly from the English of Ontario classrooms. Other English language learners arrive in Ontario as newcomers from other countries; they may have experience of highly sophisticated educational systems, or they may have come from regions where access to formal schooling was limited.

When they start school in Ontario, many of these children are entering a new linguistic and cultural environment. All teachers share in the responsibility for their English-language development.

English language learners (children who are learning English as a second or additional language in English-language schools) bring a rich diversity of background knowledge and experience to the classroom. These students' linguistic and cultural backgrounds not only support their learning in their new environment but also become a cultural asset in the classroom community. Teachers will find positive ways to incorporate this diversity into their instructional programs and into the classroom environment.

Most English language learners in Ontario schools have an age-appropriate proficiency in their first language. Although they need frequent opportunities to use English at school, there are important educational and social benefits associated with continued development of their first language while they are learning English. Teachers need to encourage parents to continue to use their own language at home in rich and varied ways as a foundation for language and literacy development in English. It is also important for teachers to find opportunities to bring students' languages into the classroom, using parents and community members as a resource.

During their first few years in Ontario schools, English language learners may receive support through one of two distinct programs from teachers who specialize in meeting their language-learning needs:

English As a Second Language (ESL) programs are for students born in Canada or newcomers whose first language is a language other than English, or is a variety of English significantly different from that used for instruction in Ontario schools.

English Literacy Development (ELD) programs are primarily for newcomers whose first language is a language other than English, or is a variety of English significantly different from that used for instruction in Ontario schools, and who arrive with significant gaps in their education. These children generally come from countries where access to education is limited or where there are limited opportunities to develop language and literacy skills in any language. Some Aboriginal students from remote communities in Ontario may also have had limited opportunities for formal schooling, and they also may benefit from ELD instruction.

In planning programs for children with linguistic backgrounds other than English, teachers need to recognize the importance of the orientation process, understanding that every learner needs to adjust to the new social environment and language in a unique way and at an individual pace. For example, children who are in an early stage of English-language acquisition may go through a "silent period" during which they closely observe the interactions and physical surroundings of their new learning environment. They may use body language rather than speech or they may use their first language until they have gained enough proficiency in English to feel confident of

their interpretations and responses. Students thrive in a safe, supportive, and welcoming environment that nurtures their self-confidence while they are receiving focused literacy instruction. When they are ready to participate, in paired, small-group, or whole-class activities, some students will begin by using a single word or phrase to communicate a thought, while others will speak quite fluently.

With exposure to the English language in a supportive learning environment, most young children will develop oral fluency quite quickly, making connections between concepts and skills acquired in their first language and similar concepts and skills presented in English. However, oral fluency is not a good indicator of a student's knowledge of vocabulary or sentence structure, reading comprehension, or other aspects of language proficiency that play an important role in literacy development and academic success. Research has shown that it takes five to seven years for most English language learners to catch up to their English-speaking peers in their ability to use English for academic purposes. Moreover, the older the children are when they arrive, the greater the language knowledge and skills that they have to catch up on, and the more direct support they require from their teachers.

Responsibility for students' English-language development is shared by the classroom teacher, the ESL/ELD teacher (where available), and other school staff. Volunteers and peers may also be helpful in supporting English language learners in the language classroom. Teachers must adapt the instructional program in order to facilitate the success of these students in their classrooms. Appropriate adaptations include:

- modification of some or all of the subject expectations so that they are challenging but attainable for the learner at his or her present level of English proficiency, given the necessary support from the teacher;
- use of a variety of instructional strategies (e.g., extensive use of visual cues, graphic organizers, scaffolding; previewing of textbooks, pre-teaching of key vocabulary; peer tutoring; strategic use of students' first languages);
- use of a variety of learning resources (e.g., visual material, simplified text, bilingual dictionaries, and materials that reflect cultural diversity);
- use of assessment accommodations (e.g., granting of extra time; use of oral interviews, demonstrations or visual representations, or tasks requiring completion of graphic organizers or cloze sentences instead of essay questions and other assessment tasks that depend heavily on proficiency in English).

While the degree of program adaptation required will decrease over time, students who are no longer receiving ESL or ELD support may still need some program adaptations to be successful. If a student's program has been adapted, a checkmark must be placed in the ESL/ELD box on the student's report card. If the student requires modified expectations, the appropriate statement from the Guide to the Provincial Report Card, Grades 1-8, 1998 (page 8) must be inserted.

For further information on supporting English-language learners, refer to The Ontario Curriculum, Grades 1-8: English As a Second Language and English Literacy Development - A Resource Guide, 2001 and the resource guide Many Roots, Many Voices: Supporting English Language Learners in Every Classroom (Ministry of Education, 2005).

ANTIDISCRIMINATION EDUCATION IN THE LANGUAGE PROGRAM

The implementation of antidiscrimination principles in education influences all aspects of school life. It promotes a school climate that encourages all students to work to high standards, affirms the worth of all students, and helps students strengthen their sense of identity and develop a positive self-image. It encourages staff and students alike to value and show respect for diversity in the school and the wider society. It requires schools to adopt measures to provide a safe environment for learning, free from harassment, violence, and expressions of hate. Antidiscrimination education encourages students to think critically about themselves and others in the world around them in order to promote fairness, healthy relationships, and active, responsible citizenship.

Learning resources that reflect the broad range of students' interests, backgrounds, cultures, and experiences are an important aspect of an inclusive language program. In such a program, stories contain heroes and protagonists of both sexes from a wide variety of racial and cultural backgrounds. Students are made aware of the historical, social, and cultural contexts for both the traditional and non-traditional gender and social roles represented in the materials they are studying. Teachers routinely use materials that reflect the diversity of Canadian and world cultures, including those of contemporary Aboriginal peoples, and make them available to students. In the primary classroom, myths, fables, fairytales, and legends from a variety of cultures may be explored. In later years, stories, novels, informational texts, and media works relating to the immigrant experience provide rich thematic material for study. Storybooks, novels, magazine and newspaper articles, television programs, and films all provide opportunities for students to explore issues of culture and diverse identities.

Resources should also be chosen on the basis of their appeal for both girls and boys in the classroom. Recent research has shown that many boys are interested in informational materials, such as manuals and graphic texts, as opposed to works of literature, which are often more appealing to girls. Both sexes read Internet materials, such as website articles, e-mail, and chat messages, outside the classroom. *Me Read? No Way! A Practical Guide to Improving Boys' Literacy Skills* (available on the Ministry of Education website) provides a number of useful literacy strategies that focus on engaging boys in reading and writing. They also represent practices that enhance the learning environment for both girls and boys.

Critical thinking skills include the ability to identify perspectives, values, and issues; detect bias; and read for implicit as well as explicit meaning. In the context of antidiscrimination, critical literacy involves asking questions and challenging the status quo, and leads students to look at issues of power and justice in society. The language program empowers students by enabling

them to express themselves and to speak out about issues that strongly affect them. In the language program, students develop the ability to detect negative bias and stereotypes in literary texts and informational materials; they also learn to use inclusive and non-discriminatory language in both oral and written work. In addition, in the context of the language program, both students and teachers should become aware of aspects of intercultural communication - for example, by exploring how different cultures interpret the use of eye contact and body language in conversation and during presentations.

NUMERACY AND INQUIRY/RESEARCH SKILLS

The language curriculum builds on, reinforces, and enhances certain aspects of the mathematics curriculum. For example, clear, concise communication often involves the use of diagrams, charts, tables, and graphs, and the language curriculum emphasizes students' ability to interpret and use graphic texts. Students apply the knowledge and skills they acquire in their study of graphs and charts in mathematics to the interpretation and communication of precise information in texts supported by graphic forms.

Inquiry is at the heart of learning in all subject areas. In language, students are encouraged from a very early age to develop their ability to ask questions and to explore a variety of possible answers to those questions. In the primary grades, they begin to identify various sources that can help them answer the questions they pose. As they advance through the grades, they acquire the skills to locate relevant information from a variety of sources, such as books, newspapers, dictionaries, encyclopaedias, interviews, videos, and the Internet. The questioning they practiced in the early grades becomes more sophisticated as they learn that all sources of information have a particular point of view and that the recipient of the information has a responsibility to evaluate it, determine its validity and relevance, and use it in appropriate ways. The ability to locate, question, and validate information allows a student to become an independent, lifelong learner.

THE ROLE OF THE SCHOOL LIBRARY IN LANGUAGE PROGRAMS

The school library program can help to build and transform students' knowledge to support a lifetime of learning in an information- and knowledge-based society. The school library program supports student success across the language curriculum by encouraging students to read widely, teaching them to read for understanding and enjoyment, and helping them to improve their research skills and to use information gathered through research effectively. The school library program enables students to:

- develop a love of reading for learning and for pleasure;
- acquire an understanding of the richness and diversity of literary and informational texts produced in Canada and around the world;

- obtain access to programs, resources, and integrated technologies that support all curriculum areas;
- understand and value the role of public library systems as a resource for lifelong learning.

The school library program plays a key role in the development of information literacy and research skills. In collaboration with classroom or content-area teachers, teacher-librarians develop, teach, and provide students with authentic information and research tasks that foster learning, including the ability to:

- access, select, gather, critically evaluate, create, and communicate information;
- use the information obtained to solve problems, make decisions, build knowledge, create personal meaning, and enrich their lives;
- communicate their findings for different audiences, using a variety of formats and technologies;
- use information and research with understanding, responsibility, and imagination.

