Programming for Individual Needs

Teaching Children who are Blind or Visually Impaired

Department of Education

Division of Student Support Services

February 2001

Definitions

Individual Roles

Prereferral and Referral

Evaluation

Support Services Planning

Related Conditions & Glossary

Developmental Milestones / Classroom Strategies

Technology & Other Resources
# Table of Contents

Acknowledgments ........................................................................................................ i

Introduction ...................................................................................................................... 1

Section One
The Structure and Function of the Eye ................................................................. 1.0
  What are the parts of the eye and what do they do? .............................................. 1.1
  How does the visual process work? .................................................................... 1.3
  What are the common refractive errors? ............................................................ 1.4
  What is astigmatism? ......................................................................................... 1.5

Section Two
The Child who is Blind or Visually Impaired ...................................................... 2.0
  What is visual acuity? ....................................................................................... 2.1
  Who is the child with a visual impairment? ...................................................... 2.2
  Who is the child who is legally blind? ............................................................... 2.3
  Who is the child with low vision? ..................................................................... 2.4
  Who is the child who is blind? .......................................................................... 2.4
  Who is the child who is deafblind? ................................................................. 2.4
  Who are the children with visual impairments and additional exceptionalities? .................................................. 2.5
  Which children are not considered to have a visual impairment? ................ 2.5
  What is the screening process? ....................................................................... 2.5
  What is the referral process? .......................................................................... 2.6
  A Note to Teachers ............................................................................................ 2.7
  A Note to Parents ............................................................................................... 2.8

Section Three
Support Services Planning and the Child who is Blind or Visually Impaired .......... 3.0
  What is the Model for the Coordination of Services to Children and Youth? .. 3.1
  What is the ISSP process? .............................................................................. 3.3
  What are some factors to consider when developing the educational component of the ISSP for a child who is blind or visually impaired? ................. 3.3
  What is profiling? ......................................................................................... 3.5
  For whom is a profile completed? .................................................................. 3.5
  When are profiles completed? ........................................................................ 3.6
  Who completes the profile? ............................................................................ 3.6
  What is Pathways to Programming and Graduation? .................................... 3.6
  What are considerations for transitional planning for children/youth who are blind or visually impaired? ................................................................. 3.9
Section Four

The Preschool Child who is Blind or Visually Impaired .................................. 4.0
Developmental Milestones for Preschool Children (in months) ..................... 4.2
What are considerations for teaching preschool children who are blind or visually impaired? ................................................................. 4.3
How is the ISSP developed for the preschool child? .................................... 4.4
What are program considerations for the preschool child? .......................... 4.5
What are the considerations for developing literacy of a preschool child who is blind or visually impaired? ........................................... 4.8
What are the considerations for a reading program for a preschool child using braille? ........................................................................ 4.8
What are the considerations of an Orientation and Mobility program? ........ 4.9
What are the considerations for transitional planning for the preschool child? ......................................................................................... 4.10
What services are available for preschool children who are blind or visually impaired? ................................................................. 4.10

Section Five

The Expanded Curriculum for Children who are Blind or Visually Impaired .... 5.0
What are the expected outcomes for children with visual impairments? .......... 5.1
Non-Academic Outcomes for Graduation ..................................................... 5.2
What are compensatory and functional skills? ............................................ 5.3
What are visual efficiency skills? ................................................................. 5.3
What is involved in the Learning Media Assessment process? ..................... 5.3
What are some considerations in the area of braille and literacy? ............... 5.4
Should children with low vision learn braille? ........................................... 5.5
What are considerations for braille learning for children who are blind? ...... 5.5
Are there special considerations for children who are adventitiously blind? ... 5.6
What special equipment is needed to write braille? .................................... 5.7
Are there any other braille codes? ............................................................... 5.8
What are the considerations of an Orientation and Mobility program? ......... 5.9
What are issues surrounding special transportation for children who are blind or visually impaired? ................................................... 5.10
What are some considerations for choosing technology needed by children who are blind or visually impaired? ................................... 5.10
What other areas should we be concerned with when programming for children who are blind or visually impaired? .............................. 5.13
What are examples of independent living skills needed by children who are blind or visually impaired? .............................................. 5.14
What are social interaction skills and why are they important? ................. 5.15
What issues of sexuality need to be addressed with children who are blind or visually impaired? ....................................................... 5.17
What are considerations for career planning for youth who are blind or visually impaired? ............................................................. 5.18

Section Six
The Student who is Blind or Visually Impaired in the Classroom 6.0

What are the primary considerations for Classroom Teachers of students with visual impairments or blindness? 6.1
Tips for Teachers of Students who are Blind or Visually Impaired 6.1
What type of Pathway 2 accommodations/adaptations may be required for students with visual impairments? 6.2
Sample Accommodations/Adaptations 6.4
What types of accommodations/adaptations may be necessary so that children who are blind or visually impaired participate in assessment with their peers? 6.8
What are the considerations for Pathway 3 modified courses for a student who is blind or visually impaired? 6.10
What type of Pathway 4 alternate courses may be required for a student who is blind or visually impaired? 6.10
What are the considerations for students on Pathway 5? 6.10
Considerations for Students with Multiple Disabilities 6.12
What are the special considerations for the student who is deafblind? 6.13

Section Seven
Assessment of Children who are Blind or Visually Impaired 7.0

How are children with visual impairments assessed? 7.1
Are results from psychoeducational assessments interpreted in the same way for children who are blind or visually impaired as they would be for those with normal vision? 7.1
What about the participation of children who are blind or visually impaired in standardized assessment procedures? 7.2
What are some common tools used by Itinerant Teachers in assessing children who are blind or visually impaired? 7.3

Section Eight
Special Medical Considerations 8.0

What are the Occupational Therapy and/or Physiotherapy needs which children with visual impairments might have? 8.1
What is delegation of function? 8.1
What are some possible side effects of medications on vision? 8.2
What are some common eye problems which could require surgery? 8.2
What emergency response protocols should be followed? 8.4
What are the considerations for specific visual conditions? 8.4

Section Nine
Roles of Educational Personnel 9.0

What is the role of the Classroom Teacher? 9.1
What is the role of the Educational Psychologist? 9.2
What is the role of the Guidance Counsellor? 9.3
What is the role of the Itinerant Teacher for Students who are Blind or
Visually Impaired? ............................................................... 9.4
What is the role of the Program Specialist for Student Support Services? . . . 9.7
What is the role of the Provincial Consultant for Students who are Blind or
Visually Impaired? ............................................................... 9.8
What is the role of the School Administrator? ............................ 9.9
What is the role of the Special Education Teacher? ...................... 9.10
What is the role of the Speech-Language Pathologist? ................... 9.11
What is the role of the Student Assistant? ................................ 9.12
What is the role of the Parent? .............................................. 9.12
What other education agencies are involved in programming for
children who are blind or visually impaired? ............................. 9.13
What is the role of APSEA? .................................................. 9.13

Section Ten
Additional Resources ............................................................. 10.0
Which educational resources are available through APSEA? .......... 10.1
What is the CNIB and what services does it provide to children who are
blind or visually impaired? ................................................. 10.2
What Health and Community Services are available? ................. 10.3
What is the role of the Public Health Nurse? ............................ 10.3
What is the role of the Occupational Therapist? ......................... 10.4
What is the role of the Physiotherapist? ................................ 10.5
What is the role of the Behaviour Management Specialist? ............. 10.6
What is the role of the Child Management Specialist? ................. 10.7
What is the role of the Neuromotor Division of the Child Health Program
at the Janeway Child Health Centre? .................................... 10.8
What is the role of the Regional Health and Community Services Board? . 10.8
What are the roles of those professionals who work specifically in the
field of vision? ................................................................. 10.9

Appendices
Appendix A: Standards of Practice for Itinerant Teachers for
Students who are Blind or Visually Impaired .......................... A.0
Appendix B: Glossary of Terms and Visual Conditions .................. B.0
Appendix C: Bibliography ..................................................... C.0
Appendix D: Other Resources ................................................ D.0
Appendix E: Eye Conditions .................................................. E.0
Appendix F: Medical Forms ................................................... F.0
Appendix G: Developmental Milestones for Infants with Visual Impairments G.0
Appendix H: Technology and Special Equipment Used With Students
who are Blind or Visually Impaired ................................. H.0
Acknowledgments

The committee to prepare this handbook was chaired by:

Ms. Glenda Truitt (Cochairperson), Consultant, Division of Student Support Services, Department of Education

Ms. Trish Suvak (Cochairperson), Consultant, Division of Student Support Services, Department of Education

The Division of Student Support Services would like to thank the following committee members for their contribution to this handbook:

Mr. Alex Tsui, Orthoptist, Janeway Child Health Center, St. John’s

Ms. Gillian Robson-Hoffe, Itinerant Teacher for Students who are Blind or Visually Impaired, Corner Brook/Deer Lake/St. Barbe School District

Mr. Len Baker, Director of Rehabilitation (Atlantic Provinces), Canadian National Institute for the Blind, St. John’s

Mr. Tom Kendell, Itinerant Teacher for Students who are Blind or Visually Impaired, Baie Verte/Central/Connaigre School District

Mr. John Moores, Retired Program Specialist for Student Support Services, Northern Peninsula/Labrador South School District

Ms. Sandi Mercer, Special Education Teacher, Mount Pearl Senior High School, Avalon East School District

Ms. Joanne Lodge, Public Health Nurse, Health and Community Services - Central, Twillingate

Ms. Patti Henderson, Occupational Therapist, The Neuromotor Division of the Child Health Program at the Janeway Child Health Centre, St. John’s
The Division of Student Support Services would also like to thank the following individuals for their contributions:

Dr. P. Ann MacCuspie, Director of Programs for Students who are Blind or Visually Impaired, Atlantic Provinces Special Education Authority (APSEA)

Ms. Carol Guzzwell, Itinerant Teacher for Students who are Blind or Visually Impaired, Avalon East School District, for her contribution to Section Five

Itinerant Teachers for Students who are Blind or Visually Impaired in Newfoundland and Labrador

Dr. Kay Alicyn Ferrell for permission to use material from the Project PRISM Final Report

Ms. Mary Pike, Special Education Teacher, Avalon East School District

Appreciation is also extended to Ms. Debbie Langdon for her contributions to the typing and formatting of this document
Introduction

Background

Children who are blind or visually impaired are in regular classes in our schools. This handbook will enhance understanding of children who have visual impairments. It will discuss their unique needs and possible ways to assist them in reaching their full potential.

It should be noted that throughout this text the term “children with visual impairments” will sometimes be used to encompass all children who are blind or visually impaired.

It should be noted that throughout this text the term “Itinerant Teacher” will be used to refer to Itinerant Teacher for Students who are Blind or Visually Impaired.

This handbook should be used in conjunction with other Department of Education documents.
Purpose of the Handbook

The purpose of this handbook is to:

• Define types and nature of visual impairments,

• Outline the needs of children with visual impairments,

• Discuss the role of individuals and agencies who work with children who are blind or visually impaired, and

• Discuss how the needs of children who are blind or visually impaired are met through collaborative and comprehensive programming.
Section One

The Structure and Function of the Eye
The Structure and Function of the Eye

It is important to understand the structure of the eye and how it works in order to better understand the functional implications of visual impairment. Following is a brief discussion of the parts of the eye and how they work together to enable the visual process to occur.

What are the parts of the eye and what do they do?

The eyeball lies in a pear-shaped, bony cavity or “eye socket,” the front of which can be closed off by the eyelids. The fat and connective tissues that surround the eyeball provide protection for the eye. Also protected are the optic nerve (which exits from the back of the eyeball) and the six muscles that attach the eyeball to the walls of the socket. These six muscles in each eye are controlled by the central nervous system. The muscles allow the eyeballs to move together in the direction of gaze.

Besides the eyeball, muscles, protective fat, and connective tissue, the orbital cavity contains blood vessels, nerves and the lacrimal gland. The lacrimal gland secretes tears that flow down over the surface of the eyeball and drain into the lacrimal sac or “tear duct,” which is located in the lower eyelid.

The eyebrows, eyelashes and eyelids help protect the orbital cavity and its contents. The eyelids contain additional glands that secrete oils and substances to help lubricate the
front of the eye and prevent evaporation of tears. Opening and closing the eyelids aids the flow of tears across the eyes. The eyebrows, eyelashes and eyelids, together with the bony tissues of the eye socket, provide a cushion against bumps and strikes and a shield against dirt, perspiration, and bright lights. Covering the undersides of the eyelids and the white front portion of the eyeball is a transparent mucous membrane called the **conjunctiva**.

The eyeball has three layers. The outer layer consists of the tough, fibrous white part of the eye called the **sclera** and the transparent **cornea**. The middle layer of the eyeball is called the **uveal tract**. It consists of the **choroid**, the **iris**, and the **ciliary body**. The choroid is rich in blood supply and lies beside the sclera. Its function is to provide nutrients to the retina. Next is the ciliary body containing the **ciliary muscle**, which helps control the thickness of the lens by contracting and relaxing the fibers that regulate its tension. The iris, the colored part of the eye, is behind the cornea and automatically changes in size to control the amount of light going through the hole at its center. The hole, the **pupil**, appears as a black circle in the center of the eye. It appears black simply because there is no light inside the eyeball. In photographs taken with a flash, that part of the eye appears red because the back of the eye is then illuminated, and it is covered with blood vessels. The transparent **lens** is the only refractive or “light bending” structure in the eye that can alter its shape. The lens is responsible for the fine-tuning of light rays so that they form clear images where they strike the inner retinal layer. Changes in muscle fibers called **zonules** or **suspensory ligaments**, allow the lens to thicken and become thinner.

