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ABSTRACT

This booklet is intended to help parents and teachers of primary school children understand children's growth, development, and learning. The first section, following a general introduction, lists methods parents and teachers can use to share information about children, schools, and classrooms. The second section discusses the learning process, especially as it relates to children. The third section examines assessment and evaluation of students in primary school, and explains recent changes in methods of assessment, evaluation, and reporting. The fourth section describes methods teachers can use to collect information on children's progress. These methods include observing children, looking at children's work, and talking with and listening to children. The fifth section discusses parents' and teachers' expectations of children. These expectations are related to various age levels between birth and 13 years, and to the areas of artistic, emotional, intellectual, and physical development, and social responsibility. Suggestions for ways that parents can support children's learning in each of these areas are listed. The sixth section discusses reading development, including phonics; writing development, including spelling and grammar; and the development of mathematical ideas. A list of 79 references is provided. (BC)

Supporting Learning

Understanding and Assessing the Progress of Children in the Primary Program

A Resource for Parents and Teachers

1991

MINISTRY OF EDUCATION

Province of British Columbia

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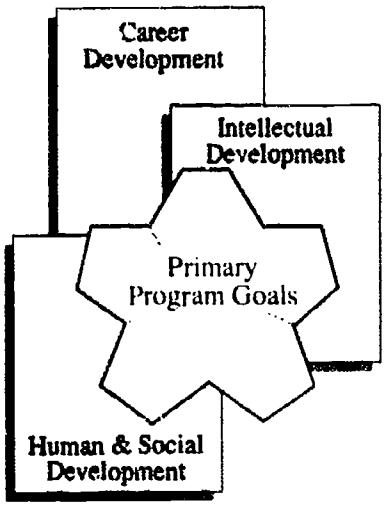
Introduction

Mission Statement

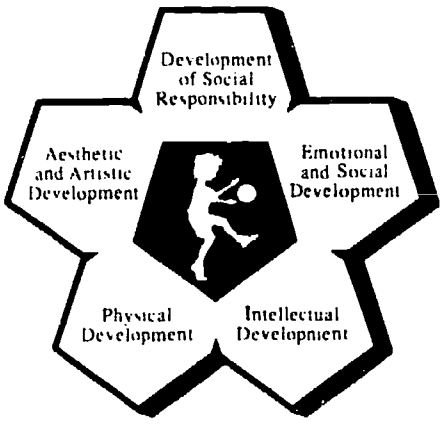
The purpose of the British Columbia school system is to enable learners to develop their individual potential and to acquire the knowledge, skills and attitudes needed to contribute to a healthy society and a prosperous and sustainable economy.



Why Are Schools Changing?

Our schools are changing because our society is changing and our understanding of how people learn is changing. As our knowledge base grows rapidly, technology allows us to process and have instant access to the resulting information. Our knowledge and understanding of how people learn is broadening daily. As a result, our school system is faced with the challenge of planning, providing and supporting the instructional opportunities necessary for developing learners to understand and face the challenges of a future that remains largely unknown.

In 1988, the Sullivan Royal Commission on Education called for a refocus on meeting the needs of all learners. As an important part of the Year 2000 vision, the *Primary Program: Foundation Document* (1990) provided purpose and direction for the education of primary children in British Columbia. The document formed a framework for the planning and development of learning experiences and of assessment, evaluation and reporting activities.



The prime goal of schools, supported by family and community, is intellectual development. In the Primary Program, children's learning is fostered in a climate where **all aspects** of the child's development are acknowledged. The Primary Program strives for such a balance by focusing on five goals:

- aesthetic and artistic development
- emotional and social development
- intellectual development
- physical development and well-being
- development of social responsibility

Why Was This Resource Created?

This booklet was developed in response to an expressed need by parents and educators to create a reference that would explain the changes in assessment and reporting practices in the primary years.

This resource is intended to assist parents and teachers with one part of their very complex job—the important role of understanding children's growth, development and learning. Using this package, parents and teachers can gain a mutual understanding of learner-focused assessment and evaluation.

The information in this resource provides:

- a context for assessment in the Primary Program.
- charts of widely-held expectations of child growth and development in the five goals of the Primary Program. (This information is derived from research of the literature on child development.)
- focused information on what we know about development in the areas of reading, writing and mathematics. (This section was developed as a specific response to requests from parents.)

Document Development

As with the writing of the Primary Program documents, this resource has been developed through the collaborative efforts of many people.

Primary Program Team:

- Lois Blackmore, School District #61 (Greater Victoria)
- Kathleen Dahlstrom, School District #75 (Mission)
- Marlene Dergousoff, School District #68 (Nanaimo)
- Colleen Politano, School District #62 (Sooke)
- Marion Rumble, Team Leader & Assistant Director
- Luanne Whiles, School District #39 (Vancouver)

Other Writers:

- Dr. Patricia Arlin, Head, Educational Psychology and Special Education, Faculty of Education, University of British Columbia
- Linda M. Beatty, Elementary Consultant, Courtenay
- Anne Boyd, Primary Consultant, Campbell River
- Robin Bright, Doctoral Student, University of Victoria
- Dr. Marilyn Chapman, Associate Professor, Faculty of Education, University of British Columbia
- Darlene Shandola, School District # 38 (Richmond)

Consultants:

- Dr. Patricia Arlin, Head, Educational Psychology and Special Education, Faculty of Education, University of British Columbia
- Dr. Sylvia Chard, Associate Professor, Department of Elementary Education, University of Alberta
- Dr. Lilian Katz, Professor, Early Childhood Education, University of Illinois

Those involved with the review of this resource include:

- an Editorial Board of practicing teachers; principals; Ministry of Education, business, university, and community personnel; and members of the Primary Steering Committee.
- representatives from various branches of the Ministry of Education.
- teachers attending summer school at the University of British Columbia, the University of Victoria and Simon Fraser University.
- professors, assistant professors and sessional instructors at the University of British Columbia, the University of Victoria and Simon Fraser University.

Primary Program Steering Committee:

- Shawn Cardinall, School District #46 (Sunshine Coast), B.C.S.T.A.
- Ross Dickson, School District #24 (Kamloops), B.C.S.S.A.
- Heather Hannaford, School District #60 (Peace River North), B.C.S.T.A.
- Dale Hoadley, School District #42 (Maple Ridge), B.C.P.V.P.A.
- Mary Lyons, School District #40 (New Westminster), B.C.S.S.A.
- Sheila Tripp, School District #39 (Vancouver), B.C.P.V.P.A.
- Andy Stuart-Hill, School District #86 (Creston-Kaslo), B.C.S.T.D.A., Chairperson

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- Betty Tate, Victoria, Association of Family Serving Agencies Coordinator
- Chris Zimich, Assistant Director, Ministry of Education

Parents' Advisory Committee:

- Barb Banford, Queen Charlotte City
- Dianna Decker, Kelowna
- Heather MacLennan, Clearwater
- Nancy Milesway, Kelowna
- Janet Philip, Nanoose Bay
- Diane Samis, Kelowna

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Assessment, Exams & Reporting	Communications
Curriculum Development	Distance Learning & Continuing Education
Educational Innovation	Graduation Program Team
Information Management	Intermediate Program Team
Languages & Multicultural Programs	Learning Resources
Management Services	Native Education
Program Support	Special Education

Clerical Support:

- Wendy Ackinclose
- Mary Kayll
- Lynn Ostle
- Anita Stewart
- Pauline Greene
- Gail Klava-Talks
- Yvonne a. Quincey

Editor:

- Janet Sands, Esteman & Associates Educational Consulting Ltd.

Layout and Page Design:

- Maurice Verkaar

Graphic Design and Illustration:

- Margaret Kernaghan

Facilities and Technical Support:

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Proofreader:

- Nancy Wilson

Contract Manager:

- Jill Hart

Partnerships in Learning

An important link in a child's education is the relationship established between home and school. Parents are a child's first and most important teachers. Educators direct the more formal aspects of a child's learning at school.

Communication between home and school is of utmost importance. Schools welcome parents' desire to find out about their child's progress. Both parents and teachers need to talk with each other, to share information and common concerns, and to collaborate in ways that further the child's development and learning.

Communication needs to be an ongoing process. While parents are the child's best advocates, together, parents and teachers continue to work toward a common goal—the healthy and constructive growth of each child.

From Home to School—Building the Bridge

Much of the focus for research in the past few decades has included observing children in their family environments, and the kinds of things that parents do to facilitate their children's development.

One of the benefits from the research has been the development of improved strategies that build on the kinds of things parents do. The following chart suggests some of the ways schools are building these strategies into the classroom environment.

Spanning the Bridge

Parents	Teachers
• model the language and behaviours children learn at home.	• model the language and behaviours children learn in school.
• model reading as an activity that is pleasurable and informs.	• model and provide reading experiences that are pleasurable and inform.
• value children's first attempts to speak by: - trying to understand what they are saying; - encouraging their efforts; and, - modeling correct speech.	• value children's first attempts at writing language by: - striving to understand the message they are trying to write; - encouraging their efforts; and, - modeling the standard of correctness in spelling and grammar.
• enlist older siblings to support the younger one's development by sharing experiences (reading, playing, building, drawing, explaining, minding, dressing, teaching simple skills like tying shoelaces).	• use a "buddy" system where they pair a child with classmates or with older students, providing opportunities for children to both learn from and teach each other.
• enlist support from relatives and friends to spend time with a child to provide that special "one-on-one" attention from a caring adult.	• establish community buddies—enlist the support of parents, grandparents and community resource people to provide individual attention and enrich learning experiences.

Home and School— Sharing Information

There are many ways in which parents and teachers share information about children. These range from informal chats to planned conferences. In addition, parents have many opportunities not only to gain information about the school but also to become actively involved in school-based decisions. The following lists describe methods of information sharing that both parents and teachers can use and expand upon.

Sharing Information About the Child

Informal Conversations

Conversations parents, teachers and children have on an informal basis are among the most natural and successful ways of sharing information. These provide opportunities to:

- share current information about the child;
- share personal anecdotes and insights;
- give reassurance about the child's efforts and development.

Informal Notes and Messages

Written informal communications can include:

- personal notes;
- home/school communication books ("back and forth book");
- classroom news bulletins.

Telephone Calls

Parents and teachers may call one another to:

- keep in touch;
- share news of importance about the child;
- plan how to support some aspect of the child's learning;
- establish a partnership role.

Individual Conferences

Conferences are an opportunity for:

- parents to share information and insights about their child's development at home;
- teachers to share information and insights about the child's development at school;
- setting goals for the child's learning;
- making plans to support the child's learning.

Some teachers encourage children to take part in conferences as a way of helping them to understand their learning and to become more responsible for their own progress.

Each school and teacher sets the schedule for individual conferences but parents can request a meeting at any time.

Collections of Work

Establishing collection systems to store information about what a child can do provides a basis for ongoing assessment and evaluation. These can include:

- dated samples of drawing and writing;
- copies of reports and projects;
- photographs;
- audio and video tapes;
- computer discs;
- student self-assessments.

Anecdotal Reports

The anecdotal progress report describes the child's development in relation to the goals of the Primary Program. It is intended to provide information about the child's individual progress. It may precede or follow a parent/teacher conference. Reports give information about:

- accomplishments (what a child can do);
- attitudes and interests;
- learning needs;
- future learning goals and plans for support.

Sharing Information About the School and Classroom

Newsletters

Newsletters are one way many schools establish ongoing communication. These provide information about:

- school or classroom activities;
- upcoming events and activities at school and in the community;
- student success stories;
- samples of student work;
- safety procedures;
- health concerns.

Many newsletters now contain space for parent reaction and input.

Parent Evenings and Open Houses

Parent evenings are a time to get a sense of the atmosphere of the school and classroom. This can also be a time to:

- learn about the goals the school has for all children;
- find out what children are learning as well as how they represent their learning;
- look at the work of your own child.

Informal Visits

Although the school is the usual place for parents and teachers to exchange information, some teachers like to plan informal get-togethers in other settings, such as:

- classroom outings (picnics, walks);
- homes;
- community facilities.

Term Outlines

Many teachers provide parents with information about what will be and has been the focus of classroom learning experiences. These packages provide information about:

- themes to be explored;
- classroom projects;
- special activities;
- curriculum plans;
- field trips.

Classroom Visits

Classroom visits can be arranged through the teacher to provide:

- children with a chance to see their parents and teachers cooperating;
- opportunities for dialogue;
- parents with a first-hand opportunity to observe what their child can do in the school setting.

Parent Advisory Council

The *School Act* provides for the establishment of a Parent Advisory Council. These groups:

- take an active role in supporting the school;
- give input into school-based decisions;
- participate in joint goal setting;
- increase access to the school.

Assumptions about learning begin with the word "children," as though generalizations about children apply equally to all. No discussion, however brief, of human development and learning is complete without attention to the principle of human variation.

National Association for the Education of Young Children (N. A. E. Y. C.)

What We Know About Human Development and Learning

As parents and teachers looking at children in the Primary Program, we need to always remind ourselves that:

- a wide range of individual variation is to be expected;
- each human being has an individual rate and style of learning;
- each human being has an individual pattern and timing of development and learning;
- family experiences and cultural backgrounds vary; and
- individual variation is natural and valuable; decisions about curriculum and assessment must be responsive to individual needs and interests.

Learning and the Learner

1. Learning requires the active participation of the learner.

   - Learning is natural and enjoyable, but it requires effort.
   - Examining one's beliefs and knowledge is essential for successful learning.
   - Feedback to children about the learning that they demonstrate is very important.

2. People learn in a variety of ways and at different rates.

   - As children grow learning shifts from a focus on self, and from reasoning based mainly on objects and personal experiences, to more abstract ways of thinking.
   - Each child's approach to learning is to some degree unique, reflecting personal interests, abilities and experience. The pace of learning also varies.

3. Learning is both an individual and a social process.

   - Learning involves the construction of knowledge and meaning by individuals.
   - Social interaction provides opportunities to examine one's knowledge and beliefs, and contributes to the motivation to learn.