THE ROLE OF TECHNOLOGY IN LANGUAGE EDUCATION

Information and communications technologies (ICT) provide a range of tools that can significantly extend and enrich teachers' instructional strategies and support students' learning in language. Computer programs can help students collect, organize, and sort the data they gather and to write, edit, and present reports on their findings. Information and communications technologies can also be used to connect students to other schools, at home and abroad, and to bring the global community into the local classroom.

Whenever appropriate, therefore, students should be encouraged to use ICT to support and communicate their learning. For example, students working individually or in groups can use computer technology and/or Internet websites to gain access to museums and archives in Canada and around the world. Students can also use digital cameras and projectors to design and present the results of their research to their classmates.

Although the Internet is a powerful learning tool, all students must be made aware of issues of privacy, safety, and responsible use, as well as of the ways in which the Internet can be used to promote hatred.

Teachers will also find the various ICT tools useful in their teaching practice, both for whole class instruction and for the design of curriculum units that contain varied approaches to learning to meet diverse student needs.

GUIDANCE AND LANGUAGE EDUCATION

The guidance and career education program should be aligned with the language curriculum. Teachers need to ensure that classroom learning across all grades and subjects provides ample opportunity for students to learn how to work independently (e.g., complete homework independently), cooperate with others, resolve conflicts, participate in class, solve problems, and set goals to improve their work.

The language program can also offer opportunities for a variety of career exploration activities, including contacts with career mentors and visits from guest speakers such as authors, actors, illustrators, individuals working in radio and television, and representatives from the publishing world.

HEALTH AND SAFETY IN LANGUAGE EDUCATION

Although health and safety issues are not usually associated with language education, they may be important when the learning involves fieldwork. Out-of-school fieldwork can provide an exciting and authentic dimension to students' learning experiences. Teachers must preview and plan these activities carefully to protect students' health and safety.

OVERVIEW OF GRADES 4 TO 6

The expectations for Grades 4 to 6 focus on students' ability to use their knowledge and skills in listening, speaking, reading, writing, viewing, and representing to understand, critically analyse, and communicate a broad range of information and ideas from and about their multicultural, multimedia environment.

Junior students' language knowledge comes from their life experiences and prior knowledge and from the foundational language knowledge and skills acquired in the primary school years. The expectations in the junior years build upon this foundation. Because the base of knowledge, experience, and skills varies from student to student, it is important for instruction to be differentiated to meet the needs of individuals and small groups of students.

Language instruction in the junior years is designed to engage students in meaningful interactions with a wide variety of texts. They look beyond the literal meaning of texts and observe what is present and what is missing, in order to analyse and evaluate an author's intent. Junior students learn to identify and explore multiple perspectives, question the messages in texts, and look at issues related to fairness, equity, and social justice. They analyse the structure and elements of a variety of text forms, and create a variety of oral, print, and media texts in order to communicate their own ideas and opinions for a variety of purposes and audiences. Junior students develop their abilities to monitor their own learning and select appropriate strategies that will help them to make sense of and create increasingly complex and/or challenging texts for personally relevant purposes. They consciously use the knowledge, skills, and strategies from one strand to support their learning in the other three strands. They reflect on and talk about the strategies that have helped them construct meaning and communicate successfully in all strands and identify steps they can take to improve. Real, purposeful talk is not

only an essential component of the language curriculum; it needs to be threaded throughout every day and across the curriculum to promote the transfer of language knowledge, skills, and strategies to learning across the curriculum.

In all four strands, teachers explicitly teach and model the use of the knowledge, skills, and strategies most relevant to the particular strand. Explicit teaching and modelling help students to identify the skills and strategies they need in order to become proficient language users and move towards achievement of the expectations. Initially, students engage in rehearsal through shared, guided, and independent practice; eventually, they demonstrate independently their achievement of the learning expectations through multiple, diverse learning opportunities and activities.

Appropriate instructional texts are central to students' development of the knowledge, skills, and strategies embedded in the expectations across the language strands. Oral, print, and media texts that are designed to support and challenge students at their individual level of language development will enhance the benefits of appropriately scaffolded instruction. It is important to ensure that, in addition to the materials provided for instruction, students are able to choose from a wide range of texts that are engaging and relevant to their personal experiences and interests as readers, writers, and viewers. All texts chosen for instruction should be worthy of study, and promote antidiscriminatory education.

Junior students should have access to culturally diverse oral, print, and media texts that allow them to explore more complex topics or issues related to fairness, equity, and social justice, more subtle or abstract themes, and particular genres; that use a variety of organizational patterns and features; and that require inference and analysis. Oral texts such as dramatic presentations, oral reports, think-alouds, commentaries, poetry readings, speeches, monologues, and song lyrics; print texts such as short stories, series books, biographies, chapter books, non-fiction books, sports magazines, graphic novels, diaries, poetry, myths, and legends; and media texts such as movie trailers, graphic designs for various products, newspaper or magazine articles, video games, comic books, flyers, posters, websites, and e-mails provide a variety of sources to motivate and engage diverse groups of students.

The level of challenge represented by a specific text will vary from reader to reader because individual students bring their own unique experiences, perspectives, and backgrounds to a text. To facilitate junior students' ability to use the appropriate skills and strategies to construct meaning from and analyse increasingly complex and/or challenging texts, print texts for shared or guided instruction and independent reading should have a range of levels of difficulty with respect to organizational patterns, language structures, themes, vocabulary, and length; and a range of features such as hooks for interest, dialogue, illustrations, book or chapter leads, and tables of contents.

Modelled, shared, and guided learning experiences provide the instructional support junior students need to communicate increasingly complex ideas and information using a greater

variety of oral, written, and media forms. Students' knowledge of many different text forms - including personal recounts, reports, formal and persuasive letters, summaries, explanations, reviews, fables, legends, fantasies, brochures, advertisements, and websites - enable them to select and use appropriate forms, language patterns, words, conventions, and stylistic elements to communicate effectively for a variety of purposes and audiences.

GRADE 6

GRADE 6 | ORAL COMMUNICATION

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

1. listen in order to understand and respond appropriately in a variety of situations for a variety of purposes;
2. use speaking skills and strategies appropriately to communicate with different audiences for a variety of purposes;
3. reflect on and identify their strengths as listeners and speakers, areas for improvement, and the strategies they found most helpful in oral communication situations.

SPECIFIC EXPECTATIONS

1. Listening to Understand

By the end of Grade 6, students will:

Purpose

1.1 identify a range of purposes for listening in a variety of situations, formal and informal, and set goals related to specific listening tasks (e.g., to identify the perspective in an oral presentation; to identify the strategies and devices used to enhance the impact of a speech; to describe stated and implied ideas in the lyrics of a song)

Active Listening Strategies

1.2 demonstrate an understanding of appropriate listening behaviour by adapting active listening strategies to suit a variety of situations, including work in groups (e.g., ask questions to deepen understanding and make connections to the ideas of others; summarize or paraphrase information and ideas to focus or clarify understanding; use vocal prompts in dialogues or conversations to express empathy, interest, and personal regard: That's really interesting. You must have been excited.)

Comprehension Strategies

1.3 identify a variety of listening comprehension strategies and use them appropriately before, during, and after listening in order to understand and clarify the meaning of increasingly complex oral texts (e.g., use self-questioning to monitor understanding; visualize different elements of an oral text; use note-taking strategies to record important ideas, key words, questions, and predictions)

Demonstrating Understanding

1.4 demonstrate an understanding of the information and ideas in increasingly complex oral texts in a variety of ways (e.g., summarize and explain information and ideas from an oral text, citing important details; ask questions to confirm inferences and value judgements during discussions after listening)

Making Inferences/Interpreting Texts

1.5 interpret oral texts by using stated and implied ideas from the texts

Teacher prompts: "What messages did you get from the speaker's tone of voice/body language/facial expressions?" "How does paying attention to a speaker's body language help you interpret what is being said?"

Extending Understanding

1.6 extend understanding of oral texts by connecting, comparing, and contrasting the ideas and information in them to their own knowledge, experience, and insights; to other texts, including print and visual texts; and to the world around them (e.g., use dialogue or drama to explore similarities and differences between ideas in oral texts and their own ideas)

Analyzing Texts

1.7 analyse oral texts in order to evaluate how well they communicate ideas, opinions, themes, and information (e.g., compare their own response to an oral text with a partner's response, citing details from the text to support their own view; explain what makes a war veteran's Remembrance Day speech effective)

Point of View

1.8 identify the point of view presented in oral texts, determine whether they agree with the point of view, and suggest other possible perspectives (e.g., ask questions about the values that are stated and implied by the perspective taken and those that are ignored; use role play or drama to express alternative views)

Teacher prompts: "Whose point of view is being explored in this text?" "Whose voice do we not hear? Is this fair?"

Presentation Strategies

1.9 identify a variety of presentation strategies used in oral texts and analyse their effect on the audience (e.g., the unexpected use of humour or of changes in pace)

Teacher prompt: "Why do you think the speaker paused for so long at that point in the story?"