Another part of the ciliary body, the **ciliary process**, secretes **aqueous humor**, a fluid that fills space behind the cornea. This fluid is drained out of the eye by the **canal of Schlemm** which is a circular vein around the edge of the cornea.

The inner layer of the eyeball is a nerve layer known as the **retina**. The thinnest area of the retina, the **macula**, is the point of clearest vision. The **fovea**, the central portion of the macula, contains only **cone cells** that are responsible for day vision and give us our sense of detail and color. Dispersed throughout the remainder of the retina are **rod**
cells which are sensitive to motion and the presence of light, and thus are essential for night vision. Beyond the retina lies the optic nerve which carries the visual information to the brain.

The large chamber in the eyeball behind the lens is called the vitreous cavity and is filled with vitreous humor, a transparent gel that is 99% water and that makes up about two thirds of the volume of the eyeball and three quarters of its weight. If the vitreous humor escapes or is extracted without replacement, the eyeball will collapse.

How does the visual process work?

In the normal and healthy eye, light rays enter and travel through the cornea where they are bent. This process is known as refraction. The rays travel through the aqueous humor to the iris. By constricting or dilating the pupil, the iris ensures that the appropriate amount of light passes through to the interior of the eye. The rays are then refracted again because the lens thickens or thins to make fine adjustments. This process is known as accommodation. (It is noteworthy that the cornea has more refractive power than the lens; the cornea refracts approximately 60% of light rays and the lens refracts approximately 40%.) The rays then pass through the vitreous humor and land on the retina where they come together (converge) on the macula and are focused. Interestingly, at this point the image on the retina is upside down. The retina changes this information into electrical impulses which travel through the optic nerve to the occipital lobe of the brain for interpretation. At this point, the brain rights the image and makes the connection with what we “see.”

If one or more parts of the eye are not working properly, the visual process may not occur in the manner described above. For information on various eye conditions and their impact on the visual process, please refer to Appendix D.
What are the common refractive errors?

Refraction refers to the ability of the cornea and the lens to bend light so that the rays converge and come to focus in one point on the retina. If the eye is not able to bend light correctly, vision is distorted and not clear. Usually, refractive errors are able to be corrected with eyeglasses or contact lenses. These enable the light rays to come to focus at the appropriate point.

**Emmetropia** refers to the normal eye. Light rays entering the eye are bent so that they come to focus directly on the retina.

Reprinted from Ward (1986)

**Myopia**, or nearsightedness, is a refractive error in which the eyeball is too long from front to back or the focusing power is too strong. The light rays converge too soon, coming to focus before reaching the retina. A person with myopia has difficulty focusing on distant objects but can focus on near objects.

Reprinted from Ward (1986)

**Hyperopia**, or farsightedness, is a refractive error in which the eyeball is too short from front to back or the focusing power is too weak. The light rays do not converge soon enough, coming to focus beyond the retina. A person with hyperopia has difficulty focusing on near objects but can focus on far objects.

Reprinted from Ward (1986)
What is astigmatism?

Astigmatism is an irregular curvature of the cornea or the lens of the eye. Light entering the eye will not be bent equally in all directions, resulting in distorted vision. Astigmatism may be corrected by eyeglasses or contact lenses. Astigmatism may occur alone, or in combination with myopia or hyperopia.

For further explanation of myopia, hyperopia or astigmatism, please refer to Appendix E.
Section Two

The Child who is Blind or Visually Impaired
The Child who is Blind or Visually Impaired

Over 80% of the information that comes to us each day comes through our vision. As babies, we use our vision to learn to identify people and items in our environment and to entice us to explore that which is beyond arms’ reach. Through vision, children learn things about their world: how to ride bikes, bake cakes, make facial expressions to convey their moods and understand how a house is constructed. In everyday life, children use their vision to learn by watching and imitating what they see other people doing. This is known as incidental learning. In school, children often need to see experience charts, science demonstrations, computer screens and chalkboards in addition to being able to read their texts. Children who are unable to easily read, or see all of their class work, must be provided the material through tactile or alternate media if they are to learn to their highest potential.

Although children with visual impairments are able to learn and do most of the things their sighted peers do, sometimes they may need direct teaching to learn many of the things their sighted peers learn incidentally. Visual impairment may affect development of concepts, mobility, orientation to an area, abstract learning, relationships with peers, self esteem, and access to many elements of educational, vocational and recreational living that the sighted world takes for granted. Children with visual impairments often have talents that they will be unable to develop without guidance to help them learn by using different sensory modes. A variety of teaching approaches will serve to enhance their learning and abilities in all areas of their lives. Early intervention with these children is critical.

What is visual acuity?

Visual acuity is a measure of clarity of vision. Distance acuity is usually measured at a testing distance of 20 feet (6 meters), although lesser distances may be used. Normal visual acuity is 20/20 (6/6), and variations in acuity are measured by this standard. As an example, 20/70 (6/21) means a person sees at 20 feet (6 meters) what a person with normal vision sees at 70 feet (21 meters). The larger the denominator in the fraction, the more severe the visual impairment. Near acuity is measured at a test distance of 16 inches (40 cm). More frequently, near visual acuity is reported as a statement of print size read. For further information on acuity and print size, see the charts on pages 2.2 and 2.3.
Who is the child with a visual impairment?

Any child who requires corrective lenses (glasses or contact lenses) to see can be said to have a refractive error. Refractive errors and other eye conditions may be congenital (present at birth) or adventitious (acquired after birth). If the severity of the refractive error interferes with the learning process, children are eligible for additional Special Education support.

Children who have visual acuity of 20/60 or visual field restriction greater than 20° will not receive direct service from the Itinerant Teacher for Students who are Blind or Visually Impaired, but may have visual needs to be addressed by the Classroom Teacher and/or Special Education Teacher. Please refer to Section Six for helpful information about appropriate programming for children with visual impairments.

In order to qualify for the support services of an Itinerant Teacher, a child must have a visual acuity of 20/70 or less in the better eye with corrective lenses, or a child must have a visual field restriction of 20° or less. (This is similar to looking through a paper towel tube and is often referred to as “tunnel vision.”) These children meet Criteria B according to the Newfoundland and Labrador Department of Education.

Below is an acuity conversion chart which shows the various classifications of visual impairments, and a chart which shows the correlations between print size and visual acuity.

### Acuity Conversion Chart

<table>
<thead>
<tr>
<th>Impairment Classification</th>
<th>Snellen Acuity (feet)</th>
<th>Snellen Acuity (metric)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>20/20 - 20/60</td>
<td>6/6 - 6/18</td>
</tr>
<tr>
<td>Low Vision</td>
<td>20/70 - 20/180</td>
<td>6/21 - 6/54</td>
</tr>
<tr>
<td>Legally Blind/ Low Vision</td>
<td>20/200 or less</td>
<td>6/60 or less</td>
</tr>
<tr>
<td>Light Perception</td>
<td>20/1320 or less</td>
<td>6/396 or less</td>
</tr>
</tbody>
</table>

Adapted from: The Visually Impaired Student in the Regular Classroom Resource Book. (1985). Province of British Columbia
Who is the child who is legally blind?

A child with a visual acuity of 20/200 or less with corrective lenses is considered to be legally blind. In addition to or instead of this visual acuity, a child is considered legally blind if he or she has a visual field of 20° or less. It is important to understand that legal blindness is not an educational designation, but a term which is used by government and in law.

Children who are legally blind may require the same level of support as children with less severe visual impairments. However, depending on the nature and severity of the visual impairment, these children may also require direct instruction in the areas of braille, use of the white cane for mobility and functional living skills.
Who is the child with low vision?
The majority of children who are legally blind have useful vision. However, they may have to be taught to use this vision efficiently. These children may read regular or large print and/or use braille and may learn through visual channels in addition to tactile methods. They may travel with or without a cane. It is important to note that these children require the services of the Itinerant Teacher and require an individualized support services plan (ISSP). Children with low vision may require supports such as special seating, large print materials, taped materials, lighting considerations, provision of low vision aids, orientation and mobility (travel training) and other supports or accommodations/adaptations based on the nature and severity of the visual impairment.

Who is the child who is blind?
Children who are unable to learn through visual channels and require teaching through sensory and tactile channels are considered blind from an educational perspective. Many people assume that children who are “blind” have no vision at all and live in a world of darkness. This is not always true. A child who is blind may be able to perceive light (light perception) or may not see anything at all (no light perception). The accommodations or adaptations required for a child who is blind are extensive. Children who are blind require instruction in braille, functional or independent living skills, and orientation and mobility. Children who are blind may also require counselling to help them adjust to blindness, especially those with adventitious blindness (acquired after birth).

Who is the child who is deafblind?
Children who are deemed deafblind do not necessarily live in total silence or total darkness. A child with a visual acuity of 20/200 or less with corrective lenses and a hearing loss of 40 decibels or greater in the better ear may be considered to be deafblind. This means that the child has a hearing loss which affects his or her ability to communicate, plus a visual impairment with implications as listed above. These children may have additional disabilities. Children who are deafblind will require the support of the Special Education Teacher and may require the support services of the Itinerant Teacher for Students who are Blind or Visually Impaired, the Itinerant Teacher for Students who are Deaf or Hard of Hearing, and additional support service personnel specific to their individual needs.
Who are the children with visual impairments and additional exceptionalities?

At times, a child who has a diagnosed exceptionality(s) such as cognitive delay or severe physical disability, for example, may have a visual impairment as an accompanying condition. These children are at risk for non-identification or late identification of the visual impairment. Children with a visual impairment and an additional exceptionality(s) will receive support from the non-categorical Special Education Teacher and may receive support from the teacher for students with moderate global/severe cognitive delay (Criteria C), severe physical disabilities (Criteria D), severe emotional and behavioral disorders (Criteria E), severe learning disabilities (Criteria F), or severe health/neurological/related disorders (Criteria G), if the student meets the criteria, in addition to the support of the Itinerant Teacher (Government of Newfoundland and Labrador Teacher Staffing Policy 10.1 C, D, E, F and G.) Children with a visual impairment and exceptional ability will receive support from the non-categorical Special Education Teacher as well as other District personnel who serve this population.

Which children are not considered to have a visual impairment?

Children having vision better than 20/70 or field of vision greater than 20°, but having visual processing difficulties are not eligible for support services from an Itinerant Teacher. Children with needs in areas of visual perception such as figure/ground, spatial relations, visual motor, or visual memory are not considered to be visually impaired. These children are eligible for support services through the other Special Education Teachers.

What is the screening process?

Any parent, family member, teacher or medical person suspecting that a child has a problem with vision can refer the child for screening to the Public Health Nurse, the Canadian National Institute for the Blind or the Itinerant Teacher. Teachers may use the checklist A Note to Teachers and parents may use the checklist A Note to Parents as an initial method of screening a child. These checklists may be found at the end of this section.

A simple quick screening test would have the child count fingers from 20 feet (6 meters). Have the child cover one eye at a time and repeat the above. The response should be correct and consistent using each eye separately and both eyes together without squinting, blinking, rubbing the eyes or leaning forward.
Parents and teachers may want to request an evaluation of a child’s vision if he or she is thought to be at risk for a possible visual impairment. A child with a family history of vision problems should be evaluated as early as possible and re-evaluated if the family history indicates late development of visual impairments. Children with additional exceptionalities such as cerebral palsy, brain injury or hydrocephalus should be evaluated prior to school entry. After the child enters school, this evaluation should be extended through the ISSP process, the reason being as the child matures areas of difficulty are often more easily and accurately defined. These children are often at risk for non-identification when the additional exceptionality masks the visual impairment.

What is the referral process?

If a parent, preschool teacher, classroom teacher or Individual Support Services Planning (ISSP) Team suspects a child has a visual problem, the first step is to take the child to a family doctor or a Public Health Nurse for an examination. It may also be helpful to contact the Itinerant Teacher responsible for the school/area. The medical professionals can refer the child to an Optometrist or Ophthalmologist, if necessary. The family can self-refer to these professionals, but there may be a fee involved. The Optometrist or Ophthalmologist will evaluate the child’s visual acuity and visual needs and will recommend corrective lenses, if required. If the child’s vision is such that he or she would benefit from the services from the Canadian National Institute for the Blind (CNIB), the family should be referred. Contact with the CNIB is a parental choice.

If it is suspected the child qualifies for the support services of the Itinerant Teacher, school personnel or parents should contact the Itinerant Teacher. In order to receive support services from the Itinerant Teacher, a medical form such as that provided by the Department of Education in Newfoundland and Labrador must be completed by the Optometrist or Ophthalmologist for both preschool and school age children. (See appendix F for the form.) This form is submitted by the Itinerant Teacher to the Department of Education as verification that the child meets Criteria B and, therefore, qualifies for service. An ISSP Team is formed at that time, if one is not already in place. Following are checklists to be used by teachers and parents to informally evaluate a child’s vision.
A Note to Teachers

Do you have a student in your class who is having difficulty staying on task, completing board work or reading? This student may have a vision problem that is interfering with learning. The following symptoms may be an indication of a visual impairment. If any of the following symptoms are noted, refer the student to the Public Health Nurse assigned to your school for a near and distance vision assessment. After the assessment, the Public Health Nurse can refer the student to the appropriate medical personnel, if necessary, and can assist you in referring the student to the Itinerant Teacher for Students who are Blind or Visually Impaired.