Year 2000: A Framework for Learning

What We Know About Children as Learners

Many people have done research on the ways that people learn. The development of learning processes are the same whether we are looking at children or adults. The following are examples of the conclusions that researchers in education have come to about children as developing learners. These examples reflect a view of children as learners who are actively involved in building up a personal knowledge of the world around them through action, experience and reflection. Children "make meaning" of their experiences through interactions with parents, with teachers and with other children.

- Children need positive, realistic self-esteem in order to develop their individual potential. The way they feel about themselves is related to their ability to learn. (Bruner, 1960) The classroom climate and nature of school work contributes directly to the way children feel about themselves.
- Children strive to make sense of their world based on what they have already learned, experienced and constructed. (Donaldson, 1978; Piaget, 1977; Wells, 1986)
- The prime need of all learners is to make meaning of their experiences. (Caine and Caine, 1991)
- Educators have now moved beyond thinking that learning is rote memorization. (Cambourne, 1988)
- Children learn through the process of play. It is a natural universal learning activity of children and adults. It plays a significant role in a child's development and learning and must be incorporated on a daily basis in the primary years . . . alongside project work and systematic instruction. (Katz and Chard, 1991)
- Children are naturally curious. From the time they are born, children want to know and to act or interact. (Clay, 1991)
- Children learn through collaboration with others. Social, emotional and intellectual development is fostered through interaction with others. All significant development and learning occurs in the context of social interaction. (Vygotsky, 1978; Wells, 1986)
- Children develop many ways of understanding the world. We now recognize that they are using many different kinds of intelligences as they describe what and how they think, know, feel or do. As we come to understand more about human potential we realize the need to provide a variety of opportunities for people to represent what they "know" in order to gain a richer view of learning. (Gardner, 1985)
- Children acquire, develop and express their understandings through the use of language—written and oral language develop concurrently. (Bissex, 1980; Lemke, 1989)
- Children learn best in an environment that encourages risk-taking and from their mistakes. (Goodman, 1986; Smith, 1974)
- Children gain knowledge by creating relationships. Children pursue learning in a holistic way without restrictions imposed by subject area boundaries. (Caine and Caine, 1991)

What About Assessment and Evaluation in the Primary Program?

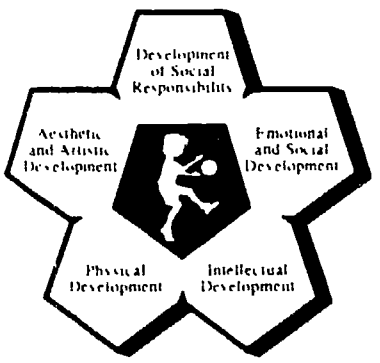
As parents and teachers, we know that the way children feel about themselves as learners is related to their ability to learn. We want all children to feel confident about themselves as learners. We strive to find out where each child is and to provide the support and encouragement that will ensure a good start toward lifelong learning.

In the past, the use of commercially developed programs often determined what teachers taught, as well as how and what they tested. The children who did well on the tests were considered successful; those who did poorly were considered failures. This created in our schools a system of winners and losers—those who thought they could learn and those who thought they could not. Current assessment and evaluation practices give a more realistic and complete view of each child's progress because they are based on the five goals of the Primary Program, which address all aspects of a child's development. They are no longer based on a single measure, such as year-end tests. Teachers use the goals of the Primary Program to plan instruction and ensure that learning experiences and assessment and evaluation strategies address the needs of the whole child.

The intent of the Primary Program is for all children to feel that they can and will learn. An important indicator of the appropriateness of school experiences is the child's willingness to attend school—a few reluctant days are to be expected, but, on most days, a child will be eager to come to school.

In the Primary Program, the parent(s), the teacher and the child himself or herself contribute to the process of finding out what the child can do. These assessments contribute to an overall snapshot of the child's growth and development. Based on the assessments, the teacher evaluates the child's progress in order to make informed instructional decisions and to provide reports to the child, the parent(s) and to school personnel.

*Assessment and evaluation are based on what and how the child **thinks**, **knows**, **feels**, and **can do** in relation to the five goals of the Primary Program.*



Because teachers are looking at all aspects of a child's growth and development, they are more prepared to meet the learning needs of individual children. In addition, schools are more accountable for each child's progress through the school system.

Parents and teachers can help children feel competent and successful by involving them in all aspects of their learning—identifying what they can do and what they will be doing next. In this ongoing process, children have opportunities to clarify ideas, address concerns before they cause major problems and develop a shared sense of ownership and responsibility for their learning

Reporting Practices

Reporting on children's progress has become a more active process. The *School Act* of 1989 requires that three anecdotal reports be issued to parents each school year. Anecdotal reports are written descriptions of what the child can do, and the child's interests, attitudes and learning needs. These written records provide an opportunity for communication between the parent(s), the teacher and the child for the purpose of recognizing and supporting the child's progress as a developing learner. Through anecdotal reports and discussions with the parent(s) and the child, the teacher may offer and invite suggestions about plans to support the child's learning.

Teachers and parents can never know all that a child knows. A report card is merely a snapshot, a tiny slice of a child's learning over a given period of time. It is through talking with the child, looking at what the child creates, and watching the child in action that we gain a clearer, more comprehensive understanding of a child's progress.

As well as written reports, teachers must initiate two informal contacts with the parent(s) regarding the child's progress. Communication through telephone calls, notes, and comments on the child's collections of work encourage discussions to support each child's efforts. Including children in the reporting process is becoming an accepted practice. This encourages children to develop responsibility for their learning.

For many people today, report cards are different from those they may have been used to receiving. These changes reflect what we know about children's development as learners. Ongoing assessment and evaluation by teachers and children enables the school to provide the parent(s) with more comprehensive information. These anecdotal reports are designed to reflect children's learning by identifying what they can do, what they think, feel and know, their individual learning needs, and ongoing plans for support. Teachers will continue to indicate to parents where there is a concern about a child's progress.

By focusing on what the child can do, we avoid the consequences of a negative approach and help to build self-esteem. A positive focus encourages each child to appreciate and build on individual strengths and to attempt tasks which require more perseverance.

The chart on the following page provides an overview of some of the changes in assessment, evaluation and reporting.

Assessment/Evaluation/ Reporting

In the Primary Program

We used to . . .	*but . . .*	*So now . . .*	*because . . .*
place more emphasis on what children could not or should not do	we learned that this focus undermined the confidence of many children and that we could be more supportive of their accomplishments.	we begin with what children can do, then consider their learning needs	this helps them to develop confidence and gives a foundation for building and further refining skills and knowledge.
fail children who did not meet pre-set expectations for behaviour or ability to do tasks	we found that some children doubted their ability to learn and this increased the probability of their dropping out of school.	teachers give children the support needed to allow them to make continuous progress	this maintains their self-esteem and confidence, thus prompting further learning by strengthening the disposition to learn.
use pencil/paper tasks as the main way of assessing and evaluating children	we now know that this gave a limited view of what children could do.	we encourage children to represent their learning in a variety of ways (show what they know)	this provides opportunities for more children to demonstrate their intelligence and to be successful learners.
compare learners to each other	this made comparisons more important than the actual learning.	each learner is evaluated on what he or she can do in relation to the widely-held expectations and skills are continually refined and applied purposefully	this helps each child feel valued as a learner and builds on **individual** strengths, which encourages a good start toward lifelong learning.
use checklists for children's report cards	they gave limited information about what children could do.	we use information from observations, conferences and collections of children's work to develop anecdotal reports	they give more comprehensive information about what children can do.
use letter grades for reporting children's progress (A, B, C) (G, S, NI)	letter grades were dependent on teacher and parent interpretation and often focused on surface knowledge rather than understanding.	we use anecdotal reports to describe children's learning	they give a more detailed picture of what children can do and identify future learning goals.
exclude children from the assessment and evaluation process	this did not encourage the development of self-evaluation skills.	children are encouraged to take a more active role in assessing and evaluating their own progress and, with the help of the teacher, set future learning goals	as children construct meaning of the world around them, this process encourages self-evaluation, independent learning and a commitment to further learning.
plan conferences for parents and teachers to exchange information	this often overlooked the people with the most relevant information—the children as developing learners.	teachers are beginning to plan ways to include children in the conference with parents	together, they can develop a shared understanding of children's abilities, interests and learning needs, resulting in the setting of realistic learning goals.

Before parents and teachers can find out what and how children think, know, feel, or can do, children must demonstrate their learning in some way that is observable. Through observation, we know what the child can do independently, and learn about that child's needs in order to plan for further learning.

For example, at home a baby may say "Da da - car car." The goal is for the child to eventually say, "Daddy's in the car." We might say to the baby, "Yes, Daddy is in the car," not correcting the child's speech, but modeling the standard form of language.

Similarly, in school, a child may demonstrate his or her understanding of addition by creating an equation using blocks. The goal is to have the child eventually understand the relationships between the numbers and complete the addition unassisted—doing the equation "in his or her head." The child is starting to move toward this goal by manipulating the blocks and using real objects to make the correspondence.

Through observation and interaction with the child, the parent(s) and teacher gain an understanding of the child's **potential** and what he or she can do **with help**. Further experiences are planned, knowing that the child is not yet able to do them independently. Through working with others (peers, buddies, brothers, sisters, mothers, fathers, teachers) and making sense of the world around them, children strive towards independence.

Preparing for a Home/School Conference

Each communication opportunity is only a snapshot of your child's development. Through ongoing communication the snapshots accumulate into an album of your child's progress.

Of the many ways that communication takes place between the home and school, the conference creates the best opportunity for sharing information, ideas and concerns. Unfortunately conferences are often by necessity kept short because of the numbers that are held. Of course, further meetings can be arranged. Parents and teachers can make the most of these opportunities by spending some time thinking about what they want to gain from the meeting.

As a parent, you can . . .

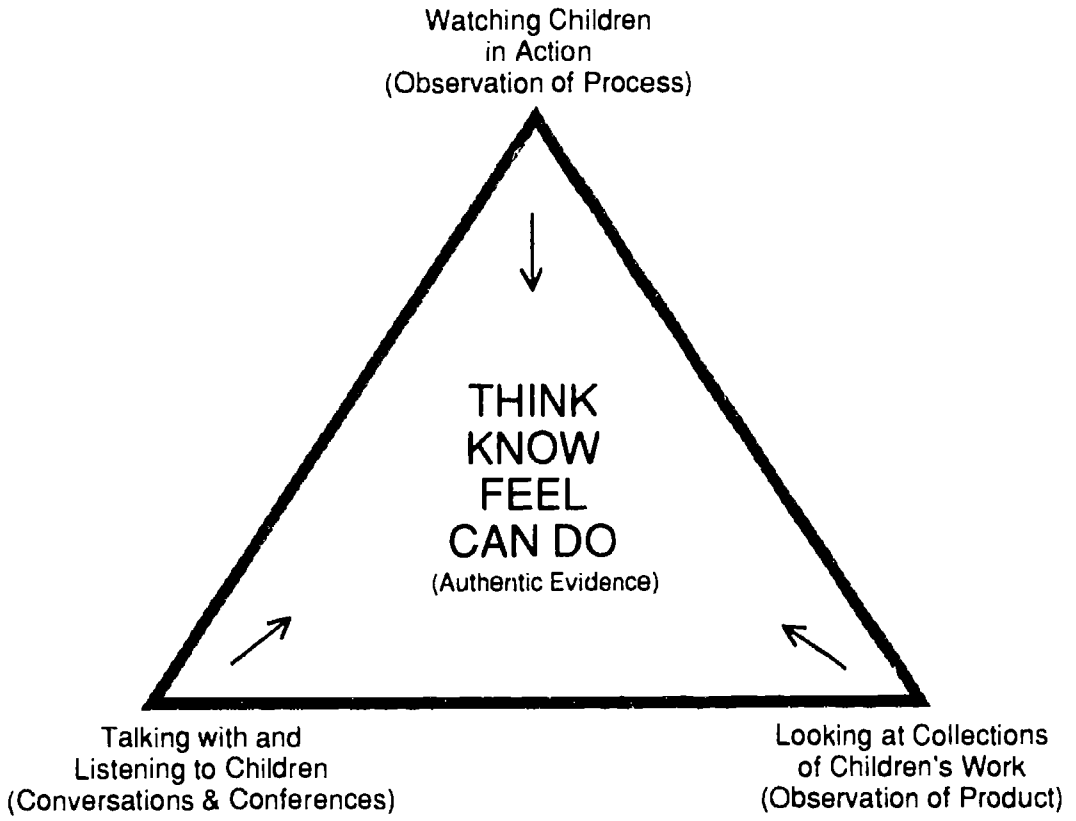
- organize your thoughts by listing observations of your child's activities, ideas and feelings that you think are pertinent so you can share them at the conference.
- talk to your child about his or her thoughts and feelings about school. (Is your child attending the conference with you?)
- write down any questions you have about your child's development in any of the goal areas.
- listen to the teacher's observations and comments about your child's strengths and development in the goal areas.
- share your views. The teacher appreciates your insights and may have questions about your child.
- be willing to share your thoughts about the future learning goals appropriate for your child by discussing these with the teacher and your child.
- ask how you might support and extend your child's learning.

As a teacher, you can . . .

- coordinate materials relevant to the conference—collections of information, the child's work, notes of any additional thoughts or observations on the child's strengths and development.
- invite the child to participate in planning for the conference.
- write down any questions you have about the child's development.
- listen to the parent's comments and questions (and the child's if you are including the child in your conference).
- ask for guidance and input for the questions that you may have.
- invite the parent (and the child) to participate in considering future learning goals.
- offer specific suggestions on how the parent might support the child's school learning in the home.

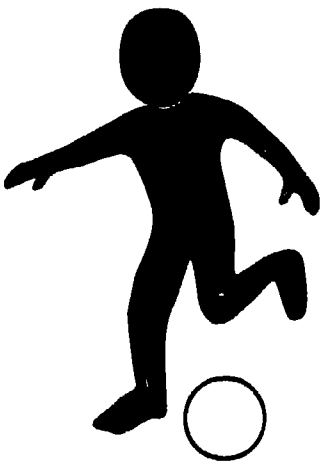
How We Find Out What a Child Can Do

Teachers collect information about a child's progress in the same way that parents collect information about their child's growth and learning. They watch children in action, look at collections of children's work and talk with children. In the Primary Program this is called "collecting authentic evidence."