2. Speaking to Communicate

By the end of Grade 6, students will:

Purpose

2.1 identify a variety of purposes for speaking and explain how the purpose and intended audience influence the choice of form (e.g., to clarify thinking through dialogue; to explore different points of view through drama and role playing; to present information to a group)

Interactive Strategies

2.2 demonstrate an increasingly sophisticated understanding of appropriate speaking behaviour in a variety of situations, including paired sharing, dialogue, and small- and large-group discussions (e.g., acknowledge different points of view; paraphrase to clarify meaning; adjust the level of formality to suit the audience and purpose for speaking)

Clarity and Coherence

2.3 communicate orally in a clear, coherent manner, using appropriate organizing strategies and formats to link and sequence ideas and information (e.g., present an argument in favour of one point of view on an issue, with an opening statement, sequence of points with supporting evidence, and summary/conclusion)

Appropriate Language

2.4 use appropriate words and phrases from the full range of their vocabulary including inclusive and non-discriminatory language, and stylistic devices appropriate to the purpose and context, to communicate their meaning accurately and engage the interest of their intended audience (e.g., use similes, personification, and comparative adjectives and adverbs to achieve a desired effect)

Vocal Skills and Strategies

2.5 identify a range of vocal effects, including tone, pace, pitch, volume, and a variety of sound effects, and use them appropriately and with sensitivity towards cultural differences to help communicate their meaning (e.g., create different-sounding "voices" for the characters in a dramatization of a story)

Non-Verbal Cues

2.6 identify a variety of non-verbal cues, including facial expression, gestures, and eye contact, and use them in oral communications, appropriately and with sensitivity towards cultural differences, to help convey their meaning (e.g., count off on their fingers as they present each point in an argument)

Visual Aids

2.7 use a variety of appropriate visual aids, (e.g., video images, maps, posters, charts, costumes) to support or enhance oral presentations (e.g., wear a costume to help portray the speaker in a monologue; create a slide show to accompany a report)

3. Reflecting on Oral Communication Skills and Strategies

By the end of Grade 6, students will:

Metacognition

3.1 identify, in conversation with the teacher and peers, what strategies they found most helpful before, during, and after listening and speaking and what steps they can take to improve their oral communication skills

Teacher prompts: "What strategies do you use to help you understand and follow a discussion among several people?" "What strategies do you use to recall important information after listening?" "What factors do you consider when deciding whether to use an informal or a formal approach when speaking?"

Interconnected Skills

3.2 identify, in conversation with the teacher and peers, how their skills as viewers, representers, readers, and writers help them improve their oral communication skills

Teacher prompt: "What strategies that you use when preparing to write help you organize your ideas before speaking?"

GRADE 6 | READING

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

1. read and demonstrate an understanding of a variety of literary, graphic, and informational texts, using a range of strategies to construct meaning;
2. recognize a variety of text forms, text features, and stylistic elements and demonstrate understanding of how they help communicate meaning;
3. use knowledge of words and cueing systems to read fluently;

4. reflect on and identify their strengths as readers, areas for improvement, and the strategies they found most helpful before, during, and after reading.

SPECIFIC EXPECTATIONS

1. Reading for Meaning

By the end of Grade 6, students will:

Variety of Texts

1.1 read a wide variety of texts from diverse cultures, including literary texts (e.g., short stories, poetry, myths, legends, fantasies, novels, plays), graphic texts (e.g., graphic novels, advertisements, atlases, graphic organizers, charts and tables), and informational texts (e.g., biographies, textbooks, and other non-fiction materials; articles and reports; print and online editorials, various electronic texts, webquest texts)

Purpose

1.2 identify a variety of purposes for reading and choose reading materials appropriate for those purposes (e.g., online and print sources to compare different approaches to the same topic; webquest texts for information on a historical topic; graphic organizers, charts, and tables for specific information; a novel or a nonfiction book on a favourite topic for personal enjoyment)

Comprehension Strategies

1.3 identify a variety of reading comprehension strategies and use them appropriately before, during, and after reading to understand increasingly complex texts (e.g., activate prior knowledge on a topic through brainstorming and developing concept maps; use visualization and comparisons with images from other media to clarify details of characters, scenes, or concepts in a text; make predictions about a text based on knowledge of similar texts; reread or read on to confirm or clarify understanding)

Demonstrating Understanding

1.4 demonstrate understanding of increasingly complex texts by summarizing and explaining important ideas and citing relevant supporting details (e.g., general idea and related facts in chapters, reports, tables and charts, concept maps, online and print magazine articles, editorials, brochures or pamphlets, websites; main theme and important details in short stories, poems, plays, legends)

Making Inferences/Interpreting Texts

1.5 develop interpretations about texts using stated and implied ideas to support their interpretations

Teacher prompt: "What is the story between the lines ... beyond the lines? What clues did the author give that led to your conclusion? Why do you think the author doesn't state these ideas directly?"

Extending Understanding

1.6 extend understanding of texts by connecting, comparing, and contrasting the ideas in them to their own knowledge, experience, and insights, to other familiar texts, and to the world around them

Teacher prompt: "How does the author's treatment of this topic compare with treatments of the topic in other sources?"

Analyzing Texts

1.7 analyse increasingly complex texts and explain how the different elements in them contribute to meaning (e.g., narrative: contribution of characters, setting, and plot to the theme; persuasive argument: the role of the summing-up paragraph in highlighting the most compelling points in the argument)

Responding to and Evaluating Texts

1.8 make judgements and draw conclusions about ideas in texts and cite stated or implied evidence from the text to support their views

Teacher prompts: "What conclusions can you draw from the events or information presented in the text?" "Has the author chosen the most convincing facts to support his or her opinion?"

Point of View

1.9 identify the point of view presented in texts; determine whether they can agree with the view, in whole or in part; and suggest some other possible perspectives (e.g., ask questions to identify any biases that are stated or implied in the view presented)

Teacher prompts: "Who would be most likely to share this point of view? Who would not?" "How would you revise the text to appeal to a different or a wider audience?" "Why do you think stereotypes are used in certain texts?"

2. Understanding Form and Style

By the end of Grade 6, students will:

Text Forms

2.1 analyse a variety of text forms and explain how their particular characteristics help communicate meaning, with a focus on literary texts such as a myth (e.g., the use of imaginary/supernatural characters tells the reader not to interpret the story literally), graphic

texts such as an advertisement (e.g., colour and layout are used to emphasize the appeal and importance of the product), and informational texts such as an editorial (e.g., the formal, logical structure of thesis, development, and summary/conclusion helps create an authoritative impression)

Text Patterns

2.2 identify a variety of organizational patterns in a range of texts and explain how they help readers understand the texts (e.g., order of importance in a persuasive letter or news report, a grid and coordinates in a map, columns and rows in a table, time order in a biography)

Text Features

2.3 identify a variety of text features and explain how they help readers understand texts (e.g., indexes, headings/subheadings, captions and labels, and drop-down menus help the reader locate key words, phrases, or ideas when skimming or scanning a text before reading)

Elements of Style

2.4 identify various elements of style - including voice, word choice, and the use of hyperbole, strong verbs, dialogue, and complex sentences - and explain how they help communicate meaning (e.g., hyperbole provides drama and emphasis in a persuasive article; a complex sentence allows the author to combine ideas for succinctness and improved flow)

3. Reading with Fluency

By the end of Grade 6, students will:

Reading Familiar Words

3.1 automatically read and understand most words in a range of reading contexts (e.g., words from oral vocabulary and grade-level texts; terminology used regularly in discussions and posted on anchor charts; words from shared-, guided-, and independent-reading texts and resource materials in the curriculum subject areas)

Reading Unfamiliar Words

3.2 predict the meaning of and rapidly solve unfamiliar words using different types of cues, including:

- semantic (meaning) cues (e.g., prefixes, suffixes, base words, phrases, sentences, and visuals that activate existing knowledge of oral and written language);
- syntactic (language structure) cues (e.g., word order, language patterns, punctuation);
- graphophonetic (phonological and graphic) cues (e.g., words within larger words, syllables within longer words, similarities between words with known spelling patterns and unknown words)

Reading Fluently

3.3 read appropriate texts with expression and confidence, adjusting reading strategies and reading rate to match the form and purpose (e.g., read a radio drama or radio editorial in role with suitable emphasis and phrasing)

4. Reflecting on Reading Skills and Strategies

By the end of Grade 6, students will:

Metacognition

4.1 identify the strategies they found most helpful before, during, and after reading and explain, in conversation with the teacher and/or peers, or in a reader's notebook, how they can use these and other strategies to improve as readers

Teacher prompts: "What questions do you ask yourself to check that you understand what you are reading?" "How do you know if you need to reread a section of a text?" "What else can you do if reading on or rereading does not clarify the meaning?" "In what way do you use your reader's notebook to help you as a reader?"

Interconnected Skills

4.2 explain, in conversation with the teacher and/or peers or in a reader's notebook, how their skills in listening, speaking, writing, viewing, and representing help them make sense of what they read (e.g., using a particular form when writing enhances understanding when reading texts of a similar form)

Teacher prompt: "Think about the conventions you used when creating a class newspaper. How will that information help you when you read the community newspaper?"

GRADE 6 | WRITING

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

1. generate, gather, and organize ideas and information to write for an intended purpose and audience;
2. draft and revise their writing, using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience;
3. use editing, proofreading, and publishing skills and strategies, and knowledge of language conventions, to correct errors, refine expression, and present their work effectively;

4. reflect on and identify their strengths as writers, areas for improvement, and the strategies they found most helpful at different stages in the writing process.