Observations of Symptoms That May Indicate a Visual Problem

- Frequent sties
- Tendency to rub at eyes
- Tilting or nodding head when looking at objects
- Squinting, blinking, twitching of eyes
- Extreme sensitivity to light
- Inflamed, running eyes; red-rimmed or swollen lids
- Crossed eyes
- Eyeballs smaller or larger than usual
- Sunken eyeballs
- Unusual eye movements
- Lack of sustained fixation on target or lack of eye contact
- Student avoids close work
- Student displays tension during close work
- Delayed response when visual materials are presented
- Tendency to close one eye when looking at materials
- Appears to look left or right of objects instead of looking directly at them
- Holds the page too close or too far away when reading (normal distance is about 16 inches from the eyes)
- Excessive head movements while reading
- Complaint of blurring when viewing materials near or far
- Complaint of headaches, dizziness or nausea associated with the use of the eyes
- Complaint of pain or discomfort in eyes
- Complaint of seeing double
- Complaint of not being able to see straight ahead, on the sides or in one visual area
- Excessive reversals in reading
- Loses place while reading
- Skips lines unknowingly
- Does not follow lines in exercise books
- Complaint of words or letters running together
- Thrusting head forward when observing distant objects
- Impaired color perception
- Poor eye and hand coordination
- Uneven gait and/or difficulty moving around the room or school
- Frequent stumbling when moving
- Has difficulty seeing or moving at night or in darkened areas
- Has difficulty moving from bright to dark or dim areas

If you have any questions or concerns, please contact the Itinerant Teacher for Students who are Blind or Visually Impaired in your School District or the Public Health Nurse for your area.
A Note to Parents

Does your child avoid looking at bright objects or looking at pictures when you read stories? Is he or she too tired to complete homework at night? Your child may have a vision problem.

If you suspect your child has problems seeing, mark the items on the following checklist that apply to your child. A child with several of these symptoms might benefit from a visual assessment by an Optometrist or Ophthalmologist. This assessment can be arranged either by you or through a referral from your family doctor. If your child is attending school, the Public Health Nurse or Itinerant Teacher assigned to that school can assess your child’s vision and make the necessary referrals. Discussing your concerns with the child’s teacher may give you further information about his or her visual behavior in school.

Observations of Symptoms That May Indicate a Visual Problem

___ Frequent sties
___ Tendency to rub at eyes
___ Tilting or nodding head when looking at objects
___ Squinting, blinking, twitching of eye
___ Extreme sensitivity to light: closes eyes or cries when taken into the sun
___ Inflamed, running eyes; red-rimmed or swollen lids
___ Crossed eyes
___ Eyeballs smaller or larger than usual
___ Sunken eyeballs
___ Unusual eye movements
___ Lack of sustained fixation on target or lack of eye contact
___ Turns to sounds but not brightly colored objects
___ Delayed response when shown brightly colored objects
___ Tendency to close one eye when looking at objects
___ Thrusting head forward when observing distant objects
___ Appears to look left or right of objects instead of looking directly at them
___ Holds the book too close or too far when reading or looking at pictures (normal distance is about 16 inches from the eyes)
___ Will not look at pictures in a book
___ Loses place while reading
___ Skips lines unknowingly
___ Does not follow lines in exercise books
___ Excessive head movements while looking at pictures or reading
___ Sits very close to or very far from the television
___ Complaint of blurring when viewing materials near or far
___ Complaint of headaches, dizziness or nausea associated with the use of the eyes
___ Complaint of pain or discomfort in eyes
___ Complaint of seeing double
___ Complaint of not seeing straight ahead, on the sides or in one visual area
___ Complaint of words or letters running together
___ Mixes up red/blue/purple or green/brown/orange
___ Reaches in front of or behind objects such as a drinking glass
___ Uneven step and/or difficulty moving around home or in new places
___ Frequent stumbling or bumping into objects when moving in the house
___ Has difficulty seeing or moving at night or in darkened areas
___ Has difficulty moving from outside into the house

If you have any questions or concerns, please contact the Itinerant Teacher for Students who are Blind or Visually Impaired in your School District, the Public Health Nurse in your area or your family doctor.
Section Three

Support Services Planning and the Child who is Blind or Visually Impaired
Support Services Planning and the Child who is Blind or Visually Impaired

What is the Model for the Coordination of Services to Children and Youth?

Under the Model for the Coordination of Services to Children and Youth with Special Needs (Departments of Education, Health, Justice, and Human Resources & Employment, 1995), personnel from the four partner Departments of Government in Newfoundland and Labrador collaborate to provide services to children and youth. This framework is intended to guide service delivery to children and youth through emphasizing collaboration amongst families and service providers. The following diagram illustrates the components of the model.
There can be numerous individuals who play a role in the delivery of services to children and youth with visual impairments. The diagrams below illustrate the coordination of services outside the education system and within the education system.

**Coordination of Services Outside the Education System**

**Coordination of Services Within the Education System**

*Atlantic Provinces Special Education Authority*

Any of the individuals listed previously, in combination, may...
Any of the individuals listed previously, in combination, may form the Individual Support Services Planning (ISSP) team. There are many partners involved in programming to meet the child’s needs. One must never lose sight that team building is crucial and that the child is at the center of it all.

**What is the ISSP process?**

The Individual Support Services Plan (ISSP) identifies the child’s strengths and needs and provides the framework for an integrated approach to meet those needs. It is a collaborative process involving the child, the parent and relevant service providers from the Departments of Education, Health and Community Services, Human Resources and Employment, Justice and other relevant agencies. These parties work together to identify appropriate annual goals for the child, the services required to meet the child’s needs and the approaches to achieve those goals. An ISSP is a summary of the child’s strengths, needs and goals, and the program which he or she will be following, including the services required and who will provide those services.

One component of the Model is single entry, meaning that team building begins with the first delivery of a service to the child. It is expected that all preschool children who are blind or have a significant, identified visual impairment are involved with the Itinerant Teacher for Students who are Blind or Visually Impaired, in addition to other professionals, and come to school with an ISSP team already in place. The interagency nature of services for children who are blind or visually impaired lends itself to this eventuality, and service to these children should be seamless. For further information, please refer to Coordination of Services to Children and Youth in Newfoundland and Labrador: Individual Support Services Plans (Division of Student Support Services, 1997a).

**What are some factors to consider when developing the educational component of the ISSP for a child who is blind or visually impaired?**

Following are some important points to keep in mind when developing an ISSP for a child with a visual impairment:

- It must be remembered by those working with the child that vision affects all areas of functioning and the perceptions which the child has of his or her world.

- Visual skills cannot be taught in isolation and must encompass a variety of curriculum areas.
One must consider the prerequisite skills which are needed to move from one developmental level to another. Questions to ask are: What skills must the child have mastered to get to this point? Where is he or she headed next? Which new skills does he or she need to acquire in order to get there? Search for attainable goals. It is unrealistic, for example, to expect a child with a visual impairment to copy mathematic equations from the textbook to his or her notebook if he or she has not mastered the skill of eye/hand coordination.

The child must be seen as an individual and the team must remember the difficulties experienced by the child because of his or her specific visual condition. For example, would the child who is blind automatically be aware of someone extending a hand for a handshake in a social situation? Would he or she be aware of the social implications arising when you do not return the offer of a handshake? What are some specific social skills and techniques which can be learned by the child to allow him/her to function appropriately in such situations?

Compensatory skills such as braille, use of low vision aids, visual efficiency, keyboarding, listening skills or orientation and mobility must be given a place in an ISSP (whether formalized as curriculum credits in high school or built into all areas of the curriculum as the child enters school).

Statements of the goals should reflect the need for transfer between the home and school base and should translate to a similar skill that could be applied outside the school.

Goals should ultimately lead to as much independence as possible, to the reality of graduation and to the eventuality that the youth will function without assistance.

Programming goals must shift as the child advances and needs a change in focus (independent living skills must be addressed, vocational planning carried out, sexuality and interpersonal relationships discussed, etc.).
Regardless of a youth’s plans upon leaving high school, self-help skills are still central to personal development and to having the child with a visual impairment viewed as a person separate from his or her caregivers.

What is profiling?

Under the Model for the Coordination of Services to Children and Youth, children and youth are profiled. Profiling refers to the process by which the special needs of children are documented to ensure the most effective planning and delivery of programs. At a team level, the profile provides a snapshot of the child’s or youth’s needs and the degree to which those needs are being met. When collated, overall needs or gaps in service provided by schools, school districts and regions of the province will also be identified. The profile is intended to identify all children/youth requiring service and those at risk in an effort to:

- identify the needs of each community in the region
- accurately represent the needs of the region to the regional boards and provincial departments of government
- identify barriers to service delivery and problem solve around those issues
- identify enhancers and facilitators of good professional practice
- evaluate, with consumer input, the effectiveness and efficiency of current policies and practice

For whom is a profile completed?

In the document Coordination of Services to Children and Youth in Newfoundland and Labrador: Profiling the Needs of Children and Youth (Division of Student Support Services, 1997b), the Departments of Education, Health and Community Services, Human Resources and Employment, and Justice indicated that the children who would be profiled included those:

- identified as being at risk by a professional or parent/guardian
- receiving support services from an employee/agency of the Departments of Education, Health and Community Services, Human Resources and Employment or Justice.

Profiles are completed for children receiving any services as a result of blindness or visual impairment.
Profiles are completed as soon as a child/youth is identified as being at risk, or when the child/youth is receiving ongoing support and service from one or more service providers (requiring an ISSP). The team manager is responsible for completing the Child/Youth Profile after the initial meeting. Profiles submitted to the Regional Child Health Coordinator are then compiled and examined to help identify positive practices, along with gaps and overlaps in service.

The Individual Support Services Manager (ISSM) completes the profile in consultation with the support services planning team providing services to the child. The team may involve only one service provider along with the child, parent and teacher, or it may involve many professionals working with the child and parents. For more information on profiling, see the document Coordination of Services to Children and Youth in Newfoundland and Labrador: Profiling the Needs of Children and Youth (Division of Student Support Services, 1997b).

Pathways to Programming and Graduation (Division of Student Support Services, 1998) is a framework developed by the Department of Education to provide guidance in appropriate program planning for children. There are five Pathways outlined:

- Pathway 1: provincially prescribed programs
- Pathway 2: provincially prescribed programs with additional supports (accommodations and/or adaptations)
- Pathway 3: modifications to provincially prescribed programs/courses
- Pathway 4: alternate programs/courses
- Pathway 5: total alternate curriculum

Children who are blind or visually impaired will access various Pathways in their individual programming. Children are not slotted into one particular Pathway, rather they access various appropriate Pathway supports based on their strengths and needs.
Pathway 1 indicates that the child accesses the provincially prescribed program with no additional supports. There is access to a wide range of courses to meet his or her varying needs.

Pathway 2 supports allow the child to access the provincially prescribed program by using various accommodations and adaptations. An ISSP is required for this child. Some of these supports for children who are blind or visually impaired are:

Instructional/presentation techniques, for example:
- Orientation to texts
- Short term instruction in concepts which are taught using visual materials
- The use of technology to compensate for the visual impairment
- Alternate teaching methods to grasp content
- Instruction so that the child understands his or her visual disability
- Buddy system for copying notes and other tasks

Learning environments: organizational techniques, for example:
- Mechanisms to reduce glare
- Student specific lighting devices
- Orientation to learning stations, classrooms and school
- Adaptations to reduce clutter, appropriate set-up, color use
- Techniques to increase visual efficiency and contrast
- Seating arrangements to enhance learning

Learning resources, for example:
- Alternate learning media such as braille or audiotaped materials
- Use of low vision aids

Evaluation procedures, for example:
- Extended time frames for test taking and homework assignments
- Oral testing

Motivational strategies, for example:
- Providing immediate feedback
Pathway 3 supports involve modification to provincially prescribed courses by deleting, adding or changing outcomes. An ISSP is required.

Pathway 4 supports involve developing alternate programs/courses in appropriate areas. An ISSP is required. Following are examples of alternate programs/courses which may be required by children with visual impairments:

- braille
- orientation and mobility in grades K-8
- non-verbal communication
- social skills
- functional skills
- keyboarding
- self-help skills
- sexuality
- any academic area which is not included in the prescribed curriculum
- work experience
- utilization of specialized technology
- Internet access
- research methods
- daily living skills
- personal management skills
- alternate viewing techniques to account for a particular visual disability
- adjustment to blindness

Pathway 5 supports involve programming for children for whom vision is not the principal concern, but a concern in addition to other exceptionalities (moderate/global and severe cognitive delays). These children would be following an alternate curriculum in all areas of development. For further information on programming for these children, refer to Using our Strengths: Programming for Individual Needs: A Resource Book for Educators (Division of Student Support Services, 1992).

For further information on Pathways, refer to Pathways to Programming and Graduation (Division of Student Support Services, 1998).
What are considerations for transitional planning for children/youth who are blind or visually impaired?

Transitional planning is an important part of programming for children who are blind or visually impaired. It facilitates the successful movement from one environment or situation to another and is crucial to the child/youth’s comfort level when such movement occurs.