By collecting and recording this information over time, teachers begin to get a picture of what each child can do and make decisions that help the child further his or her learning. In order to make these decisions, teachers use criteria developed from research about child development and learning as well as the collective wisdom and the common sense of parents and teachers. In the Primary Program these criteria are called "widely-held expectations."

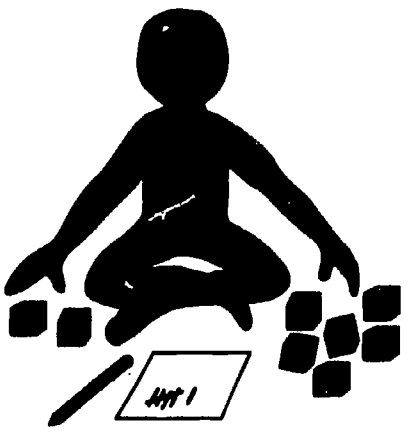
However, for some children, even after extensive classroom assessment and evaluation, there may still be unanswered questions. When questions about a child cannot be answered using the strategies and techniques already in place, individual diagnostic assessment may prove useful. This type of assessment is required for only a few children.



Watching Children in Action

One of the ways of finding out what children can do and their learning needs is to watch them in action. Teachers watch children throughout the school year. They learn how children make connections between old and new ideas. This helps them to recognize the kind of direction that children need as part of their daily routine to further their learning. Teachers record observations of children in action and review them on a regular basis to discover patterns, assess progress and make plans to help children continue their learning. They also structure specific tasks to develop a base of information about each child and use this to chart progress over time. They watch children:

- reading
- writing
- computing
- problem solving
- singing
- working
- graphing
- miming
- word processing
- constructing
- talking
- map making
- classifying
- listening
- sorting
- playing music
- signing
- dramatizing
- socializing
- dancing
- playing
- building
- drawing
- painting
- typing



Teachers try to watch children in a variety of settings:

- classrooms
- playground
- field trips
- hallways
- gym
- individually
- in groups (pairs, small groups, large groups)
- with younger children
- with older children
- with adults

When teachers watch children they learn about the child's:

- development in the five goal areas of the Primary Program
- learning styles
- learning needs, abilities and interests
- problem-solving strategies
- organizational skills
- level of understanding
- prior knowledge
- attitudes
- ability to work as an individual or in a group
- initiative
- desire to learn
- likes and dislikes
- needs for assistance

Looking at Collections of Children's Work

For years collections of children's work have been a way of showing what children can do. These collections have been kept in:

- file folders
- boxes
- scrapbooks
- photo albums
- exercise books
- portfolios
- three-ring binders
-

Recently, audio cassette tapes, video cassette tapes and computer discs have given teachers new ways to store information. In some schools, they are using Learner Profile systems, which are computerized software programs that assist in the storage and organization of information.

The collections show a wide range of things that children can do, such as:

- writing
- painting
- map making
- modeling
- calculating
-
- reading
- graphing
- building
- making computer printouts
-
- constructing
- drawing
- self-evaluating
-
-

When parents look at their child's collection, it is helpful to:

- appreciate what the child can do and is attempting to do;
- look for growth over time;
- talk to the child and the teacher about the collection;
- use the widely-held expectations to help understand the child's progress.

Besides looking at what children produce, teachers need to look at the process of how children do things. By watching children as they are playing and working, teachers learn about how they do things and what their learning needs are. This information is used to make plans to help children continue with their learning.

Some ways children show what they know are:

- classifying
- analyzing
- hypothesizing
- selecting
- predicting
- choosing
- experimenting
- questioning
- photography
- climbing
- sorting
- imagining
- writing
- graphing
- computing
- reading
- building
- talking
- mapping
- signing
- painting
- singing
- dancing
- sculpting
- miming
- dramatizing
- composing
- running
- walking
- hopping
- skipping
- throwing
- digging
- cooking
- dressing
- shopping
- sewing
- growing things

Talking with and Listening to Children

Talking means communication in the broadest sense. This may include signing, bliss symbols, body language, and other systems of communication.

Talking with and listening to children offers new insights into their learning. The best way to find out about a child's thinking and learning is to ask the child. This information, unique to each child, cannot be gathered in any other way. This talk is essential for parents and teachers as they plan for the individual needs of every child, at home and at school.

When talking with and listening to children in school, teachers use the information to:

- help clarify thinking;
- assist children to think about their own learning;
- help achieve new levels of understanding;
- facilitate self-evaluation;
- make them feel their ideas and opinions are valued;
- help children appreciate progress and set future goals;
- respond to their comments;
- build positive teacher-child relationships;
- lead them to become self-directed learners.

How Talking with and Listening to Children Helps Learning

Conversations with children need to be a part of the everyday activities in the home and classroom. Conversations enhance learning in two ways. They let the listener in on someone else's thinking and provide the opportunity to compare and confirm perceptions. As well, they allow the person talking to refine and clarify thinking through putting thoughts into words. The social nature of

learning is supported as teachers talk with children and plan strategies and activities where children talk with each other. Talking about what they have done and are attempting to do is necessary if children are to learn the skills of self-evaluation. The teacher's job is to respond and help others learn to respond constructively so that ideas and projects can be shared with the goal of improving learning. It is through this process that children learn to value what they do and what they are trying to do. The affirmation gained through such interaction helps develop the confidence essential for setting personal goals.

What Are Widely-held Expectations?

When we teach skills to children too early, too formally, and out of context, they will learn them without the desire to ever use them again.
L. G. Katz (1991)

Widely-held expectations are generalizations about children's development and learning over time. They are frames of reference that help parents and teachers focus on the development of the individual child. These are not expectations for all children but are general statements that show common patterns of development over time. They are based on expert knowledge, current research, observation of children, and the collective wisdom and common sense of parents and teachers.

Infants around the end of their first year are generally able to smile, sit up, eat solid foods, vocalize, understand and perhaps say a few words, and be on the way to taking that first step. Of course, these expectations are only generalizations—true for some infants, not for others.

Taken individually, none of these widely-held expectations is particularly significant. After all, some infants never crawl before they walk, others don't say a word until one day in their own time and in their own way, they launch their first speech in complete sentences.

Nevertheless, these widely-held expectations are useful generalizations, providing telling snapshots or graphic profiles. Taken together, they may say something important, show a pattern, raise a question.

The widely-held expectations in this document are divided between the five goals of the Primary Program and have been organized for clarity and easy reference according to a time frame of birth through 13 years. However, when using the widely-held expectations, the interest is learner-focused, so we begin where the child is developmentally, no matter what the age.

Widely-held expectations . . .

- provide us with the big picture of children's growth and development over time;
- form the basis of the concept of continuous learning;

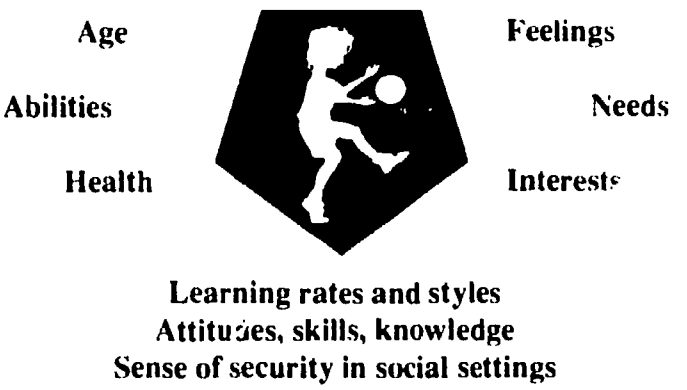
- help parents and teachers focus on the development of individual children;
- help teachers assess individual learners and plan appropriate learning experiences that ensure continuous progress;
- can be used as a reference by parents for reassurance about their child's ongoing development;
- can be used for reference by parents in providing developmentally appropriate toys, reading materials and other opportunities to their children.

As parents and teachers use the widely-held expectations, they will begin to develop a picture of a child's progress in relation to the general development of other children of a similar age. When looking at the charts on the following pages, you might want to:

- look at all goal areas to gain a balanced view;
- look at the age ranges on either side of the child's age to appreciate growth over time;
- remember each child is an individual and will shine more brightly in some areas;
- use this resource as a starting point and one way of viewing development over time;
- consider the experiences the home and school have provided;
- be patient—learning is a lifelong process.

Regardless of whether teachers are thinking in terms of program, learning goals, planned activities, or curriculum areas (subjects), the child must always be the first consideration.

When considering the developing learner, teachers take into account the child's:



It is important to remember that people have preferences and a person's response to a task can be dependent on previous experiences, health and well-being, abilities, environment, expectations, and circumstances.

In planning experiences in the Primary Program, the teacher thinks about:

- how children learn;
- what learning is appropriate;
- when it is best learned.

The Primary Program is organized around the five goals so that teachers can plan experiences that meet the needs of the whole child.

In school, when curriculum, assessment and evaluation take these factors into consideration, the program is developmentally appropriate.

For the widely-held expectations described on the following pages in each of the goal areas, the statements and examples of children's development provide only a sample of generally observable behaviours. Parents and teachers will likely think of many other similar examples.

Given that a child has had both home and school opportunities to develop in each goal area, the following widely-held expectations may apply to the child's development.

Widely-held Expectations in Aesthetic and Artistic Development

Children . . .

Birth – 3 years	3 – 5 years	
• may try to grasp writing tools with whole hand.	• may learn to hold writing tools between fingers and thumb.	• continue to develop the ability to hold and use large-size writing and drawing tools.
• may draw randomly and look away while drawing or making marks on a paper or a board. • may begin to make scribbles for pleasure of seeing the results of their actions. • use scribbles, lines and circles for expression.	• may make marks, draw, paint, and build spontaneously to express self. • may begin to name a person, place, thing, or an action in a drawing. • gradually try making lines and circles repeatedly and with more control.	• may show first attempts at drawing, painting and building "things." • continue to name what has been drawn, painted or constructed. • may strive for more detail and realism in artwork. • gradually include more detail and will add more body parts when drawing people.
• may begin to express pleasure or displeasure (laughing, anxiety) when listening to sounds, voices and music.	• may respond to music, art, nature through body movement that is rhythmic, such as rocking, clapping, jumping, or shaking.	• continue to expand and refine responses to a variety of sounds, voices and music.
• may begin to move body to sounds and music. • may make sounds to music without using words ("la, la," "ba, ba") and may enjoy hearing own sounds.	• use movements that are generally spontaneous, unrehearsed and inventive. • may be relatively uninhibited about singing and playing musical instruments. • may use both a speaking voice and a singing voice when singing alone, with a tape or with others, and may or may not be able to sing a melody in tune.	• may show imaginative and creative ways of moving and dancing. • are increasingly able to initiate and repeat movement patterns (walk like a lion, slither like a snake). • may engage in "acting out" stories spontaneously. • often continue to be relatively uninhibited about singing and playing musical instruments. • are developing a singing voice but the range will differ; may or may not be able to sing a melody in tune.
• may enjoy pretend games. • may look at, talk to (babble), grasp, bang, or drop toys.	• often engage in pretend play easily and naturally. • may talk to and play with pretend friends, television characters, stuffed and other toys.	• often continue to show lots of imagination and interest in make-believe. • continue to talk to imaginary friends and may greet an imaginary friend or call someone with a striking sense of reality.

Widely-held Expectations in Aesthetic and Artistic Development

7 – 9 years	9 – 11 years	11 – 13 years
Children . . .		
• may continue to develop and refine their ability to use a variety of writing and drawing tools.	• may begin to show an interest in developing a skill and may want to know "how" to use a tool to create a special effect.	• continue to explore and refine use of various tools to create special effects in artwork.
• may begin to show interest in making their artwork realistic. • increasingly develop forms, such as a human form, and repeat it over and over.	• may want and need to see the object or scene as they are drawing and want to make artwork an exact copy of reality. • may become very self-critical of own work (may want hair to "look like" hair).	• may begin to show an interest in perspective or drawing according to scale or to create similar effects. • may focus on the whole effect of a picture or on detail work. • may appear to have little confidence and become self-critical of own artwork.
• expand and refine responses to and express personal preferences for a variety of sounds, voice and music.	• continue to expand and refine responses to sounds, voice and music and are becoming aware of cultural characteristics and of personal preferences of friends.	• may begin to develop particular choices in sounds, voice and music.
• generally like to express ideas and feelings through music and movement. • may begin to show more refined movements as coordination develops. • continue to be able to initiate and repeat movement patterns and may like to move or dance in front of a mirror. • may begin to sing in tune and generally like to contribute to musical activities. • may become better at interpreting musical sounds as being low, high or related to certain instruments.	• may become somewhat inhibited in music and movement; may show interest in own musical activities such as lip-synch, band and mime. • continue to develop their sense of coordination, may continue to increase ability to interpret, produce and reproduce musical sounds.	• are developing more control over singing voice and breathing and may show an interest in joining a group activity such as band, chorus or musical production—often with friends. • may seem self-conscious at efforts to move or dance and may appear somewhat awkward or uncoordinated because of rapid physical growth. • may continue to be able to interpret and produce musical sounds if encouraged and supported to do so.
• often continue to show their imagination through make-believe, either alone or with a variety of props. • may play the part of a parent or significant other (when playing house or school) and may show signs of cooperative play.	• continue to engage in make-believe and often have a vivid imagination. • may continue to show an interest in making up and performing their own stories, plays or dances based on reality. • generally like to play and perform, but may prefer playing in groups rather than alone.	• may want to play but at times feel this is no longer proper or "grown-up." • may continue to develop imagination and may be less willing to share ideas publicly.

Widely-held Expectations in Emotional and Social Development

Birth – 3 years | **3 – 5 years**

Children . . .