SPECIFIC EXPECTATIONS

1. Developing and Organizing Content

By the end of Grade 6, students will:

Purpose and Audience

1.1 identify the topic, purpose, and audience for a variety of writing forms (e.g., an original poem, with an invented structure or based on a model such as a haiku, about a topic of personal interest, to share with the class; a persuasive letter asking the school principal to look at a specific issue from a new point of view; a description of the procedure for constructing a three-dimensional model, to share with Grade 3 students; a script on a topic of current interest for a mock television broadcast for a general audience)

Developing Ideas

1.2 generate ideas about a potential topic and identify those most appropriate for the purpose

Research

1.3 gather information to support ideas for writing, using a variety of strategies and a range of print and electronic resources (e.g., identify the steps required to gather information; interview people with knowledge of the topic; identify and use graphic and multimedia resources; record sources used and information gathered in a form that makes it easy to understand and retrieve)

Classifying Ideas

1.4 sort and classify information for their writing in a variety of ways that allow them to view information from different perspectives and make connections between ideas (e.g., by underlining or highlighting key words or phrases; by using a graphic organizer such as a fishbone chart, a T-chart, or an "Agree/Disagree" chart)

Organizing Ideas

1.5 identify and order main ideas and supporting details and group them into units that could be used to develop a structured, multi-paragraph piece of writing, using a variety of strategies (e.g., making outlines, writing notes, filling in a ranking grid) and organizational patterns (e.g., order of importance)

Review

1.6 determine whether the ideas and information they have gathered are relevant, appropriate, and adequate for the purpose, and do more research if necessary (e.g., review information critically with a friend using a concept map, checklist, or flowchart)

2. Using Knowledge of Form and Style in Writing

By the end of Grade 6, students will:

Form

2.1 write longer and more complex texts using a wide range of forms (e.g., an "autobiography" in the role of a historical or contemporary person, based on research; a journalist's report on a real or imagined event for a newspaper or a television news broadcast; an explanation of the principles of flight; an argument in support of one point of view on a current global issue affecting Canadians; a made-up legend or fantasy, based on themes from their reading, to entertain younger children)

Voice

2.2 establish a distinctive voice in their writing appropriate to the subject and audience (e.g., use punctuation, dialogue, and vivid language to create a particular mood or tone)

Word Choice

2.3 use some vivid and/or figurative language and innovative expressions to enhance interest (e.g., strong verbs; concrete, specific nouns; unusual adjectives; unexpected word order)

Teacher prompt: "Identify three language choices you have made and explain the effect they will have on a reader."

Sentence Fluency

2.4 create complex sentences by combining phrases, clauses, and/or simple sentences (e.g., combine several simple sentences - "Nora left the house. She was heading for the market. She didn't want to be late." - to create a complex sentence - "Not wanting to be late, Nora left the house and headed for the market.")

Point of View

2.5 identify their point of view and other possible points of view; determine, when appropriate, if their own view is balanced and supported by the evidence; and adjust their thinking and expression if appropriate (e.g., revise writing focusing on the use of inclusive language, such as police officer instead of policeman)

Preparing for Revision

2.6 identify elements in their writing that need improvement, selectively using feedback from the teacher and peers, with a focus on supporting details and precise language (e.g., identify one main idea that is poorly supported; identify three sentences that would be clarified by adding an adjective or adverb)

Teacher prompt: "How can you determine which parts of your work need further clarification?"

Revision

2.7 make revisions to improve the content, clarity, and interest of their written work, using a variety of strategies (e.g., use arrows or make notes to identify text that needs to be moved; use sticky notes to indicate insertions; use underlining to focus on overworked words; add or substitute words and phrases that would make their writing more vivid; use figurative language such as similes and personification and rhetorical devices such as exaggeration to achieve particular effects; adjust sentence length, type, and complexity to suit the audience and purpose; check that language is inclusive and non-discriminatory)

Teacher prompt: "Can you use short, abrupt sentences to add drama to your writing?"

Producing Drafts

2.8 produce revised draft pieces of writing to meet identified criteria based on the expectations (e.g., adequate development of information and ideas, logical organization, appropriate use of form and style, appropriate use of conventions)

3. Applying Knowledge of Language Conventions and Presenting Written Work Effectively

By the end of Grade 6, students will:

Spelling Familiar Words

3.1 spell familiar words correctly (e.g., words from their oral vocabulary, anchor charts, and shared-, guided-, and independent- reading texts; words used regularly in instruction across the curriculum)

Spelling Unfamiliar Words

3.2 spell unfamiliar words using a variety of strategies that involve understanding sound-symbol relationships, word structures, word meanings, and generalizations about spelling (e.g., orally emphasize hard-to-hear sounds in difficult, complex words: Feb-ru-ar-y; leave unknown letters/letter clusters blank to solve after having spelled the familiar parts of a word; visualize a known word that is like the "problem" word; apply rules for forming plurals to unfamiliar words)

Vocabulary

3.3 confirm spellings and word meanings or word choice using a variety of resources appropriate for the purpose (e.g., locate entry words, multiple meanings, pronunciation guides,

charts of spellings of sounds, inflected forms, suffixes and prefixes, primary and secondary stresses, different pronunciations, idioms, and homographs in online and print dictionaries; use thematic dictionaries such as a word game dictionary or a homonym dictionary; use a thesaurus to explore alternative word choices)

Punctuation

3.4 use punctuation appropriately to communicate their intended meaning in longer and more complex sentences, with a focus on the use of: commas to separate words in a list or after an introductory word or phrase; quotation marks in dialogue; and some uses of the colon, semi-colon, and brackets

Grammar

3.5 use parts of speech correctly to communicate their meaning clearly, with a focus on the use of: personal subject and object pronouns (e.g., I, me) indefinite pronouns (e.g., someone, nobody); conjunctions; subordinate clauses; adverb phrases; and present, past, and future verb tenses

Proofreading

3.6 proofread and correct their writing using guidelines developed with peers and the teacher (e.g., an editing checklist specific to the writing task)

Publishing

3.7 use a range of appropriate elements of effective presentation in the finished product, including print, script, different fonts, graphics, and layout (e.g., use legible printing and cursive writing; include photographs or magazine pictures and a map in a travel brochure; include an index to help the reader find specific information in a report; supply a table of contents)

Producing Finished Works

3.8 produce pieces of published work to meet identified criteria based on the expectations (e.g., adequacy of information and ideas, logic and effectiveness of organization, effective use of form and stylistic elements, appropriate use of conventions, effective presentation)

4. Reflecting on Writing Skills and Strategies

By the end of Grade 6, students will:

Metacognition

4.1 identify a variety of strategies they used before, during, and after writing, explain which ones were most helpful, and suggest further steps they can take to improve as writers

Teacher prompts: "How did the sources you used allow you to generate a balanced selection of ideas?" "How do you use your writer's notebook to help you during the writing process?"

Interconnected Skills

4.2 describe how their skills in listening, speaking, reading, viewing, and representing help in their development as writers

Teacher prompts: "What do you know about different media texts that might help when you are writing?" "In what way do you think that the reading you do helps you as a writer? Can you give an example?"

Portfolio

4.3 select pieces of writing that they think reflect their growth and competence as writers and explain the reasons for their choices

GRADE 6 | MEDIA LITERACY

OVERALL EXPECTATIONS

By the end of Grade 6, students will:

1. demonstrate an understanding of a variety of media texts;
2. identify some media forms and explain how the conventions and techniques associated with them are used to create meaning;
3. create a variety of media texts for different purposes and audiences, using appropriate forms, conventions, and techniques;
4. reflect on and identify their strengths as media interpreters and creators, areas for improvement, and the strategies they found most helpful in understanding and creating media texts.

SPECIFIC EXPECTATIONS

1. Understanding Media Texts

By the end of Grade 6, students will:

Purpose and Audience

1.1 explain how a variety of media texts address their intended purpose and audience (e.g., T-shirts intended for supporters of particular institutions, groups, or causes are decorated with related images, logos, colours, and slogans; CD and DVD covers designed to appeal to young children have colourful images of their favourite characters; advertisements geared to parents

of infants are broadcast during the daytime whereas those geared to single adults run during late-night programming)

Making Inferences/Interpreting Messages

1.2 interpret media texts, using overt and implied messages as evidence for their interpretations (e.g., explain why the advertisements used in a particular magazine are appropriate for that magazine, identifying the messages that would appeal to the magazine's audience; explain how advertisements for healthy food and those for fast food differ)

Teacher prompt: "Is there a connection between the articles and the advertisements used in a magazine?"

Responding to and Evaluating Texts

1.3 evaluate the effectiveness of the presentation and treatment of ideas, information, themes, opinions, issues, and/or experiences in media texts (e.g., evaluate the coverage of the same news item in a newspaper article, a segment of a news program, a website, and/or a blog; evaluate the effectiveness with which themes are developed, supported, and illustrated in a movie or music video)

Teacher prompt: "You've told me that you think this advertisement is very effective, but that the other one is weak. Explain what accounts for the success or failure of each."

Audience Responses

1.4 explain why different audiences (e.g., boys, girls, adults, seniors, various cultural groups) might have different responses to media texts (e.g., movies, songs, websites, video games, items of clothing)

Teacher prompts: "Why might many teenagers respond differently from their parents to an election debate?" "Who do you think would be the most likely audience for a car magazine? An advertisement for a retirement residence? An investment brochure? An action-oriented video game? A fashion magazine? A television science special? A quiz show? Action figures? Explain your answers."