Transitional planning must take place at the following points during the child/youth’s growth:

- at least one year prior to school entry
- one year prior to each anticipated move between levels of schooling or between schools
- four years prior to graduation
- between grades where the exceptionality indicates the need

Transitional needs will be identified collaboratively through the ISSP process, and needs will be varied. For children entering school for the first time in Kindergarten, it is of utmost importance to present necessary information to school personnel regarding the child’s visual condition and to give them ideas of what to expect when the child arrives in the classroom. It is also crucial to prepare the child for the experience of entering school.

Orientation to new buildings and areas is crucial for the child who is blind or visually impaired. Ideally, this should be done the spring before the child enters the school. If possible, junior and senior high school students should review their class schedule in the building before classes start in the fall. The school building may need to have some adjustments such as brightly colored tape for the edges of stairs, colored lines on the floor for paths commonly travelled by the child throughout the day, braille labels on doors. Regularly travelled paths need to be clear.

Familiarizing the child with new environments and people (especially teaching personnel) will help him/her feel more secure in his or her new surroundings. Specific and direct instruction in procedures (e.g., how to proceed in a fire drill, from which door to enter the line in the cafeteria) allow the child to be as informed and comfortable as his or her sighted peers.

For a student entering high school, for example, career planning intervention (assessment of skills, knowledge,
aptitudes, attitudes) is important so that the student’s high school courses are appropriately chosen.

For youth preparing to leave high school, the ISSP team can review a variety of options. In-school counselling and career exploration is the first step. The Canadian National Institute for the Blind (CNIB) has an employment counsellor who can discuss additional career/transitional information. The Atlantic Provinces Special Education Authority (APSEA) provides two short term programs for career exploration and has a Transition Facilitator on staff to provide additional information and support for youth leaving school. Youth entering post-secondary institutions may find it useful to meet with support personnel in those institutions. The Itinerant Teacher for Students who are Blind or Visually Impaired is an important player in transitional planning, often providing information about funding available through sources such as Employability Assistance for Persons with Disabilities (EAPD), and other supports available to the youth. Evaluation of post-secondary supports provided to youth with disabilities is necessary for decision making during this transitional period.
Section Four

The Preschool Child who is Blind or Visually Impaired
The Preschool Child who is Blind or Visually Impaired

The preschool child who is blind or visually impaired is first and foremost a child with unique abilities and needs. Second, he or she is a child who has a visual impairment. As with all young children, the preschool period is a time of immense learning and preparation for future experiences. The preschool child who is blind or visually impaired may require direct teaching of skills and guidance through experiences which the child with normal vision encounters incidentally.

The development of the child who is blind or visually impaired may progress at the same rate as his or her sighted peers, or may differ widely, depending on a variety of factors. These factors include:

- degree of visual loss
- age of diagnosis
- presence or absence of additional disabilities
- amount of early intervention
- network of support available to the child and family.

The table below lists milestones in nineteen developmental areas for children with sight, with low vision, and with additional disabilities.

It is important to note that these developmental points are only a guide and may vary with individual children. Some children may move through these developmental stages quickly, while others may move through them very slowly. Parents need to be aware that their child will have his or her own unique pattern and will display progress in a variety of ways. Children may also show a “splintering” of skills and appear to be more developed in some areas than in others.

Because the visual diagnosis and the prognosis of the child’s vision may affect development, those working with the child should be aware of that visual diagnosis. The parents/guardians of a preschool child who is blind or visually impaired need to be informed of the child’s specific individual visual impairment. They need to be aware of the nature of that impairment in general, their child’s specific impairment and that child’s visual needs. The parents also need to be informed that their child’s vision may change as a result of the child maturing, or due to the type of medication the child is prescribed.
## Developmental Milestones for Preschool Children (in months)

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Norm</th>
<th>VI only</th>
<th>VI + additional disability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaches and touches an object</td>
<td>5.4</td>
<td>8.1</td>
<td>10.6</td>
</tr>
<tr>
<td>Transfers object from hand to hand</td>
<td>5.5</td>
<td>8.3</td>
<td>10.1</td>
</tr>
<tr>
<td>Searches for a removed object</td>
<td>6.0</td>
<td>13.4</td>
<td>18.2</td>
</tr>
<tr>
<td>Sits alone without support 5 sec.</td>
<td>6.6</td>
<td>9.2</td>
<td>11.9</td>
</tr>
<tr>
<td>Feeds self bite-size pieces of food</td>
<td>7.4</td>
<td>11.1</td>
<td>18.8</td>
</tr>
<tr>
<td>Produces 1 or more consonant-vowel sounds</td>
<td>7.9</td>
<td>9.5</td>
<td>11.8</td>
</tr>
<tr>
<td>Moves 3 or more feet by crawling</td>
<td>9.0</td>
<td>11.4</td>
<td>18.3</td>
</tr>
<tr>
<td>Plays an interactive game</td>
<td>9.7</td>
<td>9.3</td>
<td>13.1</td>
</tr>
<tr>
<td>Walks without support 10 feet</td>
<td>13.0</td>
<td>19.0</td>
<td>26.6</td>
</tr>
<tr>
<td>Points to at least one major body part when asked</td>
<td>17.5</td>
<td>18.8</td>
<td>20.2</td>
</tr>
<tr>
<td>Removes simple garment without assistance</td>
<td>20.5</td>
<td>19.2</td>
<td>24.8</td>
</tr>
<tr>
<td>Generally follows directions related to daily routine</td>
<td>20.5</td>
<td>19.3</td>
<td>25.0</td>
</tr>
<tr>
<td>Uses two-word utterances to express meaningful relationships</td>
<td>20.6</td>
<td>24.9</td>
<td>36.1</td>
</tr>
<tr>
<td>Uses pronouns I, you, and me</td>
<td>24.0</td>
<td>24.8</td>
<td>36.1</td>
</tr>
<tr>
<td>Controls bowel movements regularly</td>
<td>30.0</td>
<td>24.9</td>
<td>38.6</td>
</tr>
<tr>
<td>Repeats two-digit sequences</td>
<td>30.0</td>
<td>25.0</td>
<td>37.0</td>
</tr>
<tr>
<td>Walks down stairs alternating feet</td>
<td>30.0</td>
<td>30.2</td>
<td>36.2</td>
</tr>
<tr>
<td>Copies circle</td>
<td>33.0</td>
<td>37.2</td>
<td>30.0</td>
</tr>
<tr>
<td>Relates his or her past experiences</td>
<td>40.0</td>
<td>36.9</td>
<td>37.7</td>
</tr>
</tbody>
</table>

**Note:** Reprinted from Project Prism: A Longitudinal Study of Developmental Patterns of Children Who are Blind or Visually Impaired. Final Report by K. A. Ferrell, 1998
What are considerations for teaching preschool children who are blind or visually impaired?

Children who are blind or visually impaired may not have a clear picture of their world. This unclear view of the world means they may need assistance in all areas of their development: cognitive, linguistic, social, fine motor and gross motor. They may need to learn new ideas or concepts through direct teaching. They may also need to supplement what they learn through vision by exploring their other senses as well. They will have to learn that a world exists beyond themselves and their own needs. Additionally, they will have to be taught and given the opportunity to come in contact with this world by learning to coordinate their movements through a variety of environments.

Just giving young children with visual impairments experiences is not enough. New experiences must be related to what the child already knows and explained through a variety of techniques in order for the child to transfer information from one area to another. For example, children without visual impairments are able to see a fire engine moving through the street and will associate the fire engine with the noise. A young child who is blind may hear the sound of the fire engine but not know what the fire engine is like, why it is moving loudly through the street, what a fire is or why it needs to be put out. Parents and teachers need to help the child connect the sound of the fire engine with the noise through trips to fire stations, facilitating exploration of the engine, turning the siren on, finding fire hydrants in the neighborhood, stories about fire engines, comparisons with cars and trucks familiar to the child, experience with fires and putting fires out. Then, the child will have a better understanding of what is happening when a fire engine moves through his or her neighborhood.

Similarly, a child with low vision may not understand that a street has two sides and that each side of a street is not a separate street. Only a wide variety of experiences and a number of walks, explanations and opportunities with toys to build models of streets will help a child learn this concept. The young child with a visual impairment requires this type of detailed experiential teaching as preparation for the academic and often less concrete learning in the school environment.

The role of the parents at this time is vital. Young children
who are blind or visually impaired, like all young children, need time and attention from their parents. The parents of children who have been diagnosed with visual impairments are often coping with their grief and, sometimes, feelings of guilt for loss of their child’s vision at this important learning time. At this time, intervention and support of the child in the home environment by professionals working in the area of visual impairment is crucial. Those working with the family need to be aware of the difficulties which the family is experiencing, as well as the need for the parents to be a major part of the planning team for their child. Including the family in the team, building the program around the child’s and family’s needs and valuing the input of the parent results in better, more effective programs for the child.

At the same time, the visual impairment of the child should not be the only factor that defines the child. Parents, caregivers and teachers need to consider the total child, and that all those elements of childhood still exist. For example, discipline is still important, household tasks are necessary, play is vital and social visits with peers with and without visual impairments are important. Mistakes are part of all children’s learning. Those working with a child who is blind or visually impaired need encouragement to look at the child as a child, not as a visual diagnosis. All members of the ISSP team must be prepared to learn from, as well as teach, the child.

Some young children may need help with sensory integration, the ability to make sense of all learning through movement and the senses. Without it, the young child is unable to process all that he or she encounters or to make sense of what is experienced. If a child needs sensory integration training, the ISSP team will work with the family to plan an appropriate program.
How is the ISSP developed for the preschool child?

The ISSP for the preschool child is developed by all team members based on the child’s priority strengths and needs. Knowledge bases of team members (including parents) give various perspectives on the needs of the whole child. Consideration is given to what the child’s next goals will be.

Those members knowledgeable about child development and how visual impairment affects development will provide valuable information to help outline upcoming goals. It is essential to examine the perspective of the parents to see what they feel are the primary needs for their child. It is important that all team members are provided with an outline of program areas that should be considered when listing strengths and needs for the child with a visual impairment (and additional exceptionalities, where appropriate).

The Itinerant Teacher for Students who are Blind or Visually Impaired will have a great deal of input into the development of the ISSP. One of the roles of the Itinerant Teacher will be to liaise with professionals working in Health and Community Services, the CNIB and with parents. Early childhood teachers and/or preschool teachers may also be included on the ISSP team for children who receive their services.

Please refer to Coordination of Services to Children and Youth in Newfoundland and Labrador: Individual Support Services Plans (Division of Student Support Services, 1997a) for further information regarding development of the ISSP.

What are program considerations for the preschool child?

The goals for preschool children should follow, as closely as possible, those of children without visual impairments or blindness. However, children with visual impairments do not necessarily learn in either the same way or at the same rate as their age peers. Therefore, the program put in place for the preschool child should be child-specific with considerations for the visual impairment and the cognitive and physical needs of the child. The following are specific areas which must be considered when programming for the preschool child with a visual impairment:

- Orientation and Mobility: Emphasis is on learning
techniques that ensure safe and efficient travel and on learning how to familiarize oneself with different environments. The ultimate goal for the child is to become an independent and confident traveller.

- **Concept Development:** Since many of our concepts are developed through vision, children who are blind or visually impaired need to be taught through non-visual means and concrete experiences. A concept may be defined as a mental representation, image or idea of what something should be. It is formed by classifying or grouping objects or events with similar properties. A concept is given a name or a label. Whenever possible, real objects should be used with children who are blind or visually impaired. Experiences may need to be repeated many times and concepts should be taught in a variety of situations and in contexts that are meaningful to the child. Concept development is continuous. Many children who are blind or visually impaired use words without understanding their meaning (verbalisms). Examples of concepts which would need to be emphasized with the child are position, laterality, size, sequence, body image, quantity and emotions.

- **Sensory-Motor Skills:** Vision is a motivating factor in sighted babies learning and practicing basic motor skills. Children who are blind or visually impaired will need direct teaching in this area in order to master the skills required for interacting with the environment. Some examples of gross motor skills would be posture, head control, limb control, sitting, crawling, walking and balancing. Some examples of fine motor skills would be grasping and holding objects, exploring objects tactually or differentiating between different textures (important for learning braille).

- **Communication Skills:** A common myth is that children who are blind or visually impaired hear better than their sighted peers. There is no basis in fact for this notion, and it must be acknowledged that listening skills for all children are acquired through experience. Appropriate listening skills depend on the child’s ease in using language. This ease depends on concept development and requires that the child understands the sounds heard. Therefore, specific attention must
be paid to direct teaching of listening skills to children who are blind or visually impaired. If a child who is blind or visually impaired requires alternate format materials such as large print or braille, it is essential to introduce these materials as early as possible so the child has a great deal of exposure to them. Exposure is important to language development.

- Daily Living Skills: Children who are blind or visually impaired should be just as responsible for their self-care needs as their sighted peers. These self help skills are important for independence and self-esteem. Direct teaching will likely be necessary for these skills and compensatory techniques will be utilized by the child. Examples of daily living skills are eating, dressing, setting a table, brushing teeth and putting away toys.