Birth – 3 years	3 – 5 years	
• may demonstrate visible expressions of emotion (temper tantrums).	• may display their emotions easily and appear very sensitive and impulsive (crying fits, "No!").	• may continue to show intense emotions (one moment will say "I love you" and the next "You are mean.").
• actively show affection for familiar people. • may show anxiety when separated from familiar people and places.	• begin to feel more comfortable when separated from familiar people, places and things (visiting a neighbour, nursery school, babysitters).	• may appear anxious once again when separated from familiar people and places (beginning school, sleepovers).
• are naturally very curious about other children and may watch and imitate others. • generally play alone, and may or may not attempt to interact with others.	• may play alone or beside others but are becoming more aware of the feelings of others. May be frustrated at attempts to socialize but hold no grudges.	• are learning to cooperate with others for longer periods of time, and friendships may change frequently.
• strive toward independence with support and affection (sitting up, crawling, walking, dressing, feeding, toileting).	• begin to assert independence by saying "No" or "I can do it myself!". May dump a cupful of water onto the floor while looking directly at you. • see selves as family members and as boy or girl in the family.	• continue to develop feelings of independence by becoming able to do certain things (making a simple breakfast or riding a bicycle). • may begin to talk about self and to define self in terms of what they have or own. • may feel they are being treated unfairly if others get something they do not.
• begin to see themselves as people and appear self-centred. • begin to see themselves as strong through directing others: "Sit down."	• see themselves as powerful and creative doers. If the child can't reach something, he or she will get a stool.	• begin to see themselves as bad, good, clever, and may seem very hard on themselves.
• may become possessive of belongings (special people, toys, special times).	• may continue to appear possessive. • may feel if something is shared for a brief period it is gone forever.	• begin to develop the ability to share possessions and take turns.

Widely-held Expectations in Emotional and Social Development

7 – 9 years	9 – 11 years	11 – 13 years
Children . . .		
• may continue to show bursts of emotion and impatience less frequently. • may show emotions that are both judgmental and critical of themselves and others.	• may appear relatively calm and at peace with themselves and occasionally become angry, sad or depressed, but these moments are usually short-lived.	• may begin to show intense emotions, bouts of anxiety, moodiness. Emotions may come close to the surface (cry and anger easily).
• continue to feel some anxiety within the larger community when separated from familiar people, places, things (going to camp, sleepovers, shopping malls).	• often hide feelings of anxiety when introduced to new experiences by appearing overconfident.	• continue to hide feelings of anxiety with friends and family, often appearing overconfident with a know-it-all attitude.
• are becoming more outgoing. • are developing closer friendships with others and may begin to play mainly with children of the same sex.	• continue to be very sociable and spend time with parents, friends of the same sex, and often have a "special" friend.	• generally get along well with their friends and continue to show an interest in having a "best" friend, but fights and arguments may occur from time to time. • start to question adult authority.
• show a generally increased sense of self-confidence. • will eagerly take on tasks and activities likely to be successful but usually will not take risks. • may define self as a particular name, age, size, hair colour or other characteristics ("I'm Elizabeth Anne and I'm seven years old!").	• are generally positive about themselves and begin to understand what they are good at doing; may comment easily, "I can do that" or "I can't do that." • often define self by physical characteristics and possessions as well as likes and dislikes. • often vary between the sexes in their view of what is important in dress and physical appearance.	• sometimes engage in self put-downs—in conversations with others may say, "I can't do anything right!" • may begin to define self in terms of opinions, beliefs, values and expand sense of self by attempting to copy the culture of current fads (clothes, music, sports).
• are sensitive to criticism and display feelings of success or failure depending on how adults respond to them.	• are sensitive to criticism and display feelings of success or failure depending on how adults and peers respond to them.	• gradually are gaining independence from parental influence. • are sensitive to criticism and display feelings of success or failure depending on reactions of others. • may become self-critical.
• continue to develop the ability to share possessions and to take turns if they understand something is not always "lost" by doing so.	• continue to develop the ability to work and play with others. • may not want to be disturbed when involved in an activity or a game.	• may appear to become possessive with own belongings, especially with younger brothers and sisters. • may view younger brothers and sisters as a bother or a nuisance when involved with peers and feel discriminated against in family situations.

Widely-held Expectations in Intellectual Development

Birth – 3 years	3 – 5 years
Children . . .	
• make direct contact with their environment to the best of their ability—doing, seeing, hearing, tasting, touching, and smelling (put objects in mouth).	• continue to explore the world around them by object manipulation and direct experience (playing). • begin to understand cause and effect ("I fall—I cried—I hurt.").
• are beginning to develop an understanding of language and how it works (imitating sounds, saying words, putting words together). • are learning to name objects and may use the same word for two or more objects (all vehicles called "cars").	• begin to use language to name objects and their own direct experiences of them ("stove—hot."). • name objects and may find that two objects are alike in some way (cats and dogs are animals).
• express themselves through scribbles, lines and circles. • "read" pictures for meaning; begin to recognize that writing has meaning (writing is intended for communication).	• are developing a sense of how writing and reading work. • combine drawing and "writing"—drawing conveys most of meaning. • play at reading—"read" pictures (telling story from pictures). • begin to read commercial and traffic signs (STOP). • continue to develop an understanding that writing conveys a message.
• are likely to think about time in the "here and now."	• may think of tomorrow as "after my sleep" and use words like "tomorrow" and "yesterday" though not always correctly.
• are increasingly able to identify familiar faces, actions, places, and activities. • are developing personal choice (a favorite blanket or toy).	• may learn nursery rhymes, songs and addresses, but without really trying to remember. • begin to assert personal choice in decision-making ("No broccoli!").
• may be interested in grouping objects (putting all the large animals to bed and leaving the small ones to play).	• are developing an interest in the number of things. • are increasingly interested in counting although the number may not match the number of objects.

3 – 5 years
• continue to learn from direct experience (playing). • expand and refine knowledge with increasing understanding of cause and effect ("I can go to my friend's house if I call home when I get there.").
• continue to expand their understanding and use of language to clarify thinking and learning.
• are continuing to develop a sense of how writing and reading work. • combine drawing and writing to convey ideas. • understand that print "tells" the story. • develop a basic vocabulary of personal words. • read slowly and deliberately. • will substitute words that make sense when reading.
• are developing an understanding of words like "tomorrow" or "yesterday," but may still be unsure about length of time ("Is it ready?" "Are we there yet?").
• may begin to organize information to remember it (own telephone number, sound-symbol relations). • continue to assert personal choice in decision-making (what to wear to school).
• begin to understand that the number of objects does not change when grouped in different ways. • are developing the ability to match counting 1, 2, 3 with the number of objects.

Widely-held Expectations in Intellectual Development

7 – 9 years	9 – 11 years	11 – 13 years
Children . . .		
• may begin to do multi-step problems using objects to manipulate and count (blocks, fingers, buttons). • continue to deepen understanding of cause and effect ("If I don't go right home after school my parents will worry.").	• continue to use direct experience, objects and visual aids to help understanding. • continue to expand and deepen understanding of cause and effect ("I can have a pet, if I take care of it.").	• begin to develop ability to "manipulate" thoughts and ideas but still need hands-on experiences. • do some abstract reasoning. • continue to refine understanding of cause and effect ("If I don't get my chores done I can't go out with my friends.").
• continue to expand their understanding and use of language to clarify thinking and learning. • may work with simple metaphors ("My horse runs like the wind.").	• continue to broaden understanding of language and its use to clarify thinking and learning. • may begin to use puns ("A cow is a lawn mooer.").	• continue to broaden knowledge, understanding and use of language to clarify thinking and learning. • often like jokes and words that have double meanings.
• begin to understand and use writing and reading for specific purposes. • may combine drawing and writing, but writing can stand alone to convey meaning. • develop a rapidly increasing vocabulary of sight words. • begin to self-correct errors. • develop the ability to read silently. • increase ability to read aloud fluently and with expression.	• can expand thinking more readily through writing and reading. • continue to increase reading vocabulary. • continue to self-correct errors. • read silently with increased speed and comprehension. (Silent reading speed greater than oral speed may result in oral reading difficulties.) • adjust reading rate to suit purpose (scanning). • expand reading skills to gather information from a variety of sources. • make personal choices in reading for pleasure.	• continue to expand thinking more readily through writing and reading. • continue to increase silent reading rate and time spent at reading. • continue to increase ability to adjust rate and reading to suit purpose (skim, scan, select, study). • continue to broaden their interests in a variety of fiction and n[illegible]-fiction. • begin to understand that people may interpret the same material in different ways.
• may be learning to tell time and becoming more adept at understanding the meaning of "before," "soon," "later."	• continue to develop understanding of time—year in terms of important events—but may forget dates and responsibilities.	• may be able to talk about recent events, plans for the future and career aspirations.
• are increasingly able to organize and rehearse information in order to remember, but may still forget. • continue to develop a need for increased ownership in decision-making (games, projects).	• continue to develop the ability to purposefully organize and remember information. • continue to need increased ownership in decision-making (clothing, friends, activities).	• may begin to develop more complex schemes to aid memory. • need ownership in decision-making with the continued guidance of responsible person.
• are developing ideas about lengths and quantities through experiences with blocks, building, drawing, and cooking. • may begin to compare all types of lengths and amounts.	• may use ideas of length to develop an understanding of area and its measurement through artwork, constructing, carpentry, and simple map-making.	• develop ideas about real objects and their properties—length, area, mass, capacity, and volume—through direct experiences and by thinking about those experiences.

Widely-held Expectations in Physical Development

Birth – 3 years	3 – 5 years	
Children . . .		
• may experience a period of extremely rapid growth. • develop the ability to move about and to manipulate objects to the best of their ability.	• are experiencing a period of rapid growth. • have a slower rate of small muscle development (hands) than growth and coordination of large muscles (legs).	• may or may not experience a slower rate of physical growth. Large muscles (legs and arms) may be more developed than small muscles (hands and feet). • may increase fine motor skills (handling writing tools, using scissors).
• begin to develop vision by following slowly moving objects with their eyes.	• are usually naturally far-sighted.	• usually continue to show far-sightedness.
• begin to develop hand-eye coordination—reaching, grasping objects, feeding, dressing.	• continue to develop hand-eye coordination and a preference for left- or right-handedness.	• continue to develop hand-eye coordination. A preference for left- or right-handedness may still be developing.
• begin to recognize concepts of place and direction—up, down, in.	• begin to understand and use concepts of place and direction—up, down, under, beside.	• continue to develop an understanding of direction and place although may confuse right and left, up and down when playing games.
• begin to move about—sit, stand, crawl, walk, climb stairs, walk backwards—to the best of their ability.	• are developing the ability to climb, balance, run, gallop, jump, push and pull, and take stairs one at a time.	• continue to develop climbing, balancing, running, galloping, and jumping abilities. May have trouble skipping.
• are beginning to identify their own body parts, often through nursery rhymes and games.	• are beginning to identify body parts and words used in movement—jump, wave, hop.	• are growing in their ability to know what and where their body parts are, and how they can be moved and coordinated.
• are unaware of physical strengths and limitations so may attempt activities that could be difficult or dangerous.	• seem unaware of their own physical strengths and limitations and may try potentially difficult or dangerous activities.	• continue vigorous activity, tiring easily, recovering quickly. • tire from sitting rather than running. • develop an awareness of safety with guidance.
• may often change activities. • will move about at own pace, always near a trusted adult.	• may change activities often, although sometimes concentrate on one thing for a long time if interested.	• usually show enthusiasm for most physical activities, and are sometimes called noisy or aggressive.
• are likely to play alone or beside another. • begin to play games like peek-a-boo and hide-and-seek.	• are beginning to take part in group situations, but still play side-by-side rather than "with" others. • may invent their own games and change the roles to suit needs.	• are developing the ability to take part in small group games, and usually begin to play in groups of children of same sex.

Widely-held Expectations in Physical Development

7 – 9 years	9 – 11 years	11 – 13 years
Children . . .		
• continue to refine fine motor development and may have slower rate of physical growth.	• may experience a spurt of growth before puberty.	• may experience rapid and uneven growth but this occurs at different rates for individual children. Arms and legs may grow rapidly.
• may experience some visual difficulties (eye testing and corrective lenses).	• may experience some visual difficulties (eye testing and corrective lenses).	• may continue to experience changes to eyesight.
• are continuing to develop hand-eye coordination, and may accomplish more complex tasks.	• are continuing to develop hand-eye coordination, and skill level for physical activities may depend on this increase in coordination.	• continue to develop and refine hand-eye skills and integrate them with whole body efforts in sports and games.
• are developing ability to coordinate left and right sides by showing a preference for batting, kicking or throwing with one side or the other.	• are continuing to develop ability to use either the right side or left side for batting, kicking or throwing.	• continue to refine left/right preference, and may show increasing strength with one hand/arm/foot.
• are gradually increasing in speed and accuracy during running, climbing, throwing, kicking, and catching activities.	• show increased coordination, but growth spurts may begin to interfere. • develop the ability to hit a ball (softball bat, tennis racquet, golf club).	• may show periods of relatively poor coordination and awkwardness. May show some poor posture because of rapid growth.
• are continuing to understand body parts and uses. • are beginning to understand basic ideas of nutrition.	• are developing a more sophisticated understanding of body parts and function as well as basic ideas of nutrition and growth.	• may continue to develop more sophisticated understanding of body parts and functions and begin to get the idea of a simple body system.
• may show more daring, exploring behaviour that could lead to accidents. • show times of high energy; become easily tired. • continue to develop awareness of safety with guidance.	• are beginning to develop the ability to pace themselves during high energy activities. • understand safety rules but sometimes take risks.	• continue to enjoy sports and group games. • learn more complex body movements. • continue to develop the ability to pace themselves during high energy activities. • understand safety rules but sometimes take risks.
• continue to show enthusiasm for most physical activities.	• may begin to show a preference for some physical activities over others.	• often vary between the sexes in their interest in physical activities.
• may be interested in playing in groups although the group and the activity probably change often.	• may appear to enjoy more complex group games and simple sports. • may show a strong sense of loyalty to a group or team.	• continue to play in same-sex groups, often engage in more formal team activities, and continue to show great loyalty to group or team.

Widely-held Expectations in Social Responsibility

Children . . .