Point of View

1.5 identify whose point of view is presented in a media text, identify missing or alternative points of view, and, where appropriate, determine whether the chosen view achieves a particular goal (e.g., identify biases in two different media texts that focus on the same topic or event; evaluate the portrayal of Aboriginal people in the media)

Teacher prompts: "What bias or stereotypes can you detect in this advertisement? Can you think of reasons why this view of the subject is used? What does this advertisement achieve?"

"Are there different portrayals of Aboriginal people in the media? How are they different? Why are they different? Which ones are most accurate?"

Production Perspectives

1.6 identify who produces various media texts, the reason for their production, how they are produced, and how they are funded (e.g., political parties create advertisements to win voter support, using funds raised by their members and supporters; producers develop television dramas to entertain and make money by selling their products to television conglomerates, which then broadcast the programs to make money by selling advertising spots in the programs' time slots)

Teacher prompt: "What are the different professions that would be involved in producing a television commercial? How much would it cost to produce? How could we find out?"

2. Understanding Media Forms, Conventions, and Techniques

By the end of Grade 6, students will:

Form

2.1 describe in detail the main elements of some media forms (e.g., drama scripts: cast of characters, description of setting, acts, scenes, stage directions; television quiz shows: host/hostess, contestants, prizes; magazines: cover images and text, table of contents, regular columns, feature articles, advertisements)

Conventions and Techniques

2.2 identify the conventions and techniques used in some familiar media forms and explain how they help convey meaning and influence or engage the audience (e.g., movie conventions: in old-fashioned westerns, white and black cowboy hats were used to identify "good" and "bad" characters; movie techniques: freeze-frame images, slow motion, theme music in movies are used to communicate information non-verbally, emphasize or prolong important or appealing scenes, and maintain interest by keeping the viewer wondering "what next?")

Teacher prompt: "What visual clues are used to identify 'good' and 'bad' characters in movies and video games you have seen recently?"

3. Creating Media Texts

By the end of Grade 6, students will:

Purpose and Audience

3.1 describe in specific detail the topic, purpose, and audience for media texts they plan to create, and identify challenges they may face in achieving their purpose (e.g., a review of a

television program, film, piece of art, or artistic performance to encourage children or adults to see it)

Teacher prompt: "Why do you think it is important for people to know about this topic? Why might you need to be especially persuasive to interest them in the topic?"

Form

3.2 identify an appropriate form to suit the specific purpose and audience for a media text they plan to create, and explain why it is an appropriate choice (e.g., a mock television, radio, or newspaper announcement to inform students about a school-related issue)

Teacher prompt: "Which form do you think would be most likely to help you reach your audience? Why?"

Conventions and Techniques

3.3 identify conventions and techniques appropriate to the form chosen for a media text they plan to create, and explain how they will use the conventions and techniques to help communicate their message (e.g., a scene for a television drama adapted from a novel or play: the camera can focus on one character, object, or gesture at a time, allowing different kinds of emphasis; camera angles and distances can vary to create different effects and perspectives; scenes can be edited to change the pace of the action; background music can be used to enhance the mood)

Teacher prompt: "How do the conventions and techniques of this form make it easier or harder to communicate certain ideas?"

Producing Media Texts

3.4 produce a variety of media texts for specific purposes and audiences, using appropriate forms, conventions, and techniques (e.g.,

- a review of a television program, film, piece of art, or artistic performance that includes commentary on the effects created through the use of various conventions and techniques
- a mock television broadcast of an announcement about a school-related issue
- a soundtrack to accompany the reading of a section of a graphic novel or comic book
- a computer-generated cover design, including special fonts, to enhance a published piece of writing
- a multimedia presentation to inform younger students about how to use a website to research a topic related to a unit of study
- a pamphlet outlining the researched or imagined biography of a writer

- a travelogue illustrating the journey of an early Canadian explorer, including contacts with First Nations peoples
- a storyboard indicating the images to be used in a scene for a television drama adapted from a novel or play
- a movie poster to advertise a movie based on a narrative they have studied)

4. Reflecting on Media Literacy

Skills and Strategies

By the end of Grade 6, students will:

Metacognition

4.1 identify what strategies they found most helpful in making sense of and creating media texts, and explain how these and other strategies can help them improve as media viewers/listeners/producers

Teacher prompt: "What skills and knowledge have you needed to interpret and create the variety of media forms you have studied?"

Interconnected Skills

4.2 explain how their skills in listening, speaking, reading, and writing help them to make sense of and produce media texts

Teacher prompt: "Which reading and listening comprehension strategies help you most in developing interpretations of media texts such as movies and advertisements?"

7.6 French As a Second Language:

Extended French, Grades 4-8

French Immersion, Grades 1-8

2001

Introduction

The ability to communicate in French is a valuable skill, because French is one of Canada's two official languages and because it is a language used widely around the world.

Research confirms that knowledge of a second language strengthens first-language skills and that the ability to speak two or more languages generally enhances reasoning and problem-solving skills, as well as creative-thinking skills. Learning a second language not only strengthens students' ability to communicate, but also develops their capacity to understand and respect

other cultures. In this way, second-language learning prepares students to participate more effectively in the workplace and in the global economy, and provides them with a distinct advantage in a number of careers, both in Canada and internationally.

The Purpose of the Ontario Curriculum: French as a Second Language - Extended French, Grades 4-8; French Immersion, Grades 1-8, 2001

The purpose of this document is to set out the minimum expectations that students are required to achieve in French as a second language in the context of Extended French or French Immersion programs offered at the elementary level. The document outlines the required knowledge and skills for each grade from Grade 4 to Grade 8 in an Extended French program and for each grade from Grade 1 to Grade 8 in a French Immersion program.¹

This document replaces the sections of The Common Curriculum: Policies and Outcomes, Grades 1-9, 1995 that pertain to Extended French and French Immersion programs. All Extended French and French Immersion programs will be based on the curriculum expectations for French as a second language outlined in this document.

The Aims of Extended French and French Immersion Programs

The principal aim of the Extended French and French Immersion programs is to provide students with the skills they need to communicate in a second language, and thereby to enhance their ability to perform effectively and meet with success in a rapidly changing global economy. Although the two programs are designed to help students achieve different levels of proficiency in French through instruction at different levels of intensity, both aim to develop strong fundamental skills in oral communication (listening and speaking), reading, and writing. Both aim as well to provide students with an understanding of the cultures of French-speaking societies by integrating cultural study into daily language instruction.

The elementary school curriculum for Extended French and French Immersion is designed to prepare students for success in the corresponding program at the secondary level.² The expectations that form the basis of the secondary school curriculum build on the knowledge and skills that students acquire in their elementary programs.

Policy and Program Requirements for Extended French and French Immersion Programs

Extended French and French Immersion are French-as-a-second-language (FSL) programs in which French is not only taught as a subject but also serves as the language of instruction in other subjects. The provision of an Extended French and/or a French Immersion program is optional; where such a program is offered, students may enrol in it rather than in a Core French program to meet the mandatory requirement for the study of French in English-language schools.

In any program of study, students should advance through an organized sequence of learning experiences that permits a steady accumulation of knowledge and skills. Therefore, once

students embark on an instructional sequence in Extended French or French Immersion, they must be given the opportunity to continue in an uninterrupted program to Grade 8.

French Immersion Programs

In a French Immersion program, French must be the language of instruction for a minimum of 50 per cent of the total instructional time at every grade level of the program. Immersion programs must include the study of French as a second language and the study of at least two other subjects taught in French. These two subjects must be selected from the following: the arts, social studies (Grades 1 to 6) or history and geography (Grades 7 and 8), mathematics, science and technology, and health and physical education. Immersion programs must provide a minimum of 3800 hours of instruction in French by the end of Grade 8.

It has been shown that a student's level of proficiency in French increases with the number of accumulated hours of instruction in French. Many French Immersion programs thus exceed the minimum requirement of 3800 hours of French instructional time. An immersion program starting in Grade 1 generally provides instruction in French in all subjects (i.e., for 100 per cent of total instructional time) until Grade 3 or 4, when students begin to study English language arts.³ Instruction in English may then be gradually extended to include other subjects. By the end of Grade 8, students may receive up to 50 per cent of their instruction in English.

Extended French Programs

In an Extended French program, French must be the language of instruction for a minimum of 25 per cent of the total instructional time at every grade level of the program. Extended French programs must include the study of French as a second language and the study of at least one other subject taught in French. That subject must be selected from the following: the arts, social studies (Grades 1 to 6) or history and geography (Grades 7 and 8), mathematics, science and technology, and health and physical education. Extended French programs must provide a minimum of 1260 hours of instruction in French by the end of Grade 8.

The expectations outlined in this document are designed for a five-year program, starting in Grade 4, that meets the provincial requirements of a minimum of 1260 hours of instructional time in French by Grade 8 and a minimum of 25 per cent of instructional time in French at each grade level.

The Teaching of Other Subjects in French

For subjects other than FSL that are taught in French in an Extended French or French Immersion program, the expectations in each grade are those outlined in the English-language curriculum policy documents. It is recognized that programs in these subjects may need to be adapted to meet the needs of students who are learning in a second language.