- Socialization: Children who are blind or visually impaired may not possess appropriate socialization skills for dealing with others, and they may not understand the complexities associated with expressing themselves in various environments because they have limited access to these very visual behaviors. Sighted children learn these interaction skills by watching and imitating those around them. Children with visual impairment will require direct teaching of social skills so that they can learn acceptable ways of interacting with people and materials (e.g., not standing too close to people, not grabbing toys, saying “please”). Having appropriate social behavior is crucial for acceptance in society.

- Technology and Special Equipment: Children who are blind or visually impaired will learn early that technology is important to their lives. They should be exposed to computer technology as soon as possible and should begin to use tape recorders as a prelude to accessing books on audiotape. This learning can be combined with listening skills as well. Another necessary consideration is use of low vision aids (magnifiers or telescopes) and teaching the child how to use them properly. This, too, should begin as early as possible.

- Vision Stimulation/Visual Efficiency: Many children
who are legally blind have residual vision which can be of benefit to them. It is likely, however, that they will need to be specifically taught how to maximize the use of their vision. Examples of skills which should be explored are fixation, shifting gaze, tracking, scanning, eye-hand coordination, peripheral vision, blur interpretation skills, and near and distance vision skills.

• Critical Thinking Skills: Children who are blind or visually impaired, like all children, must learn to think for themselves, to problem solve and to think logically. They must have experience in making decisions, problem solving and resolving conflicts.
What are the considerations for developing literacy of a preschool child who is blind or visually impaired?

The first major consideration for a reading program is establishing a broad experience base. The more experiences available, the more ways the child is involved in the experience and the more meaningful the experiences are to the child, the more he or she will receive from the written word. At this level, the child is not actually learning to read, but building the language base upon which reading depends. The approach for reading preparation for children with visual impairments and blindness follows that of children with vision. Read to the child often. Allow opportunities for him or her to handle reading material in a print or braille format.

For a child with low vision, books should be chosen with consideration for the child’s ability to see what is on the printed page. Pictures should be clear and brightly colored. The child should be able to identify with some ease what is in the picture. The pages of the book should be uncluttered. Many preschool picture books have pages that are very cluttered. In choosing these books, consider the visual acuity of the child. A child with greater visual acuity may be able to tolerate more clutter. Involve the child in choosing books, letting him or her decide whether the pictures are easy to see.

What are the considerations for a reading program for a preschool child using braille?

Children who are blind and who will become braille readers still need to have someone read to them. Books that depend on the pictures to tell the story may not hold the child’s attention as much as those with strong non-visual stories. Pairing a concrete object(s) with the story may help young blind children to understand the story better. The child who will be using braille to access the printed word needs to be exposed to braille in books from an early age. Objects in the environment should be labeled with braille so the child learns there is a connection between braille letters and real objects. Print and braille books are available from the American Printing House for the Blind (See Appendix D). APSEA and the CNIB have books for preschool children who are blind. The books contain braille and print so the child and parent can read the book together.

The Patterns Prebraille Program (Caton, Pester & Bradley, 1987) has a series of activities and books for the young beginning braille reader. Some of the activities can be
combined with traditional pre-school programs. As the young preschool braille reader progresses, parents may want to make books with the child, pairing objects with braille. These books should be about experiences the child has had with objects gathered at the time. For example, develop a scrapbook of items picked up on the beach on vacation, a book about going out blueberry picking with blueberry leaves, rocks or other objects picked up at the time pasted in it, or an alphabet book with each letter in braille and small toys and objects for each letter. These books are bulky but may be more meaningful to the child than a book of just words and pictures. Such books may also help to ease the transition into kindergarten because they would be a way for the child to bring his or her experiences with them.
Preschool children with low vision need a wide range of experiences and exploratory activities. Because these children may see and move comfortably within a familiar environment, some direct teaching may not be necessary. However, these children may not learn as visually as they appear to learn. Their understanding of basic concepts should be evaluated to indicate needs for direct teaching. Body parts, body planes, laterality, directionality and gross and fine motor movements should be evaluated. It is important to ensure each child moves within the community as much as possible while explaining and allowing exploration of what is experienced.

For the preschool child who is blind, direct teaching is more intense and constant than that of a child with low vision. The child who is blind needs to have a safe environment which he or she can explore both inside and outside the home. Exploration in a wide variety of settings is necessary. Additionally, this child needs some control over his or her environment either by setting his or her own boundaries, or having established personal spaces. Using toys for boundary lines is one method by which the child would establish his or her own space limitations.

The first consideration in Orientation and Mobility (O&M) for the child who is blind is development of motor skills. Some direct teaching may be needed for crawling, climbing stairs, using swings and other motoric activities. This program must be determined by the ISSP team while considering the child’s age and level of development. A young child may use a modified cane, a push toy or a white cane to move in both familiar and unfamiliar environments.

Transitional planning for the preschool child who is blind or visually impaired must specifically prepare him/her to enter formal preschool programs and/or Kindergarten. The Itinerant Teacher will be instrumental in helping prepare the child for Kindergarten entry. This planning must begin the year before school or preschool entry and must address needs of the child for the various services listed below.
What services are available for preschool children who are blind or visually impaired?

There are a variety of services available to preschool children and their families to help them cope with the diagnosis of visual impairment and to assist them in carrying out programming designed to benefit the development of the child.

The Public Health Nurse in the community will often be the first resource of the Department of Health and Community Services used by the family. If diagnosis of the eye condition takes place early in the child’s life, the Public Health Nurse may act as the liaison between the family and eye care professional(s). In smaller communities, the Public Health Nurse may act as a major source of information concerning a child’s eye condition, and may regularly monitor the child’s condition. If diagnosis of the eye condition has not taken place during the first few years of life, it may be picked up through the Preschool Health Check.

The Canadian National Institute for the Blind (CNIB) is an initial source of support, information, advocacy and professional intervention to preschool children and their families. They accept referrals from medical practitioners, family members or anyone concerned about a child’s vision. The CNIB works closely with Public Health professionals, Child Management Specialists, Itinerant Teachers and other service providers to help ensure that preschool children receive the services they require. See Section Ten for specific information regarding available CNIB services.

The Itinerant Teacher has the mandate to work with children from birth to the completion of high school. This individual will be a great source of support for the child and family. The Itinerant Teacher may act as a direct service provider, as a liaison between agencies and Departments and as an advocate for the child. Other services may be available through Direct Home Services or the Neuromotor Division of the Child Health Program at the Janeway Child Health Centre if necessary, depending on the child’s needs.
Section Five
The Expanded Curriculum for Children who are Blind or Visually Impaired
The Expanded Curriculum for Children who are Blind or Visually Impaired

What are the expected outcomes for children with visual impairments?

It is expected that each student with a visual impairment and no additional exceptionalities leaves school:

• having fulfilled the graduation requirements for the province, and
• having mastered the compensatory skills identified as requisite for students with visual impairments.

While a child is in school, the programming Pathways chosen should be appropriate for that individual child. The Pathways chosen should reflect the child's academic abilities and needs. Incidental learning in areas beyond the normal academic program may not occur for children with visual impairments. Therefore, direct teaching of skills may need to be included in the child’s individualized program. The determination of how these skills are taught, and by whom, is part of the ISSP process.

A checklist of non-academic skills which youth with visual impairments should have at graduation is included on the following page.
Non-Academic Outcomes for Graduation

At graduation, a youth with a visual impairment should:

___ be able to handle personal hygiene and grooming needs
___ be knowledgeable of roles and responsibilities in family living and planning
___ be able to obtain systematic and emergency medical, dental and ophthalmological care
___ be able to acquire and prepare basic foods
___ be able to select and order foods from restaurants
___ be able to select and care for appropriate housing
___ be able to acquire appropriate clothing and care for this clothing
___ be able to budget and be familiar with banking systems
___ be familiar with billing procedures and the use and abuse of credit cards
___ be able to plan and organize personal time
___ be familiar with the laws and agencies which affect or provide legal assistance for persons with visual impairments
___ be able to engage in discourse and speak in language appropriate to that listener
___ to be able to write in a manner appropriate to the person receiving written material
___ if a braille user, be cognizant of the variety of braille codes available—Grade One, Grade Two, Grade Three, Music, Nemeth and Computer Braille Codes
___ have a written signature
___ be aware of technology available to persons with visual impairments and be able to use the aids appropriate for personal needs
___ be able to travel safely, efficiently and gracefully in familiar settings
___ be familiar with major forms of transportation and any regulations concerning travel on this transportation
___ be knowledgeable about when and where to access assistance when traveling and how to learn to travel in unfamiliar areas
___ be able to respond in a mature manner to problems arising out of the visual impairment
___ have developed age-appropriate social and recreational activities and interests
___ have knowledge of the rights and duties of citizenship and how to exercise those rights
___ be familiar with a number of occupations and the concept of the person as an employee or employer
___ have participated in realistic work experiences with or without pay
___ be familiar with the completion of standard job applications
___ have begun the process of determining a career choice
___ know how to access genetics counselling
___ be familiar with own medication needs and administration of same
What are compensatory and functional skills?

Children who are blind or visually impaired may need specific skills directly taught in order to access the prescribed curriculum taught in school. Compensatory skills refer to those skills which the child who is blind or visually impaired requires for access to all areas of the curriculum. Functional skills, or independent living skills, refer to those skills the child requires in order to work, play, socialize and take care of personal needs to the best of his or her ability.

The compensatory and functional skills include concept development, spatial understanding, study and organizational skills, speaking and listening skills and adaptations necessary for accessing all areas of the curriculum. Children in academic programs may require, for example, additional support in order to more easily learn map skills, geometric forms, handwriting, graphing or physical education activities such as jumping rope or skipping. All children who are able, should also have some form of a signature that they can write independently.

What are visual efficiency skills?

Visual efficiency skills are those skills that enable the child to make the most efficient use of his or her vision. The assessment of the child’s functional vision will determine what skills are taught. These skills could include finding visual cues for Orientation and Mobility (O&M), recognizing elements of pictures, reading with a closed circuit television, blur interpretation or using telescopic aids.

What is involved in the Learning Media Assessment process?

Reading media refers specifically to print, large print, braille or audiotape. Children who are blind or visually impaired may use one or a combination of any of these formats. The Learning Media Assessment (Koenig & Holbrook, 1993) is a tool used by the Itinerant Teacher to determine which of these formats is best for each child as the primary and secondary media.

First, the Learning Media Assessment (Koenig & Holbrook, 1993) evaluates which sensory channels the child uses most and best. The channels evaluated are vision, touch and hearing. Because this assessment is conducted through observation, preschool children may be evaluated using this tool. The results of this assessment help determine which format for reading the child will find best for initial learning. The age, the visual diagnosis and the ability of the child must be considered before decisions are made.
as to whether or not to conduct the assessment and as to which media are to be chosen.

As the child progresses in an academic program, additional assessments should be conducted to reevaluate the appropriate reading medium. Children at the primary level may be able to read primary print books but may require additional aids or large print at the elementary level. The efficiency of the child in reading print is a major consideration in determining whether or not an additional or alternate form of printed material is necessary. Children in the secondary level may find audiotaped materials useful for part of their course work especially, when reading novels or other types of literature. Children with decreasing vision may read printed material while learning braille. The Itinerant Teacher will monitor the child's vision and evaluate the appropriateness of the reading format at various times with the Learning Media Assessment (Koenig & Holbrook, 1993). Please refer to page 2.3 to the chart which illustrates various print sizes available in everyday print material and their correspondence to visual acuities.

Children with additional exceptionalities will be evaluated to identify learning strengths in order to determine the appropriate medium for functional literacy. For these children, the format may include symbols for an augmentative communication system. The size of the symbols will need to be determined. The ISSP team should work together to determine literacy needs and abilities.

What are some considerations in the area of braille and literacy?

Braille is the equivalent to print for readers who are blind. Some theorists have suggested computers with speech will replace the need for braille. However, the use of computers with speech rather than braille severely limits the child's independence in such areas as portable and efficient access to print material (e.g., labeling one's CDs, canned goods or clothing; jotting down telephone numbers). Braille skills have also been directly associated with, and will greatly enhance, the employability of the individual. It is important for teachers and parents to recognize and support the lifelong need for this form of reading and writing that is not solely dependent on technological support.

Before determining the appropriateness of using braille with a child as a primary or secondary literacy tool, the Itinerant
Teacher conducts a variety of assessments. The *Learning Media Assessment* (Koenig & Holbrook, 1993) is a first evaluation of the child’s reading medium. Additional assessments include a functional vision assessment, a medical low vision assessment, a test for sight reading level to determine accuracy, speed, efficiency and comprehension, and a test of tactile skills. The motivation and interest of the child in learning braille is also considered, as well as the age and ability of the child. If all assessments determine that braille is to be taught, the ISSP should identify braille instruction as an alternate course (Pathway 4) for the child. Braille instruction must be conducted by trained personnel, usually the Itinerant Teacher for Students who are Blind or Visually Impaired.

**Should children with low vision learn braille?**

Braille may be useful for some children who have low vision. For these children, braille may be used as a secondary reading medium for some course work, or it may be taught if the child is at risk for further loss of sight in the future. The status of current vision and prognosis must be carefully considered in determining the use of braille. Additionally, the child’s current reading speed, efficiency, comprehension and the probable reading needs in the future should be determining factors. Also, because braille requires considerable practice and effort, the interest of the child in learning braille is an important consideration. Beginning, intermediate, and advanced braille are courses in the Newfoundland and Labrador Senior High School Curriculum which are offered for credit. This may encourage some students to learn braille. *Braille Too* (Hepker & Cross-Coquillette, 1985) and *Read Again* (Caton, Pester, & Bradley, 1990) are two programs that may be used with these students.