Birth – 3 years	3 – 5 years	
• appear insensitive to the views of others, yet show interest in them.	• are becoming aware of others and beginning to take part in social play groups. • may play "beside" rather than "with" others.	• are developing the ability to take part in social play groups, and for longer periods of time, increasing awareness of others. • may prefer to play alone at times or with others.
• are generally self-centred in their views. • look at the world mostly from their own viewpoint (may think the sun sets because they go to bed).	• are beginning to see that their views differ from those of others but remain self-centred. • may show aggressive feelings towards others when something does not go their way.	• are developing the ability to see that others have feelings and different views than their own.
• may cry when they see or hear another child crying.	• are beginning to sense when another person is sad, angry, happy.	• may begin to respond to others in times of distress if they are supported and encouraged to do so.
• physically explore the environment to the best of their abilities using their senses (seeing, hearing, tasting, smelling, and feeling). • are natural explorers, eager for new experiences.	• become interested in exploring the environment outside the immediate home. May be interested in growing seeds, weather, seasons, the moon, and sun. • continue to eagerly explore the world around them.	• are developing an interest in the community and the world outside their own. • may begin to show an awareness of basic necessities (food, clothing, shelter). • are beginning to develop an interest in specific issues pertaining to their world (recycling).
• are beginning to distinguish between familiar and unfamiliar faces.	• are becoming more aware of family and social relationships.	• may begin to notice how people are similar and different from one another.
• are becoming aware of their own feelings and respond to others' expressions (become upset if caregiver is also upset).	• may sense another person's unhappiness (such as another child crying) and not know how to help.	• are developing the ability to respond sympathetically to others if they are hurt, upset or crying.
• begin to recognize consequences follow actions.	• become aware of consequences of own behavior.	• begin to understand consequences of own and others' behavior.

Widely-held Expectations in Social Responsibility

7 – 9 years	9 – 11 years	11 – 13 years
Children . . .		
• are learning to work in groups and are developing the ability to get along with others. • can lead sometimes, and can follow others.	• continue to learn to work in groups if this activity is supported. • may become upset or distressed if they have problems with friends. • begin to understand the idea of the differing contributions of group members to a common goal.	• may show that their relations with friends are increasingly important. • continue to develop the ability to work cooperatively and collaboratively with others.
• are developing the ability to see how others act and what they expect in certain situations. • may be developing close friendships that are helping them learn to understand how others think and feel.	• are developing the ability to take a third-person view, in which they see situations, themselves and others as if they were spectators, but still do not coordinate these views. • may be developing the ability to see others have different viewpoints but still do not coordinate these views with their own.	• are developing the ability to understand that there are several sides to an issue but are just beginning to show evidence of being able to take other views into account. Still consider own point of view the right one. • continue to develop the ability to see the worth of others' viewpoints if this is supported.
• continue to develop the ability to respond sympathetically to others if they are supported and encouraged to do so.	• continue to try to develop the ability to respond sympathetically to others but still have difficulty in taking any point of view but their own.	• continue to develop the ability to respond sympathetically to others and may begin to consider other points of view.
• continue to be curious about the world around them and may show interest in learning about other people (food, clothing, shelter). • are developing an interest in and enthusiasm for specific issues pertaining to their world and can define simple actions to help (returning aluminum cans for recycling).	• continue to develop an awareness of how own family meets basic needs. • are developing personal views of important issues and values pertaining to their world and act upon their beliefs (making posters).	• continue to develop an awareness of how family needs affect others. • are becoming more committed to their beliefs and personal views of the world around them (writing letters to newspapers).
• are developing an appreciation of their own and other cultural heritages through special events, festivals, foods, folk songs, and other concrete experiences.	• are continuing to develop an appreciation of their own and other cultural heritages. Can talk about similarities and differences.	• may begin to appreciate the rich multicultural heritage of their own country while cherishing family culture in relation to the whole.
• continue to develop the ability to respond sympathetically to others if this is supported.	• continue to develop the ability to respond sympathetically to others and may try to help them.	• may begin developing the ability to empathize with another's feelings in understandable situations.
• continue to understand consequences of own and others' behaviour.	• begin to "weigh" consequences of own actions.	• begin to "test" consequences of own and others' actions.

What Parents Might Do to Support Learning

The charts of widely-held expectations give a general glimpse of children's development over time in the five goal areas. In schools, teachers use these widely-held expectations to assess children's development and plan instruction. At home, there are many things that parents and others can do to support and encourage the child as a developing learner. On the following pages, there is a selection of activities that may provide some assistance. There will no doubt be other ideas that parents will want to add to these lists.

Teachers will be glad to provide explanations or expanded ideas for the sampling provided here.

Aesthetic and Artistic Development

- Keep a variety of art, modeling and craft materials on hand. Provide your child with paper of different sizes and colours. These might include construction paper, newsprint, gummed paper, wrapping paper, aluminum foil, and other recycled materials. You might want to start a collection of pencils, crayons, felt markers, paints, chalk, modeling clay, scissors, glue, transparent tape, used wrapping paper, the pictures from old greeting cards, sticks from ice cream treats, bits of cloth, yarn and ribbon, egg cartons, buttons, twist ties, pipe cleaners, and other materials that you can find. Make sure you encourage your child to spend time exploring their use! Ask your child what he or she enjoyed most and what he or she discovered.

- Encourage your child to accompany music selections with homemade instruments. If possible, show your child how to use an audio cassette recorder so that music can be listened to and recorded. Don't expect your child's music making to sound pretty or conform to standards! Encourage your child to explore sounds and rhythms and to tell you what he or she has found out about sounds and their production.

- Attend musical performances, concerts and recitals. Sing and play some of the selections to be performed beforehand. Afterwards, ask your child what he or she remembered about the performance, what he or she enjoyed, and why.

- Use simple comments that show that you recognize and appreciate your child's efforts. ("Your painting reminds me of the fun we had at the beach.")

- As a family, you can play "pantomimes" or charades for fun. One person shows or acts out an action while the others guess what is being done. For very young children, use familiar actions such as eating an ice-cream cone or raking leaves. Older children might enjoy more complex miming that

indicates something about the actions in terms of senses, thoughts and feelings.

- Continue to provide an assortment of old clothes, hats, shoes, and other props for your child to play with.

- You can keep an assortment of fabrics and ribbons of different colours and textures for your child to dance with. A radio or tape recorder that your child can use independently may provide music. Use an assortment of music types to broaden your child's listening experience (nursery rhymes, children's songs, marches, tangos, jazz, popular, classical, religious).

- Puppet making is suitable for most levels of development and can be simple (stick, paper bag or paper plate puppets) or complex (sew puppets or marionettes).

- Encourage your child's thinking by asking questions and helping him or her to seek answers. Always encourage your child to ask questions. When there is no clear answer, say things such as "What do you think?" and "Where can we go to find the answer?"

- When going for a walk or a drive, encourage your child's observation skills by commenting on and asking about the larger environment (sky, mountains, forest, water) and the smaller, more intricate things (leaves, flowers, grasses, bugs, pebbles, and so on).

Emotional & Social Development

- Talk with your child about friends, asking questions like, "What do you think a friend is?" "What do you like about having a friend?" "How do you think friends act with each other?" "What can you do to meet a new friend?"

- Read and discuss books about friendships.

- Encourage your child to perform daily tasks like getting dressed, making a simple breakfast, or setting the table, even if it's not done perfectly or takes a little longer. It is important that your child feel successful in participating in family routines.

- Provide opportunities for your children to make personal decisions about clothing choices, healthy snacks, family menus, story times, and so on.

- Participation in volunteer activities (community functions, recreation, hospital) helps your child realize the kinds of contributions that can be made. Seeing himself or herself as a helper can contribute to feelings of greater self-confidence.

- Give positive reinforcement for your child's dreams and goals, regardless of how impossible they might sound to you. For example, "Those are fascinating ideas and plans." "I can see that you have thought this out for yourself."

- Help your child create a "Me" poster or collage using drawings, photographs and magazine pictures. Help your child decide where to display the poster and comment on your child's special qualities.

- Children may enjoy writing to a pen pal from another country as a way of developing a new friendship.

- Your child may enjoy some form of organized activity that provides opportunities to meet others. Ask your child to talk about personal preferences and then support your child's decisions about such things as dancing, art or music lessons, participation in organized sports, boys or girls clubs, and so on. Discuss how these decisions will affect your child, yourself and other family members in terms of such things as time for friends and other hobbies, providing rides, changing mealtimes, and so on. Provide gentle guidance in terms of what you already know about your child's regular activities.

- Sharing special times is crucial in the development of your child's self-image. Being hugged and held by a parent, settling in comfortably with a favourite story, walking to the park, working together to complete a task or project, sharing thoughts and feelings—all of these are important and contribute to your child's development.

- Maintain stable routines and set reasonable limits that your child can anticipate—mealtimes, family commitments, television viewing, bedtime.

- It is not always easy to maintain a positive approach or avoid focusing attention on non-productive behaviour, but, with an informed and honest approach, you are showing your child how to deal effectively with issues or problems as they arise. For example, "Paul is playing with the shovel now. Let's see what else you can find to play with until it is your turn." It is always more productive to indicate the behaviour you would like children to show. For example, "Please paint here on the newspapers so there won't be spills on the floor."

Intellectual Development

- When you read to your child on a regular basis, you are also modeling that reading is important in your life. If you build up and maintain a home "library" that contains books of interest to all family members, your child will have access to a wide variety of reading material. You might want to visit the public library on a regular basis as well. Young children like books that have large print and many illustrations. It is important to read to your children from books that you yourself consider to be important. And don't stop reading to them once they learn to read independently!

- During regular family activities, provide opportunities for your child to organize, classify and use easily remembered information. For example, when unpacking groceries, ask your child to put all the fruits, canned goods, frozen items, and so on, together. When doing the laundry, ask your child to help with sorting the clothes—whites and colours, work clothes and play clothes, or into any other interesting categories. You can also suggest sorting things like kitchen cutlery, school supplies, coins, tools, shoes, and other objects.

- If possible, provide a plain calendar with large squares to write messages. Help your child to fill in special days and record comments to help with remembering appointments, special events and other important dates.

- Make sure that your child's day is not planned out entirely. Free play is important. Provide time, space and materials for your child to create personal projects.

- Help your child become aware of what he or she is doing through language by putting words to actions. For example, talk through the process of learning to tie shoelaces. Use appropriate language but play word games with your child—rhyming, synonyms, and so on. Playing with language is **not** "baby talk." This is how children learn.

- Provide opportunities for your child to gain a variety of experiences. The **more** experiences children have, the more personal knowledge they gain ("**mem**orized" knowledge is soon forgotten). Outings such as walks, car **trips,** special family events, sporting events, camping trips, picnics, and **visits** to the beach, library, museums, fairs, or parades all provide **experi**ences for children so that they may make connections and see how **ideas** and events relate to each other.

- Provide encouragement for activities for which your child says, "Let me try!" or "I can do that!" Always ensure your child's health and safety first.

- Encourage your child to talk about personal experiences by asking questions such as: "What do you like about this?" "What did you not like about this?" "Would you recommend this to a friend?" "What do you think would happen if . . .?"

Physical Development

- Do not discourage your child from attempting new and interesting activities. Provide encouragement and support, but if the activity poses a real safety hazard, explain this to your child.

- Play games or sing songs that help your child to identify body parts (head and shoulders, knees and toes).

- Don't expect your child to attend to one activity for too long. With rapid muscle development and a short attention span children find it difficult to sit still or stay with one activity.

- If you do become involved in games with your child and friends, avoid elimination games where someone "is out." Suggest games that include all players and do not focus on scores and winning.

- Children like to trace life-size outlines of their bodies on paper. Encourage and help your child to decorate the artwork and to locate and name body parts.

- Ask your child to come up with his or her own safety rules when playing a game or using equipment.

- Your child may enjoy being part of a team or group. Encourage a team sport that helps your child remain active into adolescence. If you are involved in organized team sports, model the kind of behaviour you would like your child to show.

- Provide access to different kinds of music during play time. This can add enthusiasm to your child's movements or soothe or relax after strenuous play.

- If possible, make an at-home obstacle course with your child to provide opportunities for crawling, jumping, running, hopping, and so on.

- Maintaining a balance between free exploration and excessive risk taking is not easy! Try not to teach your children excessive fear by over-using phrases like, "It's too high!" "Be careful!" or "You might get hurt!" when they are experimenting with new kinds of movement—on a trampoline, for example. But do provide a background for the activity in terms of the safety rules and how to use equipment.

- Demonstrate and discuss your ideas about nutrition (eating a balanced meal).

- Demonstrate and discuss your ideas about safety procedures in everyday life (crossing the street).

Developing Social Responsibility

- When arguments occur between your children or their friends, help them be the problem solvers rather than you. Ask questions such as, "What do you think the problem is? How many different ways can you think to solve this?"

- Share newspaper and magazine articles with your child. Find articles that tell of events affecting children and families in other areas, provinces and countries. Follow what happens. Ask questions such as, "How do you think they feel?" "What would you do if you were in this situation?" "Do you think that they need some help? What kind of help?" "Who could provide that kind of help?" "Is there something we can do about this?"

- Your child may enjoy participating with you in a community group.

- Keep a family photo album that you and your child can look at and talk about. Talk about your child's heritage. Attend cultural and ethnic celebrations and festivals to introduce your child to the heritage of others. Talk about the similarities and differences.

- Your child may enjoy writing to a pen pal from another country as a way of developing a new friendship and knowledge of another culture.

- Encourage family members to show appreciation for each other by doing such things as sending one another notes. Very young children can dictate notes. They can be placed in lunches, on the fridge or given out at supper.

- Talk about how stress can lead to conflict. Discuss ways in which your child can handle conflicts—problems, fights and arguments.

- Take your children on nature walks. Encourage them to use their senses (seeing, listening, smelling, touching, and tasting—if appropriate).

- Encourage your child and your family to examine your own practices that affect the world around you.

- Talk to your child about what to do in certain emergency situations. Rehearse these situations from time to time to give your child the confidence to handle situations from losing mittens to calling the police.