The Role of Parents⁴

Studies show that students perform better in school if their parents are involved in their education. Even if they do not speak or understand French, parents still have an important role to play in supporting their child's learning. By reading the curriculum, parents can find out what their children are learning in each grade and why they are learning it. This awareness will enable parents to discuss their children's work with them, communicate with teachers, interpret their children's report cards, and work with teachers to improve their children's learning.

There are many other ways in which parents can express their interest in their children's education. Participating in parent conferences, working on the school council, and encouraging children to complete assignments at home and to pursue opportunities outside the classroom to extend their skills in French are just a few examples.

The Role of Teachers and Students

Teachers and students have complementary responsibilities. Teachers are responsible for developing a range of instructional strategies based on sound learning theory. They will use their professional judgement in deciding which instructional methods will best foster the learning described in the expectations outlined in this document. Their decisions should be based on the needs of students, the resources available, and the recognition that good teaching should build strong personal values and positive attitudes both towards the subject under study and towards learning in general. Good teachers know that they must persevere and make every reasonable attempt to ensure sound learning for every student.

Students also have responsibilities, which increase as they advance through elementary and secondary school. Good students have learned that attention and a willingness to work hard will enable them to develop the skills, knowledge, creativity, and personal qualities that good programs can foster. Some young people face extra challenges and may be growing up in environments that provide little or no support. For these students, taking responsibility for learning may be more difficult, and the patience and encouragement of sensitive teachers may be an extremely important factor for success. Nonetheless, learning to take responsibility for one's progress and achievement is an important part of education for every student.

Curriculum Expectations and Achievement Levels

The Ontario curriculum for French as a second language in Extended French and French Immersion programs comprises two elements: curriculum expectations and achievement levels. The expectations identified for each grade describe the knowledge and skills that students are expected to develop and to demonstrate in their class work, on tests, and in various other activities on which their achievement is assessed.

Two sets of expectations are listed for each grade. The overall expectations describe in general terms the knowledge and skills that students are expected to achieve in all strands, or broad areas of the curriculum, by the end of each grade. The specific expectations describe the

expected knowledge and skills in greater detail. (A list of the language structures that students must learn accompanies the overall and specific expectations for every grade.)

The specific expectations are organized by strand - Oral Communication, Reading, and Writing - and then under subheadings. This organization is not meant to imply that the expectations in one strand or group are achieved independently of the expectations in the other strands or groups. The subheadings are used merely to help teachers focus on particular aspects of knowledge and skills as they plan learning activities for their students.

Many of the expectations are accompanied by examples, given in parentheses. These examples are meant to illustrate the kind of skill, the specific area of learning, the depth of learning, and/or the level of complexity that the expectation entails. They are intended as a guide for teachers rather than as an exhaustive or mandatory list.

The achievement levels are brief descriptions of four different degrees of achievement of the provincial curriculum expectations for any given grade. These levels will be used by teachers to assess students' learning. (Letter grades and percentage marks are used to report student achievement on the report card.) The achievement levels for Extended French and French Immersion programs focus on four categories of skills: communication skills, comprehension skills, skills in organizing ideas, and skills related to the application of language conventions (vocabulary, spelling, grammar, punctuation). Teachers can use the achievement levels in discussions with parents and students to explain what is required of students to achieve the expectations set for their grade. Level 3, which is the "provincial standard", identifies a high level of achievement of the provincial expectations. Parents of students achieving at level 3 in a particular grade can be confident that their children will be prepared for work in the next grade. Level 1 identifies achievement that falls much below the provincial standard. Level 2 identifies achievement that approaches the standard. Level 4 identifies achievement that exceeds the standard. It should be noted that achievement at level 4 does not mean that the student has achieved expectations beyond those specified for a particular grade; it indicates that the student demonstrates a greater command of the required knowledge and skills than a student achieving at level 3.

Planning Student Programs

In planning Extended French and French Immersion programs, teachers should aim to help students acquire varied and correct language through instruction combined with interesting and purposeful activities in reading, writing, and the use of oral language. Because the various language functions are interdependent, teachers will plan activities that blend material from the different strands. Students will talk about a topic before writing about it, for example, or listen to presentations to supplement their reading, or examine media materials before participating in group discussions. Teachers will also emphasize the importance of language skills in the course of instruction in other subjects. They will plan programs that enable students to broaden their knowledge and skills by combining the study of language with the study of other subjects.

Effective communication should be the focus of instruction in extended and immersion programs. Teachers will involve students in language activities that emphasize communication, such as reading and discussing one another's stories, writing letters to real people, and making oral presentations. They will encourage communication within the classroom by providing opportunities for students to interact with one another individually, as well as through small- and large-group assignments.

Students' ability to communicate effectively will depend on their ability to grasp ideas and information conveyed through print materials and to produce clear, coherent written work. Teachers must therefore provide instruction and practice in reading for comprehension. They must also teach essential and specific aspects of grammar, spelling, and punctuation, making sure to include the skills identified in the expectations for each grade. Students should be made aware that these skills are learned because they make clarity and precision in writing possible, and that applying these skills in editing their writing is of primary importance.

Reading activities should be designed to help students become receptive to new ideas. Choosing appropriate literature is an important part of the teacher's role. Teachers will assign reading that challenges students and that is appropriate to their level of proficiency in French. They will also assist students in making interesting choices for their own reading.

Finally, teachers will help students - particularly students in Grades 7 and 8 - understand that second-language skills are important in many careers and can improve their chances for future employment.

Extended French and French Immersion for Exceptional Students

Recognizing the needs of exceptional students and providing appropriate programs and services for them are important aspects of planning and implementing the curriculum. A regulation made under the Education Act requires that school boards establish a committee, called an Identification, Placement, and Review Committee (IPRC), to identify and place exceptional students. When an IPRC identifies a student as exceptional, it must, in its statement of decision, provide a description of the student's strengths and needs and a decision on appropriate placement for the student. The IPRC can also make recommendations for suitable education programs and services.

When an IPRC identifies a student as exceptional, an Individual Education Plan (IEP) must be developed and maintained for that student. (It should be noted that an IEP may also be prepared for students with special needs who are receiving special education programs and/or services but who have not been identified as exceptional by an IPRC.) An IEP describes the student's educational program, which is based on and modified by the results of continuous assessment and evaluation. It identifies the student's specific learning expectations and explains how the school will address these expectations (for example, through appropriate programs and services, modifications in the regular program, and other accommodations). It also identifies the methods by which the student's progress will be reviewed.

In developing the student's IEP, consideration must be given to any recommendations made by the IPRC concerning programs and services that may be particularly appropriate for meeting the student's needs. Also, the school must consult with the parents of the student at the development stage. The IPRC's recommendations and the results of consultation between the parents and the school staff will form the basis of decisions concerning the ways in which the learning expectations set out in the provincial curriculum will be modified to meet the student's special needs. Once the IEP has been developed, the parents of the student must be provided with a copy.

Those involved in developing the IEP should work together on an ongoing basis to review the student's progress and make adjustments to the IEP as necessary. It is important that the school continue to keep parents informed about the program and the progress of the student, as parents can provide valuable support for their child's learning.

In planning programs for exceptional students, teachers must take into account the students' strengths and needs, learning expectations, accommodations, and methods for reviewing progress as outlined in the IEP. It is important that teachers provide appropriate instruction, activities, and assignments, as well as resources, strategies, and settings that will help exceptional students achieve their learning expectations. Using the most appropriate methods and providing the most appropriate materials may involve making changes in the teaching approaches (e.g., styles of presentation, methods of organization, use of technology and multimedia) and the curriculum content (e.g., amount of material covered, type of material used) that are normally used for most other students. Changes may also need to be made in some assessment and evaluation procedures. For example, exceptional students may need to be given additional time to complete assignments or tests, they may need to do tests orally or in other forms that are not written, and they may need more explanations about what is expected in a particular assignment or test than would normally be given.

Achievement Levels

The chart that follows identifies four categories of knowledge and skills: communication, comprehension, organization of ideas, and application of language conventions. For each of these categories, there are four levels of achievement. The chart provides a brief description of each level of achievement, on which teachers will base their assessment of students' work.

The descriptions in the achievement chart are meant to be used to assess each student's achievement of the expectations outlined in this document for each grade and strand. Teachers should use the descriptions to identify the level at which a student has achieved a particular expectation or group of expectations, within the appropriate category (or categories) of knowledge and skills. For example, one of the expectations in Writing for Grade 3 French Immersion is that students will "organize information into short paragraphs that contain a main idea and related details". If the student "communicates information and ideas with some clarity" (see the achievement chart, under Communication), the student's achievement of that

expectation would be assessed at level 2 in the category of communication. However, if the student "organizes ideas with considerable effectiveness" (see the achievement chart, under Organization of Ideas), his or her achievement would be assessed at level 3 in the category of organization of ideas.

The characteristics of student achievement described in the chart for level 3 represent achievement that is considered to be the standard for each grade. A student's work at level 3 in all categories, in any grade, may be described in general terms as follows:

When speaking, reading, and writing in French, the student demonstrates considerable knowledge of the required forms, structures, and vocabulary. He or she communicates information and ideas clearly and, in speaking French, generally uses correct pronunciation and intonation. The student demonstrates considerable understanding of the main ideas and details in the materials he or she reads and has a good understanding of spoken French. He or she organizes ideas effectively and applies the language conventions studied with considerable accuracy and effectiveness in both familiar and new contexts.

Although the chart is intended to be used mainly for assessing student achievement, teachers may wish to use it for other related purposes; for example, they could use it as a guide when collecting samples of student work at different levels for the information of parents.