**What are considerations for braille learning for children who are blind?**

Children who are blind begin braille instruction at the preschool level in the same way their sighted peers begin to learn print. As the child enters kindergarten, programs such as the *Patterns* (Caton, Pester, & Bradley, 1980) and *PREP* (American Institutes for Research, 1981) provide sequential teaching of the braille alphabet (Grade One Braille) and the contractions (Grade Two Braille), which are a part of the most commonly used braille code. As with any child learning to read, adaptations to the reading program may be needed. Some children do best when taught the Grade One or alphabet form of braille until they are comfortable,
and then transfer to Grade Two braille. Alternate programs that teach the tactile skills necessary for braille reading include the *Tactile Discrimination Worksheets* (Caton, 1985), and the *Mangold Developmental Program of Tactile Perception and Braille Letter Recognition* (Mangold, 1994).

As soon as needed, children who are blind should learn Nemeth Code (the braille mathematics code). This code enables the child to do mathematics efficiently in braille. When learning to spell words, children should use the alphabetical spelling of words in addition to the contracted braille forms in order to prepare for learning to use computer technology. Texts in braille are available from APSEA. If texts have not already been transcribed into braille, APSEA provides the transcription service. It should be noted that braille transcription is a long and involved process, so care must be taken to request braille books 6-8 months prior to the school year in which they are needed. Braille books for recreational reading are available through APSEA and the CNIB National Library in Toronto. Even when texts are available in braille, supplementary texts may be required in audiotape format or read aloud by peer or volunteer readers.

**Are there special considerations for children who are adventitiously blind?**

A child who has been adventitiously blinded (after birth) presents special challenges. The assessments for determining the need for braille should be conducted. Additionally, extra care must be taken before teaching braille. If the loss of vision is recent and unexpected, the child may not have fully accepted this loss of vision and need for braille. Forcing the child to learn braille before he or she is ready may result in an adverse reaction to braille, and the child may refuse to learn it. Counseling may be necessary before the child is ready to accept braille. Youth at the senior high school level may not be receptive to braille instruction before graduation.

Once a child is ready to learn braille, the *Patterns* (Caton, Pester & Bradley, 1980) or *PREP* (American Institutes for Research, 1981) program may be used at the primary level. The *Tactile Discrimination Worksheets* (Caton, 1985), and the *Mangold Developmental Program of Tactile Perception and Braille Letter Recognition* (Mangold, 1994) may be a precursor to any braille program. There is a wide variety of programs appropriate for children of different ages available.
through different sources. For example, *Spot the Dot* (Fitzsimons, 1988) may interest the elementary level child. Alternately, the *Read Again* (Caton, Pester, & Bradley, 1990) program works well for high elementary and secondary children. The CNIB has several short programs such as *ABC’s of Braille* (Krebs, 1979), *Modern Methods of Teaching Braille* (Stocker, 1970), or *Braille in Brief* (Krebs, 1982) that serve youth who want to learn braille in a short time. Other books and programs are listed in the reference section. Nemeth Code, the braille form for mathematics, should be taught concurrently with literary braille used for reading. Children who have been adventitiously blinded may take advantage of the credit courses in braille offered in the Newfoundland and Labrador Senior High School Curriculum.

**What special equipment is needed to write braille?**

Braille writing equipment can be as simple as a small slate that can be carried in the pocket or as complex as braille printers used with computers. The slate and stylus, a small metal or plastic strip with holes where the pencil-shaped stylus can punch the dots onto paper, is the easiest and most accessible equipment for braille writing. The second piece of non-electronic equipment is the Perkins Braille Writer which enables the child to write braille on both 8½ by 11 or 11 by 11 inch braille paper.

Electronic devices are normally used in conjunction with computers and braille printers in order to produce written braille. A braille notetaking device enables the child to write in braille, will speak back what has been written and will print in braille when attached to a braille printer. This device is small and portable. It is useful for taking notes or short messages, but may also be used to write longer documents. A notetaking device similar in size to the braille notetaker has a standard (QWERTY) keyboard and allows printing in either braille or regular letter format. Most notetaking devices can be connected to computer monitors or standard printers and be used to save and store files. The Mountbatten braille writer is a relatively new piece of equipment for the electronic production of braille. It allows a paper copy of braille to be produced while simultaneously creating files similar to computer software programs. Any computer may be adapted using hardware and software to allow the transfer of computer documents from print to braille. These documents may then be printed using a braille printer.

The most sophisticated computer equipment to date is the
refreshable braille keyboard. This keyboard is attached to the computer in front of the regular keyboard. What is printed on the screen appears in braille form on the keyboard. As the reader moves the cursor, the braille on the keyboard shows in raised braille dots the line of print on the screen. A person who is blind is thus able to read in braille any material which is on the computer screen. Another method of accessing materials on the computer screen is utilizing hardware and/or software that adds speech to the computer. These Speech Synthesizers and other electronic equipment are described further in Appendix H.
APSEA provides the equipment necessary for braille production based on the individual child’s needs. The type of equipment used is assessed by the Itinerant Teacher using the APSEA Technology Assessment. Instruction in the use of the equipment may be done by the Itinerant Teacher, the CNIB Technology Counsellor and/or by personnel at the APSEA Resource Centre in Halifax. Ask the Itinerant Teacher in your School District for information regarding specific pieces of equipment used for brailling. Further discussion of this equipment is located in Appendix H.

Are there any other braille codes?

Braille consists of formations of six dots for all letters and numbers. The basic alphabet is called Grade One Braille. A more advanced form of braille, Grade Two Braille, consists of 198 contractions which speeds reading and saves space on the paper (braille is quite bulky). Youth considering attending post-secondary institutions and needing an efficient way to take notes may want to consider learning Grade Three Braille, which is shorter and more contracted than Grade Two Braille. Very few books are printed in Grade Three Braille and it is not commonly taught.

Nemeth Code is the format for braille mathematics. It provides a system for all mathematical and scientific equations needed in primary, secondary and post-secondary mathematics. Nemeth Code should be taught as soon as the child begins to read braille. Children involved in music lessons may learn Music Braille. This form of braille allows the student to read music for voice and instruments. Computer Braille consists of eight dots rather than six. It is used with the refreshable keyboard. It is also used, to a very small degree, with the braille notetaking device. Although a student need not learn computer braille to use the notetaking devices, it is necessary for use with the refreshable keyboard. In deciding which braille codes to teach, the Itinerant Teacher will monitor the child’s needs and teach those codes that will fill the needs.

What are the considerations of an Orientation and Mobility program?

All children who have low vision or are blind need consistent training in Orientation and Mobility (O&M). Orientation is the ability to know where you are in space or in a place. Mobility is the ability to move from one place to another safely, efficiently and gracefully. A child who has competent O&M skills should be able to travel in familiar and unfamiliar settings. Not only is O&M necessary for travel within the
school and home, it is necessary for post-secondary placement and future employment. This is not an area of the child’s training that can be glossed over or minimized. The Itinerant Teacher who has O&M training will determine goals for the child with the ISSP team, conduct the child’s O&M program and assess the child’s progress. Assistance with O&M may also be obtained from APSEA or CNIB personnel.

The first stage in the young child’s training begins with experiences with the family and movement in the home and community. Children who have low vision as well as those who are blind should travel within the familiar areas of home and neighborhood as soon as they are able to do so. This travel should be appropriate for their age and their travel ability. As skills improve, the area and the complexity of travel (crossing streets with street lights, for example) should increase. Travel on the school bus with peers should begin as soon as training in bus travel takes place.

*Beyond Arms’ Reach* (Smith & O’Donnell, 1992) is one program for travel training using low vision aids for children with low vision. Newfoundland and Labrador has adopted the *TAPS (Teaching Age-Appropriate Purposeful Skills)* (Progrund, 1993) program as the curriculum for O&M for the province. This program provides an ongoing assessment tool in addition to a sequential hierarchical program for O&M training. At the high school level, youth may receive credit for O&M by taking the two courses offered in Newfoundland and Labrador’s Senior High School Curriculum. These courses must be taught by a person with O&M training (Itinerant Teacher or Itinerant Teacher and O&M Specialist).
What are issues surrounding special transportation for children who are blind or visually impaired?

Children who are blind or visually impaired will travel on the regular bus with their peers or walk to school unless otherwise determined by the ISSP team. Special transportation should be considered only after other options have been explored (e.g., placing a student assistant on the bus, etc.) In applying for and implementing special transportation for children with visual impairments, ISSP teams shall follow the Department of Education Transportation Division Special Needs Transportation: Government Guidelines (1998).

Skills required to independently walk/ride to and from school safely shall be identified by the ISSP team. Specific transportation issues that may arise around field trips, community experiences or work placements also need to be addressed by the ISSP team. At all times, safety and independence for the child must be considered.

What are some considerations for choosing technology needed by children who are blind or visually impaired?

Many factors must be taken into account when choosing technology for children who are blind or visually impaired. There is a wide array of technology available for those with visual impairments, but not all technology is appropriate for all children. A proper assessment by a qualified professional is required. What task does the child need to be able to do? What will help the child to do it successfully?

Questions must be asked in each individual situation to determine the appropriateness and benefits of technology.


Following are some questions to ask when choosing technology for children who are blind or visually impaired:

- What are the prerequisite skills necessary for the child to have in order to make efficient use of the piece of technology? Has the child mastered those skills?

For example, it would be inappropriate to introduce a closed circuit television (CCTV) to a child who cannot...
track efficiently or who has minimal eye-hand coordination because the device requires those skills. Or, as another example, it may be inappropriate to provide a handheld magnifier to a child who has a small visual field (tunnel vision) but normal acuity. For each piece of technology, a set of prerequisite skills must be in place prior to using that equipment. Introducing it without consideration for these factors may cause extreme frustration and create a negative experience for the child.

- Should the most expensive, newest, most up-to-date equipment be purchased for the child?

Not necessarily. It is important to always look to non-electronic low technology options first before settling on electronic options. Examples of non-electronic options which may be of use to the child who is blind or visually impaired are tilted reading stands, tape recorders, dark-line paper or low vision aids such as magnifiers and telescopes. Examples of electronic options which may be useful for the child who is blind or visually impaired are magnification systems, talking calculators or large display calculators, braille printers, optical character recognition systems, speech synthesizers and laptop computers. It is definitely not a given that the fanciest, most expensive equipment will do the most good for a child with a visual impairment. However, the student should have the equipment required to achieve his or her goals efficiently with little frustration.

- Is the child overly or entirely dependent on a specific piece of technology?

This is an important consideration because it is extremely easy for a child to become dependent on one way of doing things, only to feel helpless if required to do it another way. Consideration must always be given for what would happen if the technology is not available. Would the child know an alternate way of completing a particular task? An example of this would be the child who has his or her textbooks in large print format, but who learns how to properly use a handheld magnifier for the instances where only regular size print is available. The child’s
programming should always take this question into consideration.

- What is the cost of a particular piece of technology and how does this factor into technology decisions?

This issue is always an important one. It is far less expensive and more liberating to teach a child to use a handheld magnifier than to consistently request all materials in large print. However, it may be judged more efficient to assign a high school student an electronic braille notetaking device which can be used with a computer rather than to rely only on slate and stylus. In Newfoundland and Labrador, all technology requests for school aged children are filled by APSEA. Selection of appropriate technology is facilitated through using a technology assessment checklist which identifies skills the child has. This data is used to decide whether the child has the prerequisite skills needed for particular pieces of equipment. APSEA staff has researched hardware and software which has been deemed both cost efficient and appropriate for student needs. However, serious analysis regarding the cost and appropriateness of technology should take place before recommending a purchase.

- Do all members of the ISSP team support the recommendation of particular pieces of technology? Have all members of the team consulted with each other before making recommendations to ensure consistency?

A collaborative approach is crucial so that technology is consistent between home and school. This is the approach of the Decision Making Framework for Incorporating Technology in the ISSP Process referenced previously.

- Does the child want to use the technology?

The success of the child’s use of the technology is directly related to his or her desire and motivation
• For young children, has the appropriateness of electronic toys been considered before selection?

If these toys are quite visual in nature, perhaps they won’t be as appropriate for children who are blind or visually impaired as those which are more auditory or tactual in nature. For toys that are more elaborate and expensive, one would certainly want to make sure that the child will benefit from interacting with the specific toy before purchasing.

• Some technology is very complex and requires ongoing training and interaction. Is this available?

Technology changes daily and consideration needs to be given to the child’s technological needs for the next few years, not the next ten years.

Clearly, choosing technology for children who are blind or visually impaired requires a collaborative effort. Contact the Itinerant Teacher or the CNIB if you have specific questions about technology used for persons with visual impairments.

For more information on choosing technology for children with exceptionalities and some examples of what is available, please refer to Programming for Individual Needs: Using Technology to Enhance Students’ Differing Abilities (Division of Student Support Services, 1996).

What other areas should we be concerned with when programming for children who are blind or visually impaired?