- Talk about how each family member contributes to the well-being of others in the family, community, and so on.

- The consequences of family decisions affect everyone. Give your child opportunities to make choices.

What About Reading, Writing and Mathematics?

Remembering past schooling, we often think of the three R's—reading, writing and 'rithmetic, and wonder, "What happened to the basics?" Now that so much more is known about how people develop and learn, it is obvious that the three R's are only the tip of the iceberg. What we used to think of as basic literacy (reading and writing) and arithmetic (addition, subtraction, multiplication, and division) has broadened to include mathematical literacy (data analysis, geometry, measurement, as well as number and number operations), computer literacy, scientific literacy, and visual literacy, to name a few. Thus the "basics" have expanded to address what we know and what we need to provide instructionally to better prepare children for the changing world. The basics now also include such things as problem-solving skills (investigating, thinking, communicating, recognizing relationships) as important thinking strategies that cut across all content areas and all goals of education. A positive self-esteem is considered another basic that has great impact on the level of success a child experiences in all learning.

In the Primary Program these expanded "basics" are incorporated into all the goals and integrated throughout all curriculum areas (subjects). Generally, instruction in all these areas—reading, writing, mathematical thinking, problem soiving—is not done separately but as part of the integrated curriculum.

Over the past few years much has been learned about how children learn to read, write and use mathematics, and this knowledge has been incorporated into the Primary Program. As parents have asked many questions, this section will clarify how children learn in these three areas.

Just as the chart of widely-held expectations are frames of reference to assist in viewing children's learning for the five goal areas, the charts of the widely-held expectations on the pages that follow this section will expand upon children's development in reading, writing and mathematics.

The following suggestions may serve as a useful backdrop to the information in the rest of this section:

- view the child's progress in reading, writing and mathematics as only part of the total growth and development (there is much more to learning than these);

- remember that growth and development in these areas can be demonstrated across all goal areas and through any curricular content (reading, writing and mathematics occur in science, history, art, music, and so on);

- look at the age ranges on either side of the child's age to appreciate progress over time;
- realize that children are better in some areas than others (stronger in mathematics, perhaps less strong in reading);
- realize that a child needs enough time to grow and develop;
- appreciate what children can do and show faith in their ability to learn (this trust is one of the best ways to help children progress);
- use the charts at the end of this section as just one of the ways to help understand the child's progress (the best source of information is the child).

What About Reading?

Learning to read is important, not only for its own sake, but also because it is so much a part of all of the activities in the integrated curriculum. As well, reading is an important skill throughout our lives. Because the ability to read has long been associated with success in school, a major area of concern for parents is related to their child's progress in this area. In the Primary Program, instruction and evaluation in reading are based on a solid foundation of research. It is this research base that provides us with answers to the many questions that parents ask as they try to gain understanding of their children's progress in reading. Here, we provide answers to the most common questions asked about reading.

How Do Children Learn to Read?

At one time we thought that learning to read started when a child entered school. In school, teachers provided beginners with "reading readiness" activities to help children "get ready for reading." We now know that reading is a developmental process that begins in infancy, and that children are "getting ready for reading" almost from birth! Parents generally provide many opportunities through the preschool years for their children to develop knowledge about reading. They read to their children, beginning with "baby books" such as nursery rhymes; they "demonstrate" many aspects of reading incidentally as they use reading in the course of their daily lives (menus, recipes, television guides); and they provide opportunities for their children to explore reading on their own.

In school, we build on children's existing knowledge of language and prior experience in order to plan purposeful activities to enhance and extend their knowledge—ideas related to topics, words, meanings, grammar patterns, stories, print information, and so on.

Because children learn what reading is from the way it is taught, it is important for each child to engage in learning experiences that are meaningful to him or her.

Learning to read is a lengthy process which occurs over many years. We know that there are common patterns in development through the years—the chart describes these in very global terms. We also know that there are individual differences in timing and in ways of learning. At times children will surge ahead in their learning; at other times they will progress very slowly or seem to plateau. As well, there are times when they wrestle with a major new concept and seem, at least on the surface, to regress. A description of a child's learning, at any given moment, is best thought of in terms of a snapshot. It is important, however, to keep the long range view in mind.

What About Phonics?

Phonics is helpful in reading and writing. Children need to develop an understanding that there are relationships between letters and speech sounds and that their talk can be written down. For speech sounds that do not have one letter—one sound relationships—learning "phonics rules" is not particularly helpful. However, knowledge of sound relationships can help children to form an **approximate** pronunciation of a word in reading or form an **approximate** spelling in writing.

Phonics, however, is not the only useful tool. When a child reads, he or she must check the approximate pronunciation from "sounding out" the words against his or her knowledge of the world ("Is this something I know?"), knowledge of language ("Is this a word I know? Does it sound right here?"), and the context of the text ("Does this word make sense here?").

Is my child really reading or just memorizing?

Adult logic would lead us to believe that learning to read involves learning the small parts first (letters), and building up bigger units (words into sentences, sentences into paragraphs, and, finally, paragraphs into stories). However, research studies that have observed young children in the process of learning to read indicate that, in fact, the reverse happens! Children learn whole stories before they learn individual letters. When asked to read, young children (ages 3 to 5) may turn the pages of a book and tell the story from the pictures. They may even say that they "can read the story without looking." Later, when they realize that it is the print that "tells the story," they use the pictures to predict the text, producing the gist of the story that is on each page rather than the exact words.

As children reread familiar stories, they rely on their memory. This is a necessary stage in reading development, for through repeated experiences with print, children (ages 5 – 7) acquire increasing knowledge of how print works ("conventions of print") and a vocabulary of functional and personal words they recognize on sight ("sight words"). Gradually, reading from memory gives way to attempting to match voice to the print, reading slowly and hesitatingly and

repeating words and phrases. As children gain more experience with reading (ages 7 – 9), they rapidly increase in their knowledge of words recognized on sight and become increasingly fluent oral readers. They also develop their ability to read silently.

What should I do when my child makes mistakes in reading or doesn't know a word?

When a child learns to walk, parents provide support to the baby and take great delight in each sign of progress. They accept that "wobbling" is part of the process of learning to walk and that falls are inevitable. In the same way, parents can provide support for and celebrate their young child's attempts in reading by:

- appreciating the child's attempts, not just correctness;
- taking a relaxed attitude (remembering that a parent's anxiety may be passed on to the child and make reading stressful);
- being supportive (sharing the reading with the child, providing help where he or she needs it, such as reading "the hard parts");
- accentuating the positive—acknowledging what the child does right rather than emphasizing the mistakes;
- keeping a focus on meaning (if the child substitutes a word that is meaningful in the context, such as "daddy" for "father," ignore the error);
- being selective when pointing out errors rather than over-correcting.

When a child doesn't know a word, give him or her enough time to figure it out (count to five). Sometimes you may want to simply tell him or her the word. At other times you may want to encourage him or her to make a prediction from context ("What word might make sense here?"). Either way, have the child start the whole sentence again from the beginning so that he or she can maintain the flow of meaning. It is also appropriate to point out after the reading some of the words the child got right and discuss how he or she knew the word (for example, "Environment is a hard word—how did you figure it out?").

How can I help my child become a better reader?

A love of reading is cultivated rather than imposed—children who learn to like reading as they learn to read become good readers. Two of the most important ways for parents to help their children become better readers are by reading to them and by encouraging them to read independently. Research indicates that reading to children is the single best way for parents to help children become literate. Reading to children helps develop:

- a positive attitude towards reading and books;
- vocabulary;
- knowledge of the world ("general knowledge"); and
- knowledge of written language, including "book language" and story structure.

Research also indicates that children benefit from the talk that accompanies being read to. Discussing the story and pictures helps a child develop a thoughtful attitude towards reading and facilitates the kind of critical and reflective thinking that is the hallmark of advanced literacy.

As well as reading to children, parents can help their children become better readers by encouraging independent reading. To a great extent, we learn to read by reading. Once the basic relationships between letters and speech sounds are understood, the best way for children to extend their knowledge of words is through repeated opportunities to read. To encourage independent reading, parents can:

- continue to read to their children long after they are able to read themselves (even into the teen years);
- read with their children (with young children, read predictable books with repetition and rhyme);
- be a role model (since children learn to value what they see us doing, not just what we tell them to do);
- provide reading materials appropriate for their child's stage of development (library passes and magazine subscriptions may be helpful here);
- capitalize on children's interest in a subject (finding out about dinosaurs from books);
- provide time for reading (family reading time after supper or allowing the child to keep the light on and read for half an hour after bedtime).

What sorts of reading materials should I provide?

The kinds of reading materials children need vary with their age and reading development and also their interest. Your local librarian and your child's teacher will be able to give you very useful advice. In addition, there are books to help parents select reading materials: for example, *The New Read-Aloud Handbook*, *Comics to Classics*, and *Magazines for Children*. Please refer to References at the end of this publication. In general, children:

- ages 3 – 5 like predictable books with repetition and rhyme, and folk tales;
- ages 5 – 7 like predictable books with repetition and rhyme, nature books and picture books with simple illustrations;
- ages 7 – 9 like longer texts—easy novels and true stories (non-fiction);
- ages 9 – 11 like longer novels, adventure stories, animal stories, mysteries, and a variety of non-fiction;
- ages 11 – 13 are beginning to enjoy more demanding novels, a variety of non-fiction and magazines.

What About Writing?

Although newspaper articles addressing "the illiteracy problem" usually refer to the ability to read, literacy includes the ability both to read and write. Today, educators often refer to this as "literacy development" or "emergent literacy." Learning to read and write are closely linked—knowledge gained in one transfers to the other. Some children learn to write before they learn to read while others learn to read before they learn to write. It is also fairly common for a child to be further ahead in development in one area than another.

How Does Writing Develop?

At one time we thought that children could not write until they had been taught how to form letters and to spell. In the past, children in Kindergarten and early Grade One dictated their "stories" to the teacher and then traced over the teacher's printing or copied underneath it. Today we realize that learning to write is a developmental process beginning in early childhood with "scribbling." As early as eighteen months, children start to make different scribbles for drawing and for writing. In our culture, young children's drawing scribbles are larger and rounder and writing scribbles look like adult writing—wiggly lines on a page. Only at a later stage of development do letter-like shapes begin to appear in children's "play writing."

Most of what children learn about writing occurs without formal instruction. Children's writing development is enhanced by functional, purposeful use, through experimentation and risk-taking, from having audiences responding to their writing, and from "demonstrations" of what is involved in being a writer. In school, we build on children's existing knowledge and provide purposeful activities to enhance and extend their knowledge of:

- the world—ideas related to a subject or topic;
- language—words and their meanings, grammatical patterns;
- stories and other forms—beginnings, middles and ends; and
- print—left-to-right and top-to-bottom directionality on a page, relationships between letters and speech sounds, spelling patterns, punctuation marks.

Because children learn what writing is from the way it is taught, the focus is always on making meaning. Yet writing provides wonderful opportunities for adults to show children how print works and for children to apply their growing knowledge of written language through meaningful practice. Grammar is best understood in this context.

The chart at the end of this section shows the major developments in writing from ages three through thirteen. Like reading, writing develops over many years, with both common patterns in development and individual differences in timing and ways of learning. It is important to note that in writing development, the effect of conventional writing is strong. As children learn to write, their writing becomes increasingly conventional, through the elementary years and beyond.

What About Spelling?

Learning to spell is a complex developmental process. At one time, we thought that learning to spell was based entirely on memory. We were concerned that children's spelling should always be corrected immediately so that they would not acquire "bad spelling habits." We now realize that children "construct" knowledge of the spelling system for themselves. They do this by "reinventing" the spelling system, using their knowledge of the names of the letters to figure out each word. By doing this, children apply their ever-growing knowledge of letter-sound relationships. This is hard work for a young child, but a necessary step. Through this hard work, children gain a deeper understanding of our writing system and become better spellers than if they were merely to copy standard spellings. As children gain experience with print through reading and writing, they acquire knowledge of both common spelling patterns and "irregular" spellings. Even after children have learned to spell many words with standard spelling, they are encouraged to use an approximate or "functional" spelling when they are putting their ideas on paper if they cannot remember exactly how to spell a word. This is not to say that correct spelling is unimportant, but that at the drafting phase, it is more important to get ideas down as they develop—when one stops writing to check spelling, the train of thought is broken. As children gain experience with writing they are encouraged to reread their written draft, first to clarify the ideas expressed ("editing") and second, to check spelling and other mechanics, such as punctuation ("proofreading").

What About Grammar?

Grammar is still an important part of children's learning. It is best learned through a meaningful context and from a rich environment of reading and writing opportunities. During the primary years, the teaching of grammar is done by the modeling of the teacher and through the many opportunities to read and write. Through ongoing opportunities to hear and see correct grammatical usage, children internalize the grammatical rules of language. The emphasis must be on helping children develop an ear for correct language usage.

Children learn most of the grammatical patterns of English (or of their mother tongue) by about the age of six. That is, in their spoken language, they can use most of the grammatical rules, but they are not able to talk about how the rules work. This ability to talk about "grammatical rules" occurs as children learn to deal with abstract concepts. For most children, this occurs in their teen years.

The teaching of writing through the Writing Process allows teachers to provide direct instruction in grammar within the meaningful context of the child's own compositions. Sometimes teachers may provide this instruction through individual conferences with the child, or organize a conference with a more expert buddy, who will provide appropriate guidance in the skill. In addition, small group and whole class instruction may occur to address a common need or emphasize an expectation in a specific piece of writing. What is important is

that the teaching of grammar is still done but it is taught through the meaningful context of actual reading and writing activities in all content areas.

How can I encourage my child to write?

There are many things that parents can do to encourage their children to write. The following ideas may be helpful:

- provide a role model by writing in front of your child. This demonstrates that writing is used for a variety of purposes and is part of daily life.
- treat writing as a social activity, not a solitary one. Write with your child, either together on the same piece of writing, or side by side, with parent and child doing their own writing.
- use every opportunity to get your child to "help" with writing, for example, making up the grocery list or writing letters.
- provide time for writing, for example, writing in a journal while on holiday.
- provide materials for your child to write—a variety of pencils and papers.
- encourage writing as part of play, for example, "taking messages" when "playing office."
- stress the purpose of the writing rather than form, viewing errors as integral to learning and part of growth.