[Page 11 chart omitted]

Strands in the Extended French and French Immersion Curriculum

The expectations for French as a second language in Extended French and French Immersion programs are organized into three strands that correspond to the three main areas of language use: oral communication; reading; and writing. All the knowledge and skills outlined in the expectations are mandatory. The programs in all grades are designed to develop a range of essential skills in reading, writing, and oral language, providing students with a solid foundation in spelling and grammar; the ability to comprehend what they read in a range of different kinds of texts; an appreciation of literature and the ability to interpret and respond to it; and the ability to use oral language accurately and effectively.

Students in extended and immersion programs will have many opportunities, in their study of other subjects taught in French, to apply the knowledge and practice and refine the skills they acquire through achievement of the FSL expectations in all three strands.

Oral Communication

In the FSL curriculum, there must be a strong emphasis on helping students develop the oral communication skills they need to interact effectively with others and to express themselves clearly and with confidence in both familiar and new contexts. The development of oral language provides the foundation that enables students to learn to read and write. Because

listening and speaking are inseparable in real-life situations, these skills should be developed together in the classroom.

Students should have an adequate "listening period" before they are expected to communicate in French. They should develop strategies - such as observing facial expressions and body language, listening to intonation, using clues from context, and thinking of familiar words -to deduce the meaning of new words and to make sense of spoken language.

The program should include numerous activities that allow students to use French for real purposes and in real situations; for example, students should have opportunities to:

- * listen to French (both live and recorded) spoken by people of different ages, by people speaking in different accents, and by people speaking at different rates of speed;
- * discuss subject matter under study, reading materials, and personal concerns and interests;
- * prepare and give oral presentations;
- * participate in dramatizations and simulations;
- * conduct surveys and interviews.

Reading

In reading, the FSL curriculum focuses on developing the skills that will enable students to become effective readers of French texts. An effective reader is one who not only grasps the essential ideas communicated in a piece of writing, but who is able to use and apply these ideas later in new contexts. Students must, therefore, develop the skills needed to process, analyse, and absorb information and to think clearly, creatively, and critically. They must also develop a rich and varied French vocabulary and read a wide variety of materials that illustrate the many uses of writing.

Important as they are, reading for information and reading for learning are not the only activities that should be emphasized as students develop their reading skills in French. A well balanced reading program will provide students with many opportunities to read for pleasure and for self-enrichment. Such reading activities are particularly important in the elementary grades, when attitudes to and habits of reading are first formed.

Reading is a complex process - and all the more complex in a second language - because it involves understanding the relationship between written language and speech and relating ideas and information encountered in reading to one's store of knowledge and experience. It also involves using various strategies and methods to determine the meaning of what is being communicated - for example, rereading a passage if its meaning is not immediately clear or looking up unfamiliar words in a dictionary. In order to become independent and fluent readers,

especially in a second language, students need to read frequently and to develop the skills used in reading for different purposes. Some essential aspects of the reading process are outlined below.

Students will:

- * read for particular purposes, some determined by the teacher and some by the student (e.g., for information, enjoyment, practice, vocabulary building);

- * examine a piece of writing or a publication in preparation for reading (e.g., look at the cover, title, pictures; scan the table of contents and the index, and flip through the pages to find out something about its content and purpose);

- * use a range of reading strategies to understand what they read (e.g., use previous knowledge and experience of the topic and vocabulary; use familiar words and the context to understand unfamiliar words; reread; predict what may happen in a story, and confirm or revise predictions; use phonics and root words to determine the meaning of unfamiliar words; use pictures and illustrations; make inferences; record key points; skim text for specific details; scan written material to determine its purpose);

- * examine the ideas critically (e.g., distinguish between fact and opinion; use other resources to verify facts);

- * summarize and explain the main ideas and cite supporting details, draw conclusions, retell the story, or apply what they have read (e.g., follow a set of instructions).

The reading program should include a variety of materials, both fiction and non-fiction, including works produced by French-speaking Canadians. In all grades, students should read texts of increasing complexity assigned by the teacher, as well as materials chosen by themselves. They should also read an increasing variety of forms of both fiction and non-fiction (e.g., picture books, chapter books, stories, novels; poetry; myths, fables, folk tales; books on science, history, mathematics, geography, and other disciplines; biography, autobiography, memoirs, journals; encyclopedias; graphs, charts, diagrams, instructions, manuals; newspapers, editorials, articles; essays, reports; plays; scripts for television or radio).

Although the expectations in the reading strand might suggest that the skills involved in reading are discrete skills, they are in fact aspects of one integrated process that is best applied in a context that students see as meaningful and that encourages them to think creatively and critically about what they are reading.

Writing

The FSL curriculum emphasizes the basic skills related to the conventions of written language - grammar, spelling, punctuation, and the common conventions of style, form, and presentation. These skills are considered essential because they must be mastered if students are to produce

writing that is clear and precise and that communicates their ideas effectively. At the same time, it is important to recognize that these basic skills support and complement the broader skills and aptitudes essential for effective communication in any language: the ability to think clearly and creatively and to order ideas in a logical and disciplined manner. Therefore, while there will doubtless be occasions when teachers will find it necessary and even desirable to focus a lesson on some aspect of grammar or spelling, the basic conventions should be taught as much as possible through use and application in purposeful contexts. Writing activities that students see as meaningful and that challenge them to think creatively about topics and concerns of interest to them will lead to a fuller and more lasting mastery of the basic skills.

Writing competence develops along with skills in other areas of language, especially reading. As students read a variety of written texts, they increase and gain command over their vocabulary, and learn to vary their sentence structure and organizational approach. To become good writers who are able to communicate ideas with ease and clarity, students need frequent opportunities to write for various purposes and audiences, and to master the skills involved in the various tasks of the writing process. These tasks are outlined below.

Students will:

- * generate ideas for writing through discussion and brainstorming;
- * select a topic and determine the purpose for writing and the audience to be addressed;
- * draw up a writing plan (e.g., outline, diagram, story map);
- * write an initial draft;
- * decide whether the piece of writing is promising enough to be developed further and revised for "publishing" through the subsequent steps in the writing process;
- * discuss and revise the first draft to clarify ideas and improve their organization;
- * edit to improve writing style and to correct errors in grammar, spelling, and punctuation;
- * use their knowledge of the visual elements of published texts to enhance their work (e.g., margins, headings, graphics, photographs).

Extended French, Grades 4-8

In this section, which describes the FSL expectations in Extended French for each grade, some repetition of expectations has been necessary to reflect the progressive nature of skills development. Expectations dealing with skills that continue to be of major importance as students progress from grade to grade are repeated for all relevant grades, and progression is indicated by means of increasingly complex examples of tasks. Some of the expectations for the

higher grades combine skills that are introduced separately in the lower grades, thus creating skills and applications of increasing complexity. It should also be noted that all of the skills described in these expectations continue to be developed and refined as students move up through the grades, whether or not the expectations are repeated.

Grade 6: Oral Communication, Reading, and Writing

Overall Expectations

By the end of Grade 6, student will:

- * listen and respond to a variety of spoken texts and media works;
- * express ideas and opinions on a range of topics, using correct pronunciation and appropriate intonation;
- * read a variety of texts and media works and demonstrate understanding through a range of oral and written responses;
- * produce written texts, using a variety of forms, for various purposes and in a range of contexts;
- * identify and use appropriate language conventions during oral communication activities, in their responses to reading materials, and in their written work.

Specific Expectations

Oral Communication Listening

By the end of Grade 6, students will:

- * demonstrate an understanding of spoken texts and media works (e.g., stories, television and radio excerpts, presentations by guest speakers) (e.g., by asking questions, clarifying meaning, drawing conclusions, expressing opinions);
- * listen and respond to the viewpoints of others in a group discussion on a specific topic (e.g., by asking questions and offering opinions and ideas);
- * listen to and take brief directed notes on presentations and reports;
- * recognize and interpret visual and verbal cues (e.g., gestures, facial expressions, tone of voice) to aid in understanding what they hear.

Speaking

By the end of Grade 6, students will:

- * participate in classroom activities by asking and answering questions, giving personal opinions, and expressing ideas on a topic under study;

- * organize their thoughts and information to convey a message;

- * use visual and verbal cues (e.g., gestures, facial expressions, tone of voice) to communicate information;

- * use simple and compound sentences to express ideas and opinions on familiar topics;

- * create and tell a story in logical sequence;

- * contribute to small-group discussions (e.g., ask questions to clarify a point, comment on ideas of other group members);

- * prepare and give oral presentations on a topic under study;

- * create short media works (e.g., record an advertisement, tape a weather report), using appropriate technologies.

Application of Language Conventions

By the end of Grade 6, students will:

- * recognize and use appropriate language structures in oral communication activities;

- * observe the rules of pronunciation and intonation in their speech;

- * use a variety of sentence types (e.g. declarative, interrogative, exclamatory) in their speech;

- * correct errors in their spoken French (e.g., vocabulary, language and sentence structures, anglicisms), with prompting from the teacher.