In addition to ensuring that children who are blind or visually impaired have the compensatory skills to access the academic curriculum, team members must also ensure that these children are taught skills which enable them to be independent, confident, participating members of society. These functional skills are in the areas of social competence and independent living and would facilitate the following:

• interaction with family, peers and others
• development of self-concept
• recognition and expression of emotions
• understanding of nonverbal cues
• understanding personal and social aspects of sexuality
• understanding physical sexuality
What are examples of independent living skills needed by children who are blind or visually impaired?

All children need to learn skills necessary for functioning in everyday life so that they go on to live as independent, confident adults. These skills are generally learned by children with normal vision throughout childhood by watching and imitating, with direct instruction and assistance from caregivers when necessary. Children who are blind or visually impaired will require considerable direct teaching in order to acquire these skills because incidental learning does not take place, and because specialized techniques and/or materials need to be used for certain tasks. Alternate Courses (Pathway 4) may be developed to provide a framework for the direct teaching of living skills. It must be acknowledged that having a visual impairment presents a challenge to independent function. Therefore, learning in this area is an extremely important part of a child’s curriculum.

There are various ways to categorize and list independent living skills. Following are some broad groupings:

- **Self-Care Skills**
  - dressing
  - basic personal hygiene (including feminine hygiene)
  - using personal services (e.g., barber or hairstylist)
  - food preparation (e.g., using kitchen appliances, following recipes)
  - eating
  - eating in different settings
  - time concepts (e.g., following schedules, keeping appointments)
  - money concepts and money management
  - shopping
  - health and safety
  - self-advocacy

- **Communication Skills**
  - using the telephone
  - communicating needs
  - making appointments and arranging services

- using socially appropriate behavior
- problem solving, decision-making and planning
- scholastic success
- ability to take personal/civic responsibility
- ability to care for oneself and one’s environment
- conversing with familiar people and strangers
- fax and email communications
- use of written signature

- Maintenance of Personal Environment
  - housekeeping (cleanliness, safety, basic repairs)
  - clothing management (labelling, sorting, laundering)
  - food management (labelling, storage, organization)
  - housing

- Recreation and Leisure Skills
  - management of leisure time
  - solitary play
  - social play
  - physical games and sports
  - pets and nature
  - music and dance
  - arts and crafts
  - reading, writing, speaking, drama
  - science and technology

What are social interaction skills and why are they important?

All children need to gain proficiency in social interaction. Much of our knowledge of social skills is obtained by observing others around us and how they behave in various situations. We learn to interpret the nuances of body language and facial expressions. We also learn we must behave differently in formal and informal situations and what is considered appropriate or inappropriate in different settings. Because so much of this learning is incidental, children who are blind or visually impaired must be taught these skills directly. This involves teaching the child appropriate behaviors, making the child aware of his or her own behaviors, and teaching situation-specific skills.

It is important for children who are blind or visually impaired to have the ability to:

- explain their own visual impairment to others using age-appropriate vocabulary
- value how they see and enjoy and share their visual (or tactual) experience with others
- outline implications visual impairment has for performance of daily routines and activities both inside and outside school environment
• generate potential solutions to problems of access to visual information and to participation in typical activities of peers

• be aware of mannerisms, know how they are perceived by others, and control them in the presence of others

• display proper etiquette while eating

• display proper etiquette concerning grooming and body care

• be aware of and maintain appropriate postures (e.g., sitting in class)

• make eye contact and/or direct gaze toward speakers

• understand the concept of nonverbal communication and its importance to those who are fully sighted

• maintain appropriate distance between themselves and the person with whom they are interacting

• initiate actions which evoke appropriate responses, putting individuals who are sighted at ease (e.g., reach out to shake hands)

• be aware of and seek opportunities to help others

• use appropriate speech rhythms (e.g., response latency, the length of time from end of a prompt to the beginning of the response)

• be their own advocate

All members of the child’s team will be involved in delivering programming in the area of social skills. The parents will be essential teachers in this area. The Itinerant Teacher or personnel working with the CNIB are good sources of information regarding the importance of teaching social interaction skills. All team members should discourage learned helplessness on the part of the child with a visual impairment.
What issues of sexuality need to be addressed with children who are blind or visually impaired?

Children who are blind or visually impaired miss out on the incidental learning of sexuality concepts. Children having no visual impairment are bombarded daily by images of sexuality conveyed through television, movies, magazines, books and on the street. They know what their own bodies look like, and can see the differences between male and female bodies. They have seen numerous examples of dating behaviors and have some idea of what sexual intimacy involves. By the time the topic is formally addressed in school or by parents, children with no visual impairments already have a rather sophisticated view of sexuality and a frame of reference on which to place the formal learning. Children who are blind or visually impaired will not have such a sophisticated view of sexuality and, in fact, may have quite distorted concepts of it all due to lack of exposure. Though they may giggle at naughty jokes told by their peers, they may not truly know what it is they are giggling about. They may hear slang words for body parts or derogatory terms, but not really understand what they mean or to what they refer.

This subject must be directly addressed with children who are blind or visually impaired. It is crucial that these children gain as much information as possible so that they operate with a base of knowledge comparable to sighted peers. It is important to note, though, that much of this material is taught in school typically through visual means (e.g., using pictures, diagrams, videos). Teaching of sexuality concepts to children who are blind or visually impaired, particularly anatomy, must be done using as much tactile material as possible. This will involve using anatomical models, raised line drawings, actual condoms and contraceptive devices and other such tangible items. Various members of the child’s ISSP team will be involved in teaching these concepts including the parents, Itinerant Teacher, Classroom Teacher, parents and Public Health Nurse. A team approach is very important here.

The following table outlines some specific areas of sexuality which must be taught to children who are blind or visually impaired.
What are considerations for career planning for youth who are blind or visually impaired?

Transitional planning, as part of the ISSP process, must begin four years prior to school leaving. For a student who is blind or visually impaired, this guidance is critical to ensure smooth movement from high school to either post-secondary education or the workplace.

Students who are blind or visually impaired are faced with the same career-related questions and decisions as their sighted peers. What are my interests and abilities? What do I want to do for a living? Do I want to pursue post-secondary training or go directly into the workforce? The differences arise not in what these students are able to do, but rather how they will do it.
Individuals who are blind or visually impaired are employed in virtually every occupational area. When working with a student with a visual impairment, focus first on their interests rather than whether or not their vision will affect their ability to perform the job. Once they have identified an area of interest, then consider their abilities and what, if any, adaptations/accommodations they may require. Generally speaking, there are very few fields that are not accessible to an individual with a visual impairment. For example, a student may wish to be an airline pilot. Do not discourage this goal completely. Instead, identify other positions in the airline industry which are accessible. Take care to not impose restrictions on the student’s interests.

One of the most important considerations when planning transitions with a student with a visual impairment is assessing his or her need for adaptive technology. Such devices include closed circuit television (CCTVs), computers with speech output, and braille notetaking devices. Students enrolling in a post-secondary program must be able to use adaptive technology effectively in order to access information. Too often, students are faced with not only adjusting to a new environment, but having to learn new technology as well. Assessment and training in the use of adaptive technology has to start early (at the latest, grade eight or nine). This will ensure that the student has the necessary skills to make a smooth transition into a post-secondary program.

Another important consideration is ability to access funding for post-secondary training. There are a number of programs which provide financial assistance to offset the costs incurred by students with disabilities. For example, Employability Assistance for Persons with Disabilities (EAPD), which is a provincially/federally cost-shared program is, perhaps, the most used. Students need to be made aware of these programs as some might see financial constraint as a barrier to pursuing a post-secondary education.

There are many resources available to assist with the career planning process for students who are blind or visually impaired. The Itinerant Teacher, APSEA, the CNIB and employment centres such as Ability Works (in St. John’s) or the Exploits Community Employment Corporation
(in Central Newfoundland) are available to assist these students in making informed decisions about their future.
Section Six

The Student who is Blind or Visually Impaired in the Classroom
The Student who is Blind or Visually Impaired in the Classroom

What are the primary considerations for Classroom Teachers of students with visual impairments or blindness?

Classroom Teachers should first be aware that the student who is blind or visually impaired is more like, than unlike, the other students in the class. The student who is blind or visually impaired is subject to the same rules and regulations as other students and, in general, to the same requirements. Accommodations/adaptations should begin with the least complex and move to the more complex as needed. A list of general guidelines can be reviewed by teachers and those considerations directly related to the specific student can be marked or additional suggestions added.

A collection of helpful tips for teachers is on the following two pages:
Tips for Teachers of Students who are Blind or Visually Impaired

Below are some recommendations to help you as a Classroom Teacher of a student who is blind or visually impaired. Although not all comments will directly relate to your student, most will give you general information for incorporating a student who is blind or visually impaired into your classroom.

• Demonstrate how to treat students with visual impairments with respect and courtesy. The other students will follow your lead in acceptance of them. Teachers have much influence on how all students are treated by others.

• Introduce the student with visual impairments as you would any other student. You do not need to tell about his or her condition as the other students will ask questions in time and the student with the visual impairment will answer them himself or herself.

• Speak to the class when you are entering or leaving the room as a courtesy to the student with a visual impairment.

• Unless students with visual impairments know you well, state your name as you come up to them. Speak directly to the student and not through a third person. Call him or her by name when you want his or her attention.

• Use the words “see” and “look” when speaking with students with visual impairments. Make your conversation as normal as possible. These students want to be treated the same as everyone else. They use these words to mean touching or looking very closely.

• Use verbal cues whenever necessary. Students with visual impairments may not be able to see body language such as a wave, frown or nod. They may not know what it means for an object to be “here” or “there”.

• Make every effort to include students with visual impairments in all activities within the school curriculum (phys. ed., home economics, music). These classes and extracurricular activities are excellent opportunities for developing leisure skills and social skills.

• Encourage students with visual impairments to take part in extracurricular activities (drama, wood working, sports events, dances, etc.).

• Encourage students with visual impairments to take leadership roles in the same manner as you would encourage other students.

• Be aware of the amount of assistance which students with visual impairments need. Wait to see how much they can do before offering help. You may need to encourage them to accept more help or be willing to do things more independently. Being independent is very important for students with visual impairments.

• Allow students with visual impairments to bring any required adaptive aids to class. If they so desire, have them explain to their classmates how these aids work and possibly allow classmates to try them out. This will help classmates feel more comfortable with students with visual impairments and ultimately may facilitate a closer interaction.

• If a student is having a problem with a particular task, consult with the Itinerant Teacher to
determine whether other adaptations are necessary or if the task is just too difficult for the student’s abilities.

• Use the same forms of discipline for students with visual impairments as you would for any other student. If not, sighted peers will sense that you are treating them differently and this will be the behaviour which they learn. This creates difficulties in interactions with peers for the student who is blind or visually impaired. Students want to see their teachers as being “fair”.

• Some students who are blind or visually impaired display certain mannerisms (rocking, fingers in the eyes or eye poking, repetitive movements). Encourage him or her to lessen these mannerisms. Consult the Special Education Teacher or Itinerant Teacher for Students who are Blind or Visually Impaired for suggestions in dealing with this problem. Sometimes, the student may not be aware he or she is displaying such behaviours. Develop a signal between the student and teacher to lessen the behaviours while drawing as little attention to it as possible.

• Realize that a student with a visual impairment tends to tire more easily than a sighted student when performing near tasks such as reading. Be prepared to offer brief breaks to the student or to change types of tasks when necessary.

• Help students develop a realistic balance between what is possible and what is practical. While it is better to expect more from a student than less, be alert for signs of frustration which can signal the upper limits of visual functioning.

• Students who are blind or visually impaired are at risk during fire drills. A buddy system is useful for those students in primary and elementary grades. One suggestion for younger children would be to have all students in the class hold the hands of the person next to him or her rather than singling out the student who is blind or visually impaired. In the intermediate and secondary grades, teachers need to be aware the student may need assistance and should be able to ask for such assistance on his or her own.

• Consult with the Itinerant Teacher or Special Education Teacher regularly to develop ways to appropriately program so that students with visual impairments get the maximum benefits.

• An ISSP is required for all students receiving ongoing intervention from the Itinerant Teacher for Students who are Blind or Visually Impaired.
What type of Pathway 2 accommodations/adaptations may be required for students with visual impairments?

Students who are blind or visually impaired may need various accommodations and adaptations to access the prescribed curriculum. The student’s age, visual condition, type of class setting, and academic abilities all play a part in determining general accommodations/adaptations needed. The ISSP team should review these factors and determine, as a group, the best accommodations/adaptations needed for individual students.

Following is a sample checklist which may be used to record accommodations/adaptations commonly used with students who have visual impairments:
SAMPLE ACCOMMODATIONS/ADAPTATIONS

The accommodations/adaptations below are samples of those that may be needed by a student who is blind or visually impaired. Those used can be either noted on the Pathway 2 form or may be checked or highlighted and attached to the form.

Adjustment(s) to Instructional/Presentation Techniques

★ During lectures and demonstrations:
  - Student should be permitted to handle the materials before, during and after the demonstration
  - Vary the methods of presentation using concrete objects and descriptive language as much as possible
  - Be as descriptive as possible in your presentations
  - When developing concepts, use real objects whenever possible. If this is not possible, make use of realistic models (animals, people, objects).
  - Permit student to sit or stand near any demonstrations or where visual material is being presented
  - Lecturers should stand away from the window in order to allow student to see the speaker without the interference of glare
  - Pair the student with a visual impairment with a sighted peer for activities such as looking through a microscope
  - Student may benefit from short term instruction of unfamiliar concepts that are visually based prior to instruction for the rest of the class (e.g., map reading, reading graphs)
  - Coloured material is difficult for this student. Maps and other colour sensitive material may pose difficulties.