What is the best way to correct my child's mistakes in writing?

The first and most important response to children's writing should be to the child's message. Being overly concerned with correctness can be damaging to a young child's language development, but especially so with young children (younger than age nine). As with reading, parents can support their child's attempts in writing by:

- acknowledging the child's attempts, not just correctness;
- taking a relaxed attitude (rather than passing anxiety on to the child);
- being supportive (writing with or alongside the child, providing help if the child requests it);
- accentuating the positive—commenting on what the child has accomplished rather than the "mistakes" (if the child asks "Is this spelled right?" by responding, "Good thinking. That's the way it sounds. You have almost all the letters right. 'Skate' has an 'e' at the end as well, though.");
- keeping a focus on meaning—by focusing on the message of the writing rather than the spelling or punctuation;
- being selective when pointing out errors rather than over-correcting—pointing out one thing to improve, not making the writing "perfect."

As well, it is important to encourage the child to keep writing while his or her ideas are developing. He or she could circle or underline unknown words and check the spelling later.

I notice my child reverses some letters. Does this indicate a learning disability?

Reversals of individual letters, for example, **b** and **d**, or **p** and **q**, are common in young children's writing. To the young child, "where the stick goes on the circle" may not be a particularly important feature of the letter. (Reversals are much less frequent with capital letters, since the features of each capital are more distinct than those of lower case letters.) When a young child looks at a chair, he or she knows it is a chair whether it faces one direction or another. Likewise, which way a letter faces may not be a significant feature to the young child. As children gain repeated experiences with print, the frequency of letter reversals diminishes, although these reversals are common in children under the age of nine. When children change from printing to writing, letter reversals, for the most part, disappear.

Sometimes children start to write from right to left across a page ("mirror writing"). This indicates that the child knows to write from the edge of the page, but does not yet realize that we always start at the left edge. This right to left writing occurs more frequently with left-handed children.

Sometimes, the writing that accompanies a drawing goes from right to left or top to bottom because the child is being "practical," using the space available on the page. As children gain experience with print, they learn to write in the conventional direction.

What About Mathematics?

Children develop mathematical ideas similar to the ways in which they build up reading and writing ideas. There is a type of emergent mathematician in each child which parallels that of the emergent reader and writer. Mathematics is about thinking; it is about a sense of numbers. Children begin by **doing** mathematics and then **thinking** mathematically. It is important to encourage children in their attempts to do things, to try to figure things out, and to develop some sense of what the answer to a problem should look like.

As children work with materials, they develop "mathematical power"—investigating, thinking, communicating, seeing relationships, putting things into perspective, and using a variety of mathematical methods to solve a wide variety of problems.

Developing Mathematical Ideas

We can talk about children gradually developing ideas such as counting, matching, ordering, comparing, measuring, and coordinating. Each of these involves a type of problem solving. Probably children's mathematical thinking best begins with a problem in their experience that needs solving rather than talking about problem solving as a more advanced activity only to be acquired after the child learns to do arithmetic, that is, to compute—add, subtract, multiply, and divide. Arithmetic may best be practiced using problems that are drawn directly from the child's real world rather than using problems on a

worksheet involving things with which the child is not familiar. Children build up their knowledge best when the tasks to be learned are meaningful and reflect their own experience of their world.

Through experience, children develop an understanding of what numbers mean, what they stand for, and how they can be useful in their daily lives. (This concept is often termed numeracy.) What is really important is the ability to estimate, to engage in problem-solving activities, to reason mathematically, and to know when an estimate, a measurement or a solution to a problem is reasonable. With these skills, children learn how numbers are useful to them, and how important their own ability to manipulate those numbers really is in their everyday activities.

In their early years, children need many direct experiences through which they can develop a sense of number competence. They need to handle different objects—count them, compare them, and make guesses or predictions before they measure and compute. In this way they gradually come to know what type of answer to expect as a result of their counting, measuring and comparing activities. Teachers and parents encourage this kind of development by providing a wide range of appropriate opportunities for children to explore numbers and their relationships, and to reflect on the results of their actions.

> **The simple act of asking the child to set the table and to give each person who will be at the table a napkin or a fork, for example, helps the child to begin to develop the idea of correspondence. This idea of correspondence simply means that the child can match up the number of people with the number of napkins or forks. This can lead to many other experiences of matching or placing in correspondence the number symbols for the actual number of blocks in a set or of pennies in a pile. Just think about the natural tendency of young children to count on their fingers!**

Often, a young child's ability to give the right answer to an addition or a subtraction problem is taken as evidence by both teachers and parents that the child is doing well in mathematics. But does that child understand what the answer means? Did the child arrive at that answer by rote, by luck, by mistake, or by understanding both the question and the answer? It is important that the child know not only the answer but also **how** he or she thought about the problem, and how he or she arrived at the answer. (Larson, 1977)

> **A good example of this is the child who, when asked if 275 was an even or an odd number, responded that it was odd. The teacher asked her how she knew that it was an odd number since they hadn't worked with such big numbers before. The little girl responded that "275 is made up of three numbers, two, ..even and five. Three is an odd number so 275 has to be odd!" (Arlin, 1991—book in preparation)**

The examples provided show some of the activities that children engage in as they do and think about mathematics in everyday life and the classroom. The provision of materials and direct experiences in classrooms encourages children

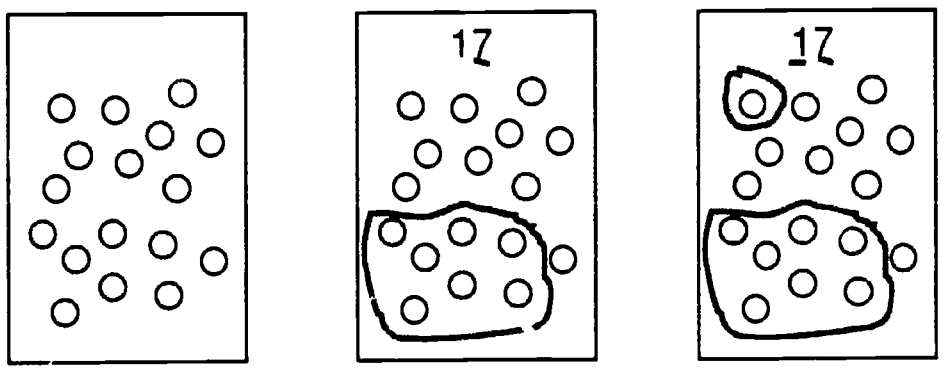
to think about what they are doing. These learning experiences support the processes of coming to think mathematically. They do not take the place of symbols, number facts and computation such as addition and subtraction, but provide the natural basis for understanding what the number system and "facts" really mean. The development of mathematical thinking accompanies a child's gradual movement toward formal use of the number system and notation. Even with these general observations about children and mathematics there are still many questions.

What about the basic number "facts"?

The idea of "number facts" as an important part of a young child's development of a sense of number was usually reinforced in the classroom by the use of worksheets and flashcards. The idea that a child could recite the answers to 1 + 6 = ❑, 2 + 5 = ❑, 3 + 4 = ❑, 4 + 3 = ❑, and other similar sums was often used as evidence that the child was learning mathematics. In recent years teachers and parents have begun to question whether a child who "knows" the number facts also understands numbers as relationships. In the previous example, each of the facts adds up to "7." Seven can be thought of as the "whole" which can be represented as the sum of its parts, whether those parts are 1 and 6, 2 and 5, or 3 and 4. Children learn about these relationships by their own actions on objects—they come to know the different ways in which they can represent "7." Often children don't develop the ideas of relationships between numbers and consequently they treat the number "facts" as isolated facts, which are hard to remember.

The importance of understanding the relationships of numbers can be illustrated with the concept of place value—understanding ones, tens, hundreds, and so on. This is shown with the following example.

> **Usually by the end of their second year of school, children are becoming familiar with the concept of "ones" and "tens." In one study, children were each given a piece of paper, 17 building set wheels and a set of crayons. The children were NOT told that there were 17 wheels; instead, they were asked to take each wheel and draw an outline of it on their paper. After they had completed their outlining, they were asked to count up the number of wheels they had drawn, and to write the number on their paper (A). Then the children were asked by their teacher to circle the number of wheels that showed the "7" in the number. As the instructions were being given, the teacher underlined the "7" in the number "17" (B). Then the teacher asked the children to circle the number of wheels on their papers that the "1" stood for in the number "17." All of the children completed the task as shown in (C).**



(A) (B) (C)

To help the children begin to question what each of them had done, the teacher asked them to count up the wheels that were circled (7 + 1 = 8) and said, "This is very interesting! You counted and wrote down the number for 17 traced wheels! Now there are only 8! What happened to the rest of the wheels?" (The "1" in the number 17 actually represents a set of 10 objects.)

(Adapted by P. K. Arlin & L. Levitt, May 1986, from C. Kamii, *Children Reinvent Arithmetic*, 1985, pp. 60–61.)

When children are thinking mathematically and when they develop number relationships for themselves through games and other activities, they will also have the "facts." Perhaps in thinking about and understanding numbers, their meaning and their relationships should first precede memorizing them.

How do I provide assistance when my child makes mistakes in computation (addition, subtraction, multiplication, division) or doesn't know how to get an answer?

While the temptation is there to tell children the "right answer," we need to encourage children to explain the sense they are making of the problem they are trying to solve. Most children's "wrong answers" are very logical! They often think of things quite differently than adults do. You might suggest that they show you how they got their answer using objects such as blocks, buttons or pennies.

If they can't "get the answer" try not to give the answer, but encourage them to try to think of other ways to solve the problem that they are working with. You might propose an alternative answer and ask them how they could show that the answer that you proposed would work or not. It is important that we provide opportunities for children to think hard about things that matter to them. This is how we help them develop confidence in their own ability to figure out things that are mathematical.

How can I help my child become better in mathematics?

You can help by encouraging your child to enjoy thinking mathematically. Ask questions about things that require estimating, predicting or other types of mathematical thinking. Depending on the age of your child, encourage activities involving measuring, weighing and ordering. Even when your child gives a "right answer," ask him or her to show you how the answer was arrived at.

What sort of mathematics should we do together?

Provide activities that are informal and fun. One of the best ways to reinforce and develop competence in thinking mathematically is to play games which require scorekeeping or comparing numbers, patterns, and other mathematical activities. Card games can be fun for the whole family. Children should be encouraged to keep the score for many of the games they play. They do not just have to do this with paper and pencil. They can use blocks, chips or other materials to figure out the score.

Take advantage of the many opportunities around the house that involve numerical and geometric thinking. Cooking activities are easily developed as mathematical activities. Estimating the paper required to wrap a gift, or the paint required to paint a room can contribute to your child's mathematical thinking, depending on your child's age.

Is more and faster always better?

A brief answer to this question is "no." The "basic" mathematical ideas take a long time to develop. Children need many opportunities to explore and think about ideas. Children by age three, although not reasoning mathematically, are beginning to develop some basic ideas of the qualities and quantities of objects, the relationships between them, and the language to describe this thinking. Parents or preschool teachers need to encourage children to explain their thinking and to ask if they can represent their thoughts and ideas in another way. School-age children can be encouraged to think about:

- what "equals" really means;
- parts and wholes and their relations to each other (a whole is really equal to the sum of its parts);
- place value, what it means and how to think about it;
- the idea of the need and use for standard units of measurement;
- the idea of scale and simple proportion.

These are powerful mathematical ideas that children need to reinvent for themselves if they are to think mathematically and are to be able to use mathematics effectively.

What about geometry; collecting, recording and interpreting data; and measurement?

Children's mathematical ideas are most powerfully developed when they reflect upon their experiences at home, at school and in the community. They may need to know whether or not they have enough construction paper to make a paper sculpture; they may want to find out if their 500 piece jigsaw puzzle will fit on top of the table; or, they may want to jog three kilometres a day or ride their bicycles 50 kilometres. Considering these kinds of questions, they can develop confidence in their ability to think mathematically and develop the experience base upon which they can build more formal mathematical ideas. A lack of this type of experience leads children to ask a question such as, "How old am I in centimetres?"

Developmental Activities for Mathematical Thinking

The charts that follow are organized to reflect the gradual development of children's mathematical thinking in areas such as counting, matching, ordering, comparing, measuring, and coordinating. These are samples—many more things go on in the child's thinking and in the planned instructional activities in the classroom.

The ages shown here are simply general guidelines for reference when looking at the developmental sequence of ways in which children come to think mathematically. The developmental sequence is individual and does not define a timetable that is followed by all children in their development. It is, however, used by teachers in planning appropriate instructional activities for individual learners.

Children develop many mathematical ideas and need to be encouraged to work on problems that parallel this developmental sequence. If children are asked to do a type of mathematics which is not supported by their own thinking and concept development, then they may be able to **compute** answers but they will not understand **what** they are doing or **why they** are doing it. Parents and teachers can work together in many **positive** and exciting ways to encourage children in their development of **mathematical** ideas, experiences and **thinking**.

In reading children . . .