Reading Comprehension and Response to Text

By the end of Grade 6, students will:

- * demonstrate comprehension of texts read independently (e.g., short novels, poems, short stories, electronic print) (e.g., by answering oral or written questions, restating content, dramatizing events, expressing opinions);

- * summarize and explain the main ideas in informational materials (e.g., articles, charts, instructional materials);

- * extract information from written texts to verify predictions and to support personal opinions and reactions;

- * identify and describe elements of a written text (e.g., main ideas, supporting details, a sequence of events, main participants);

- * make predictions and draw inferences while reading a story or novel, using various textual clues;

- * use research skills (e.g., formulate questions, locate information, compare information from various sources);

- * identify various forms of writing (e.g., narratives, poems, plays, articles, reports) and describe their characteristics.

Application of Language Conventions:

By the end of Grade 6, students will:

- * recognize and use appropriate language structures in their response to written texts;

- * use reading strategies (e.g., use context clues, reread, record key points) to facilitate comprehension of reading materials;

- * read aloud, with expression, observing the rules of pronunciation and intonation;

- * use and interpret various conventions of formal text (e.g., table of contents, headings, subheadings, charts, glossary, index) to find information and aid comprehension;

- * identify synonyms and antonyms;

- * use French-English dictionaries to determine the meaning of unfamiliar vocabulary.

Writing Communication of Information and Ideas

By the end of Grade 6, students will:

- * use appropriate vocabulary and sentence structure for specific forms of writing (e.g., posters, letters, narratives, reports);

- * write descriptive and narrative text in a variety of forms (e.g., compositions, reports, scripts, poems, journal entries, letters) to convey facts, personal opinions, and ideas;

- * organize information into paragraphs that focus on a main idea and give some relevant supporting details;

- * produce written text (e.g., captions, labels) to accompany visual information (e.g., computer graphics, charts, diagrams, illustrations);

- * write a report, following an outline, on a class research project.

Application of Language Conventions

By the end of Grade 6, students will:

- * use appropriate language structures in their writing;
- * use and spell correctly the vocabulary appropriate for this grade level;
- * use compound affirmative and negative sentences;
- * use a variety of sentence types (e.g., declarative, interrogative, exclamatory) of varying length;
- * extend their use of punctuation to include the following: use of comma for inversion within a sentence (e.g., *Cet après-midi, nous allons faire du ski.*); use of quotation marks to indicate dialogue;
- * use appropriate organizers (e.g., table of contents, headings, charts, captions) in their written work;
- * use a thesaurus to expand their vocabulary;
- * revise, edit, and proofread their writing in collaboration with others, focusing on grammar, spelling, punctuation, and conventions of style;
- * use French-English dictionaries to verify spelling and determine the meaning of unfamiliar vocabulary.

Language Structures

Students should recognize and use the following language structures in their communicative activities in all three strands. Nouns and Pronouns

- * irregular formation of the plural of nouns (e.g., *un animal/des animaux, un travail/des travaux*)
- * direct object pronouns *le, la, l', les*
- * relative pronouns *qui, que*
- * pronoun *on*

Verbs

- * présent of *-ir, -re* verbs and irregular verbs *venir, partir, sortir, voir, vouloir, devoir, savoir, prendre*
- * formation and use of the *impératif*

- * passé composé of -ir and -re verbs
- * imparfait of être, avoir, and regular -er verbs

Adjectives

- * superlative form of adjectives (le plus, le moins)

Adverbs

- * formation of regular adverbs (e.g., lent/lentement, rapide/rapidement, heureux/heureusement)
- * comparative and superlative of adverbs (plus, le plus, moins, le moins)

Prepositions and Conjunctions

- * use of voici, voilà

Interrogative Constructions

- * subject/verb inversion with avoir (e.g., As-tu faim? As-tu besoin de. . . ?)

Sentence Structure

- * compound sentences using connecting words (e.g., d'abord, et puis, ensuite)

French Immersion

Grades 1-8

In this section, which describes the FSL expectations in French Immersion for each grade, some repetition of expectations has been necessary to reflect the progressive nature of skills development. Expectations dealing with skills that continue to be of major importance as students progress from grade to grade are repeated for all relevant grades, and progression is indicated by means of increasingly complex examples of tasks. Some of the expectations for the higher grades combine skills that are introduced separately in the lower grades, thus creating skills and applications of increasing complexity. It should also be noted that all of the skills described in these expectations continue to be developed and refined as students move up through the grades, whether or not the expectations are repeated.

Grade 6: Oral Communication, Reading, and Writing

Overall Expectations

By the end of Grade 6, student will:

- * listen and respond to a variety of spoken texts and media works;

- * express ideas and opinions clearly on a range of topics, using correct pronunciation and appropriate intonation;

- * read a variety of texts and media works and demonstrate understanding through a range of oral and written responses;

- * produce clear written texts, using a variety of forms, for various purposes and in a range of contexts;

- * identify and use appropriate language conventions during oral communication activities, in their responses to reading materials, and in their written work.

Specific Expectations

Oral Communication Listening

By the end of Grade 6, students will:

- * demonstrate an understanding of a variety of spoken texts and media works (e.g., excerpts of recorded readings, radio and television commercials, radio broadcasts) (e.g., by asking questions, clarifying meaning, restating the main ideas, expressing a point of view);

- * listen and respond to the viewpoints of others in group discussions on a specific topic (e.g., by asking relevant questions, offering opinions and interpretations, summarizing views expressed);

- * demonstrate the ability to concentrate on the topic under discussion (e.g., by identifying details that support the main points, providing additional relevant information).

Speaking

By the end of Grade 6, students will:

- * organize their thoughts and information to convey a message clearly and appropriately;

- * use simple, compound, and some complex sentences to respond to ideas and to explain and support opinions;

- * use effective strategies in small-group discussions (e.g., invite other group members to contribute, ask questions to clarify a point, negotiate to find a basis for agreement);

- * prepare and give oral presentations (e.g., on a topic under study or of personal interest), incorporating varied vocabulary and a range of sentence structures;

- * create short media works (e.g., a radio broadcast, a performance on video), using appropriate technologies.

Application of Language Conventions

By the end of Grade 6, students will:

- * recognize and use appropriate language structures in oral communication activities;
- * use appropriate vocabulary and sentence structure and a variety of sentence types (e.g., declarative, interrogative, exclamatory) in their speech;
- * correct errors in their spoken French (e.g., vocabulary, language and sentence structures, anglicisms);
- * speak spontaneously, observing the rules of pronunciation and intonation and providing verbal and non-verbal cues (e.g., volume and tone of voice, facial expressions, gestures).

Reading Comprehension and Response to Text

By the end of Grade 6, students will:

- * summarize and explain the main ideas in informational materials and give supporting details;
- * make judgements and draw conclusions about ideas in written materials, using evidence from the materials;
- * identify the elements of a story and explain how they relate to one another (e.g., the ways in which character and plot are interrelated);
- * make predictions and draw inferences while reading, using various textual clues;
- * identify different forms of writing (e.g., mystery novels, biographies) and describe their characteristics.

Application of Language Conventions:

By the end of Grade 6, students will:

- * recognize and use appropriate language structures in their response to written texts;
- * use reading strategies (e.g., use context clues, reread, take notes) to facilitate comprehension of reading materials;
- * read aloud, with expression, observing the rules of pronunciation and intonation;
- * use and interpret various conventions of formal text (e.g., table of contents, headings, subheadings, charts, glossary, index) to find information and aid comprehension;

- * use their knowledge of the elements of grammar (e.g., subject/verb agreement) and the structure of words (e.g. root words, prefixes, suffixes) and sentences to understand what they read;

- * use French-English dictionaries to determine the meaning of unfamiliar vocabulary.

Writing Communication of Information and Ideas

By the end of Grade 6, students will:

- * communicate ideas, opinions, and facts for specific purposes (e.g., to provide information, explain a point of view);

- * write descriptive and narrative text in a variety of forms (e.g., compositions, reports, scripts, poems, journal entries, letters) to convey facts, personal opinions, and ideas;

- * organize information, using linked paragraphs that convey a central idea and provide supporting details;

- * plan and write a research report, using appropriate resources.

Application of Language Conventions

By the end of Grade 6, students will:

- * use appropriate language structures in their writing;

- * use and spell correctly the vocabulary appropriate for this grade level;

- * extend their use of punctuation to include use of quotation marks for dialogue and use of comma for inversion within a sentence (e.g., Ce soir, nous allons au restaurant.);

- * use compound and some complex sentences;

- * use a variety of sentence types (e.g., declarative, interrogative, exclamatory) of varying length;

- * use appropriate organizers (e.g., table of contents, headings, charts, index) in their written work;

- * use a thesaurus to expand their vocabulary;

- * revise, edit, and proofread their writing in collaboration with others, focusing on grammar, spelling, punctuation, and conventions of style;

- * use French-English dictionaries to verify spelling and determine the meaning of unfamiliar vocabulary.

Language Structures

Students should recognize and use the following language structures in their communicative activities in all three strands. Nouns and Pronouns

- * indirect object pronouns lui, leur
- * relative pronouns qui, que, dont, lequel
- * possessive pronouns (e.g., le mien, la tienne)

Verbs

- * imparfait of regular -ir, -re verbs and aller
- * présent of reflexive verbs related to daily routine (e.g., se lever, s'habiller)

Adjectives

- * indefinite adjective plusieurs
- * comparative and superlative forms of bon and mauvais

Adverbs

- * comparative and superlative forms of bien and mal

Sentence Structure

- * complex sentences using connecting words (e.g., parce que, car, donc, en effet, ainsi, de plus, ensuite, et puis)