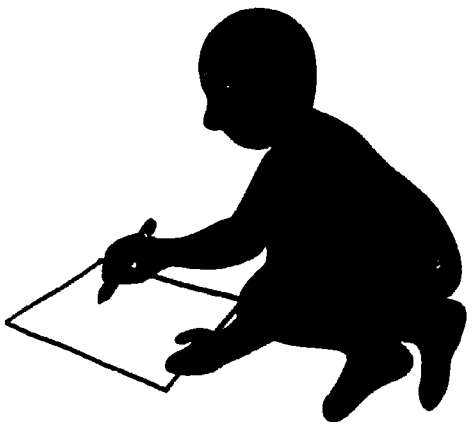
3 – 5 years	
• are curious about print in own environment—names of letters, signs, labels, and logos.	• are curious about print—word forms, spellings.
• play at reading; "read pictures" rather than print. • begin with labeling and commenting on the pictures and then move to telling stories from the pictures.	• role-play themselves as readers, relying heavily on memory at first (rote reading). • begin to focus on print but use pictures to predict and confirm meaning. • attempt to match voice to print.
• "read" print in own familiar environment (favourite restaurant signs, traffic signs).	• are increasingly able to recognize environmental print away from its familiar context. • begin to develop a basic vocabulary of functional and personal words recognized on sight ("sight vocabulary"). • read slowly and deliberately.
• know that print is a source of information or enjoyment. • begin to develop a "sense of story."	• understand that the print "tells the story." • continue to develop a "sense of story."
• focus on the whole story rather than individual words.	• are increasingly able to deal with the parts of print (letters and words).
• begin to develop knowledge of some conventions of print—front-to-back directionality of books.	• increase awareness of print conventions (top-to-bottom and left-to-right directionality, punctuation). • develop knowledge of common letter-sound relationships.
• rely on an adult or older child to read text.	• begin to develop an ability to try reading print, including ways to figure out unknown words (common letter-sound associations, picture clues).
• like books with illustrations, repetition and rhyme.	• choose short books with simple stories and illustrations. • enjoy rereading favourite books.

In reading children . . .

7 – 9 years	9 – 11 years	11 – 13 years
• are interested in print (spellings, word meanings). • show interest in topics, characters and events.	• may broaden their interests in fiction and non-fiction.	• continue to broaden their interests in fiction and non-fiction.
• see themselves as readers. • read for a variety of purposes. • make greater use of context to predict and confirm meaning of words. • begin to self-correct own miscues ("errors")	• are increasingly able to set own purposes for reading (read for interest by topic or by favourite author). • self-correct own miscues confidently and independently.	• read for an increasing variety of purposes and choose from a wide range of reading material. • understand that different readers may interpret the same material in different ways.
• are rapidly increasing knowledge of words recognized on sight ("sight words"). • are developing an ability to read silently. • are increasingly able to read orally with fluency and expression.	• are increasing reading vocabulary and length of time in concentrating on reading. • are increasing silent reading rate (which may exceed the rate of speech and result in difficulties in oral reading). • are developing an ability to adjust reading rate to suit purpose (scanning to locate information).	• increase reading vocabulary, silent reading rate, length of time for concentration, and ability to adjust rate of reading to suit purpose (skim, scan, select, study).
• are developing knowledge of a variety of forms that communicate ideas (graphs, maps, charts). • have a "sense of story" and can identify the parts.	• begin to try reading material in various forms (graphs, maps). • are aware of different types of reading materials and can identify some elements (the moral of a fable).	• increase ability to read various forms of text (graphs, maps, charts). • increase knowledge of and ability to identify and discuss the elements (characters, plot) of a variety of reading materials.
• are increasingly able to focus on details (parts) while keeping main ideas (the whole) in mind.	• are increasingly able to deal with detail in content and form, while keeping main ideas in mind.	• are able to deal with detail in content and form while keeping main ideas in mind.
• understand the main conventions of print (directionality, punctuation). • develop increasing knowledge of letter-sound relationships and common spelling patterns.	• understand the main conventions of print (directionality, capitalization, punctuation) and are developing an increasing knowledge of standard spelling.	• understand the main conventions of print (directionality, capitalization, punctuation, and spelling).
• develop increasing independence in reading. • show increasing ability to make inferences (understand intent, draw conclusions).	• are able to read independently. • show increasing ability to make inferences and to read critically. • are able to organize information from reading.	• are able to read independently. • are increasing in ability to read critically and to detect inconsistencies in argument. • are increasingly able to understand and discuss aspects of literature such as theme, conflict and author's style.
• are beginning to read longer text (novels) and are learning to use books to get information.	• may read longer and more demanding texts (novels).	• increase ability to persist with longer and more complex texts (more difficult novels, school textbooks).

In writing children . . .

3 – 5 years



- view writing as something that people do and like to play at writing; are curious about letters and words.

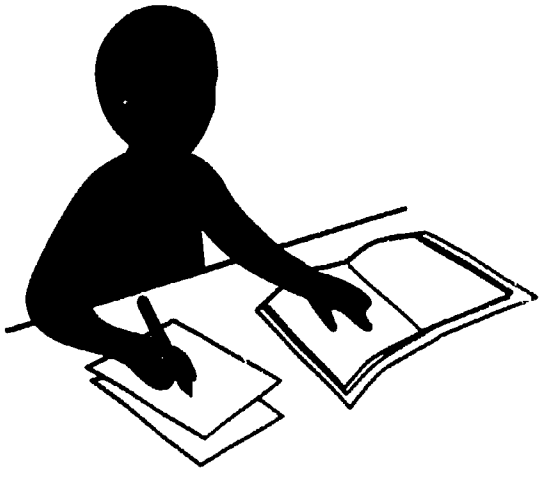
- are interested in the names of letters and how to represent specific speech sounds; write mainly for personal interest.

- combine drawing and "writing," but drawing conveys most of the meaning.

- combine drawing and writing to convey ideas.

- may not intend to convey a particular message and may ask "What does this say?" of own writing.

- demonstrate increasing knowledge of letter names, common letter-sound associations—especially consonants, and some forms of writing (labels, letters, stories).



- play at writing and may produce:
  - "scribble writing" (imitative cursive writing);
  - strings of forms that resemble capital letters;
  - strings of capital letters in random order across a page (the child may not yet associate letters and sounds);
  - single letters that represent a word (**s** for "snake") or a syllable (**dd** for "daddy").

- produce increasingly conventional writing by:
  - writing in capitals and moving towards the use of lower case letters;
  - spelling with consonants and moving towards phonetic spellings that include vowels;
  - spelling some common words conventionally;
  - showing some sense of directionality but may reverse some letters (**b** and **d**) or write right-to-left at times;
  - starting to use some punctuation marks (periods).

- may produce some conventional words (own name, mom, dad) as well as "play writing."

- may produce:
  - a label or caption to accompany a drawing;
  - single words or phrases;
  - short, simple sentences;
  - a series of simple sentences;
  - simple stories with one character, short letters.

In writing children . . .

7 – 9 years	9 – 11 years	11 – 13 years
• enjoy writing and sharing own writing with others. • begin to develop a sense of audience.	• enjoy receiving feedback from others about own writing. • show an increasing awareness of audience.	• enjoy playing with words and ideas and can write from different points of view. • value and seek out feedback on own writing and write for a wider audience.
• may combine drawing and writing, but writing can stand alone to convey meaning.	• understand writing as "ideas written down." • can convey more complex ideas through writing. • are able to write for an increasing number of purposes.	• show increasing awareness of differences between speaking and writing. • write for a broad range of purposes and can convey increasingly complex and abstract ideas through writing.
• demonstrate increasing knowledge of letter-sound relationships, including vowels, common spelling patterns, terms used with writing (letter, word, sentence), and forms of writing (poem, report).	• demonstrate increasing knowledge of: most spelling patterns, terms used with writing (paragraph, punctuation), and a variety of forms of writing (fables, fairy tales).	• demonstrate increasing knowledge of spelling patterns, terms used with writing (editing, description), a wider range of forms (legend, myth), and parts of speech, but are not yet able to grasp intellectually many of the formal aspects of grammar.
• produce increasingly conventional writing by: - spelling an increasing number of words; - using upper and lower case letters and spacing between words; - confidently using functional spelling when drafting; - understanding directionality (left-to-right, top-to-bottom of page, front-to-back in a book) but may still reverse some letters (**b** and **d**); - developing the ability to punctuate (periods, question marks).	• spell a considerable number of words conventionally. • use functional spelling while drafting, but search for standard spelling before the final draft. • use many punctuation marks conventionally (periods, question marks), but may still confuse others (commas, quotation marks).	• produce increasingly conventional writing by using standard spelling and most punctuation marks (but may still confuse marks such as commas and semi-colons).
• may produce a series of connected ideas that make sense, stories with two or more characters, stories of a full page or more, and reports, letters, poems, and other forms of writing.	• may produce stories with two or more characters, topics or ideas supported by relevant details, a series of ideas connected smoothly and logically, a variety of sentence structures and varied sentence length, and more complex reports, letters, poems, and so on.	• may produce writing that: - is easily understood, fluent, logically organized, unified, and elaborated; - is more complex in grammatical structure than speech; - contains more complex narratives with complex settings and characters; - has more complex non-narrative forms.

In mathematics children . . .

Birth – 3 years	3 – 5 years	
• begin to recognize "one" and "more than one." • count to nursery rhymes or the alphabet song.	• recognize perceptually and count up to five. • identify fair shares informally.	• count first by starting back at "1" each time something is added. • begin to pick up counting where they left off, starting with seven and counting on to eight and nine. • count all types of things; play with counting forwards or backwards. • read and write numbers to 10 and beyond.
• begin to pick out one thing from a group. Sometimes find two or three that are the "same."	• recognize and name simple shapes (squares, circles, triangles). • match picture to actual shape. • sort using a single attribute. • recognize simple patterns.	• use pattern blocks and other materials to make and extend patterns. • match objects in one set to objects in a second set.
• begin to identify simple qualities of things like "soft" and "hard" or "hot" and "cold."	• learn more qualities of objects ("thick" and "thin"). • line up two or three objects using size or some other category.	• sequence things from the biggest to the smallest, by size or some other dimension. • may insert items into a sequence at the appropriate place. • may enjoy lining up according to size.
• begin to get some ideas of how things are alike and how they are different.	• use language to begin to get ideas about space and time ("next to," "on top of," "before," "after"). • compare using objects.	• may enjoy card games that help develop mastery over the idea of numbers being larger or smaller. • may classify objects in a variety of ways. • may isolate a set from a collection. • may realize that a collection can be sorted in more than one way.
• may follow the "path" of an object. • may look up and down. • do not yet have an idea of size.	• may use measurement words without any idea of units ("big and small," "short and tall," "near and far").	• begin to develop a stable idea of a straight line. • try measuring all sorts of things but with non-standard units.
• may use simple words as "one more cookie" or "more milk."	• may recognize that two is always two and three is always three but does not apply this concept beyond five.	• begin to recognize that 10 is 10 or 20 is 20 no matter how objects are arranged in a group. • work with simple number facts showing different sums with many types of materials.

In mathematics children . . .

7 – 9 years	9 – 11 years	11 – 13 years
• begin to enjoy counting puzzles and games where they need to find a number between 10 and 99.	• begin to understand the number system as a system built on tens particularly when working with base 10 blocks and other activities.	• begin to explore other ways to build number systems—for example, to think about numbers being represented only by 0's and 1's.
• are able to identify sets of objects with 2 or 3 attributes in common (separate triangles by colour, size and thickness).	• enjoy tangrams and other two-dimensional puzzles.	• begin to explore three-dimensional objects. • may be curious about making drawings to scale.
• may order things in a sequence in one set in relation to a sequence in a second set. • use metre sticks to measure length. • order numbers from 0 – 10, and then to 10 – 100 and much higher. • group numbers by twos, threes, fives, tens, and so on.	• begin to extend number sequences to take in large numbers from 1 000 to 10 000 and beyond and delight in these extensions.	• begin to explore different simple number sequences which require more than simple addition and subtraction for their extension (2, 4, 8, 16 __ ; or 1, 3, 6, 10 __).
• begin to classify things in more complex ways and use general categories and subcategories (large dogs "collies," small dogs "chihuahuas").	• may work on practical problems involving length, capacity, time, and large numbers, explore patterns in number systems, explore size relationships, build models of numbers 100, 1 000, 10 000, refine abilities to estimate.	• begin to experience the ideas of mass and volume. • begin to use line and pie graphs to represent information and explore relationships. • begin to explore more complex number relationships and represent ideas in a greater number of ways.
• begin to develop the idea of vertical and horizontal lines. • begin to estimate and measure and to use standard units to communicate similarities and differences.	• begin to see the need for a special measure. • continue to work on everyday problems involving length and may extend this to area, perimeter problems, using a variety of units (m^2, cm^2).	• begin to use standard units for finding mass and volume based on many concrete activities. • use a variety of measurement tools (protractor, metric scales).
• begin to develop part and whole relationships and understand subtraction by separating a whole into parts. • make simple explorations with concept of place value (combining groups of 100's, 10's and 1's to make different numbers). • represent more addition and subtraction "facts" in a variety of ways.	• have a better coordination of parts and whole as related to both time and fractional concepts. • work on many whole number problems. • begin to coordinate vertical and horizontal lines to help with ideas of area. • become comfortable using simple graphs to show relationships.	• may begin to see the relationship between fractions and decimals. • may develop the idea that the whole is equal to the sum of its parts as a basis for the idea of percent (interest rates in savings accounts, cost of sale items (–25%), PST and GST). • may have some early experiences with the idea of a variable.

Glossary

Assessment. This is a process that both parents and teachers do on a regular basis to determine how a child is progressing. This is done through conversations with the child, observations of the child at home and at school, reviews of the child's collection of work, parent-teacher-child conferences, and anecdotal reports.

Continuous progress. Because learning is a continuous lifelong process, teachers plan direct instruction that is developmentally appropriate and that helps children build on what they know. In this way teachers can ensure continuous progress.

Evaluation. During the evaluation process, teachers look at each child's assessments to make judgements that allow for appropriate and realistic learning goals. In this way, teachers can encourage positive self-esteem and ensure continuous progress.

Nongraded. The Primary Program is designed to accommodate a range and diversity of learning that occurs naturally among children. Children are assessed and evaluated according to their **individual** learning progress. This is done by using the widely-held expectations as frames of reference.

Parent. In keeping with the *School Act*, this term includes the guardian of the child, the person legally entitled to custody of the child, or the person who usually has the care and control of the child. The parent is a child's first and most important teacher.

Teacher. A teacher is a person who communicates attitudes, skills and knowledge. In this document, this term refers to all professional staff involved in the administration, planning, provision, assessment and evaluation of educational experiences offered through the schools.

Thinking. Thinking involves many complex processes which have not been addressed in this package. Examples of specific thinking processes that are encouraged in the Primary Program are: comparing, imagining, inferring, analyzing, linking, creating and reflecting.

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