★ When writing on the board:
  - Use large, bold print
  - Read aloud as much as possible as you write
  - Use thick, white chalk
  - Keep the board clean to maximize contrast
  - Use a white board with black marker
  - Require student to write only necessary information
  - Allow the student to move near the board to copy information
  - Encourage student to use his or her prescribed telescopic aids
  - Ensure the student receives a copy of important material printed on the board

★ When giving notes:
  - Give student an advance list of assignments and teacher notes
  - Photocopy another student’s notes
  - Give another student specialized notetaking paper (e.g., NCR paper) so that the student gets a copy of the notes taken
  - Provide student with notes on computer disk, if possible
  - Give student a photocopy of overheads presented or copy onto a diskette
  - Allow student to tape record lectures so that notes can be made later
  - Student can braille class lectures
  - Student can use a computer to take notes

★ When showing a movie or video:
  - Allow student to sit as close as necessary to the screen
  - Give student a few words of explanation during the quiet parts (emphasize scene changes, additions of characters or shifts in plot if the narrative is poor)
  - Use descriptive videos where possible
  - Assign a classmate as a commentator for the student who is blind or visually impaired

★ When taking class on field trips, be aware that:
• The student has difficulty adjusting to changes in lighting or weather conditions
• The student has difficulty at dusk or in the dark
• The student has difficulty adjusting to change from bright outside light to dim inside light
• The field trip site should know that a student with a visual impairment will be in the group in case extra assistance will be necessary
• The student will need assistance of sighted guide or support personnel in unfamiliar areas

Adjustment(s) to the Learning Environment

• Glare may be a problem with this student. Curtains may need to be drawn on bright days.
• Student requires additional lighting devices in his or her work area
• Student should sit:
  • At the front of the class
  • In the middle of the class
  • At the left side of the class
  • At the right side of the class
  • Away from the window
  • Near the window
• Student requires space other than the classroom area for studying or other work
• Student requires larger desk space for work area
• Student requires more organizational space for books, materials and equipment
• Student requires seating near an electrical outlet so that specialized equipment may be used

Adjustment(s) to Learning Resources

★ Requires alternate learning media:
  • Taped lessons, books, notes
  • Large print materials
  • Braille materials
  • Computer accessible materials

★ Uses low vision aids (specify):
  • In class
  • Out of class

★ Uses technology:
  • Talking calculator
  • Closed circuit television (CCTV)
  • Tape recorder
  • Electronic speller
  • Laptop computer
  • Braille writer
  • Dark-line exercise books or paper
  • Raised line drawing kit
  • Tilted reading stand

★ Reading materials and handouts are best using:
  • Audiotape
  • Braille
  • Large print
  • Highlights with a black felt tip pen
  • Computer diskettes
  • Clear, dark print (preferably photocopied rather than handwritten)
  • Good contrast
  • ____ point font. Arial or Verduna are suggested fonts.
  • Non-glossy paper
For teaching writing, use:

- Raised line paper
- Tracing in sand
- Sandpaper letters
- Raised line drawing kits
- Caulking compound
- Writing guides
- Screen Board

To write, the student uses:

- Pens or pencils with thick strokes
- Dark-line paper
- Non-glossy paper
- Thick, soft pencils, and/or black felt-tip markers
- A window card to reduce clutter on the page and to help keep place

Adjustment(s) to Evaluation Procedures

- Student may complete a task or present information in a variety of ways (e.g., larger than average manuscript, taped answers, answers on computer diskettes, demonstration, etc.)
- Student may need additional time for homework assignments
- Student may require decreased length of tests and assignments
- Student requires extended time frames for test taking (time and a half is common)
- Student requires tests and exams in alternate format:
  - In large print
  - On audiotape
  - On diskette
  - In braille
- Student may require reading or scribing by a teacher/volunteer/student assistant/peer

Adjustment(s) to Organizational Techniques

- Student should return his or her materials and books to the same place once work is completed
- Student should arrange materials and books in a logical, easily remembered manner
- Student should organize papers which are dated in loose leaf notebooks according to subject areas. Labels can be done in braille or large print, depending on the student's needs.
- Label desks and other objects in the classroom with large print or braille, where appropriate

Adjustment(s) to Motivational Strategies

- Vary the intensity, frequency and timing of help given
- Student needs to develop problem solving skills
- Student needs to develop social skills
- Student may benefit from a buddy system
What types of accommodations/adaptations may be necessary so that children who are blind or visually impaired participate in assessment with their peers?

When assessing in the classroom, if appropriate accommodations/adaptations have been made for a child who is blind or visually impaired, the validity of the results will more likely be assured. Adaptations to the assessment may include transcription to braille or production in audiotape or large print format. Examples of assessment accommodations are extending the time limit or assigning a scribe. Accommodations to the assessment environment might include providing direct lighting or assigning to an area where the use of adaptive technology does not disturb classmates. Following are more specific possible considerations:

<table>
<thead>
<tr>
<th>Medium to be used</th>
</tr>
</thead>
<tbody>
<tr>
<td>• braille</td>
</tr>
<tr>
<td>• large print</td>
</tr>
<tr>
<td>• audiotape</td>
</tr>
<tr>
<td>• computer disk</td>
</tr>
<tr>
<td>• oral testing/scribing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• time and a half or double time</td>
</tr>
<tr>
<td>• consideration for child’s reading and writing speed</td>
</tr>
<tr>
<td>• consideration for time needed to use adaptive equipment</td>
</tr>
<tr>
<td>• consideration for eye fatigue and scanning ability</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test content</th>
</tr>
</thead>
<tbody>
<tr>
<td>• difficulties with complex graphs, maps and graphics</td>
</tr>
<tr>
<td>• revision or elimination of questions requiring the use of visual perceptual skills</td>
</tr>
<tr>
<td>• revision or elimination of questions using visual language (e.g., “twinkle”)</td>
</tr>
<tr>
<td>• print size, spacing of words, letters and lines</td>
</tr>
<tr>
<td>• degree of contrast on the page</td>
</tr>
<tr>
<td>• possible requirement of concrete objects or verbal explanations for concepts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Testing environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• differing needs for specific lighting</td>
</tr>
<tr>
<td>• easy access to an electrical outlet to accommodate use of adaptive equipment</td>
</tr>
<tr>
<td>• seating in an appropriate space to accommodate materials and equipment</td>
</tr>
</tbody>
</table>
• consideration for noise output from adaptive technology
• provision of low vision aids and familiarity of examiners with such aids
• consideration for extraneous noise

Question and answer formatting
Difficulties which may be encountered with the following:
• filling in the blanks
• filling in coded circles for multiple choice
• matching questions to answers
• completing crosswords
• labeling diagrams
• spelling based on braille contractions
• questions which require library/research skills
• questions which require use of software which is visually inaccessible

With advance notification and planning, children who are blind or visually impaired can participate in standardized assessment. All requests for accommodations/adaptations for standardized provincial assessment must be submitted to the Division of Evaluation, Certification and Testing in the Department of Education. The process of providing access to assessment procedures may require a considerable amount of time to complete, therefore notification at least six months prior to the scheduled time is advised. Itinerant Teachers for Students who are Blind or Visually Impaired and/or the Provincial Consultant for Students who are Blind or Visually Impaired will liaise with other education personnel and will act as a resource for each child who is blind or visually impaired.

Information collected from the performance of children who are blind or visually impaired is crucial to the evaluation of the public school system and also provides important data relative to the performance of children with visual impairments. The meaningful inclusion of children who are blind or visually impaired has positive social and educational consequences for both children and educators.

It is also noteworthy that the considerations listed above may be useful to Classroom Teachers who routinely design examinations and tests for children who are blind or visually impaired in their classes. For further information on such considerations, please see Section Six.
What are the considerations for Pathway 3 Modified Courses for a student who is blind or visually impaired?

A student who is blind or visually impaired may require Pathway 3 modified courses in some areas of his or her programming. The *Tips for Teachers of Students who are Blind or Visually Impaired* and Pathway 2 supports should be considered by the teachers involved directly with these students. However, for some students, modifications of prescribed courses may be required. These modifications are student specific and must be determined by the ISSP team with consideration for the course to be modified. Bearing in mind the student’s age, visual diagnosis, functional vision and course requirements, the ISSP team should decide which course(s) may need to be modified. Because modified courses may have implications for the student’s future study, the ISSP team should be aware of the disadvantages as well as advantages of modified courses. Generally a visual impairment alone would not be sufficient reason for modification of a course. For most courses, Pathway 2 accommodations or adaptations will enable the student to complete the prescribed course outcomes.

What type of Pathway 4 alternate courses may be required for a student who is blind or visually impaired?

A student who is blind or visually impaired will likely require Pathway 4 alternate courses. These students will have alternate courses taught by either the Special Education Teacher or the Itinerant Teacher for Students who are Blind or Visually Impaired. Students who require Pathway 4 programming will also require Pathway 2 supports and the recommendations included in “*Tips for Teachers of Students who are Blind or Visually Impaired*”. Alternate courses may be required in the areas of braille reading and writing, O&M, life skills, concept development, functional skills, keyboarding, self-help skills, work experience, specialized technology, Internet access, research methods, daily living skills, personal management skills, psycho-social aspects of low vision, adjustments to blindness issues, alternate viewing techniques, sexuality, social skills, communication skills (including technology and low vision training), visual efficiency skills, listening skills and so on. The ISSP team will determine if a student requires alternate courses through Pathway 4.

What are the considerations for students on Pathway 5?

Students who follow Pathway 5 require a program different from their age peers because these students have a moderate global or severe cognitive delay. The decision to place a student on an alternate curriculum is made by the ISSP team. A student who requires a Pathway 5 alternate curriculum will also require Pathway 2 supports and the
recommendations included in “Tips for Teachers of Students who are Blind or Visually Impaired”. Many of the suggestions listed will pertain to students requiring the Pathway 5 alternate curriculum. The sheet “Considerations for Students with Multiple Disabilities” included in this section may be helpful in addition to the Using Our Strengths: Programming for Individual Needs: A Resource Book for Educators (Division of Student Support Services, 1992).

The ISSP team approach is crucial when planning a program for a student with visual and multiple disabilities.

The Itinerant Teacher is a member of the ISSP team. This teacher will assess the student’s functional vision and make recommendations regarding classroom accommodations, visual skills, technological equipment and orientation and mobility requirements of the student. Additionally, the Itinerant Teacher will recommend materials that may assist the teacher in planning programs that will help the student progress in concept development, social skills and life skills. The Itinerant Teacher will also work with the parents to ensure they are aware of activities which can be done at home to further develop visual skills, as well as programs available through the CNIB. Because children with multiple disabilities are often at risk for late identification of visual impairments, the Itinerant Teacher should be consulted if the student appears to have visual problems.

Specialized equipment may be needed for students with visual impairments following Pathway 5. Information concerning this equipment is available in Programming for Individual Needs: Using Technology to Enhance Students’ Differing Abilities (Division of Student Support Services, 1992). Some equipment may be borrowed through APSEA for specific periods of time. The Itinerant Teacher can help the Classroom Teacher determine which equipment is needed and will order the equipment decided upon.
Considerations for Students with Multiple Disabilities

Teachers of students with multiple and visual disabilities should be aware of their special visual needs. In addition to the *Tips for Teachers of Students who are Blind or Visually Impaired*, consider the following:

- The key questions which should guide appropriate programming are: What is the goal of an activity? What can the student be expected to learn from it? Can knowing this really improve the child's life/knowledge base in a way that has meaning for him or her?

- Focus must be on life skills and transfer of those skills between home and school. The family must be involved in this program area.

- Think of how a specific activity can demonstrate a student’s strength (not weakness – lack of vision), particularly during classes with his or her peers.

- Consider “the next step” – if you were to sit back and observe, where would the student be able to take this activity *on his or her own*? Have materials been provided to allow the student to progress while ensuring that the constant need to intervene is decreased?

- Don’t become equipment dependent. The student, not the equipment, is important. Consider what would happen if the electricity went out and all emphasis has previously been placed on electronic equipment.

- Students may find teacher-made tactile books useful and interesting. The use of tactile books can be incorporated into peer activities.

- Teach the child in a variety of positions. Students using wheelchairs need to view their world in as many positions as possible. Design lessons for the child to do while on his or her exercise mat, without his or her wheelchair tray, etc.

- The student may be able to travel independently in familiar areas with training from an orientation and mobility specialist. The Itinerant Teacher of Students who are Blind or Visually Impaired will assist determining the amount of assistance necessary for independent travel.

- Where appropriate, consider use of adaptive equipment/technology to enhance the child’s program.
What are the special considerations for the student who is deafblind?

Being deafblind may result in a sense of isolation for the student, and may impose major restrictions in his or her ability to communicate and obtain information. It may also make it difficult to move about freely and to perform daily tasks.

Deafblindness can be divided into two categories: congenital (from birth) and adventitious (acquired). A child who has Usher syndrome has both hearing and visual impairments (see Appendix D for description). He or she is born with hearing loss, is sometimes completely deaf, and his or her vision gradually reduces as a result of retinitis pigmentosa. There is no rule regarding how quickly the vision reduces, so programming must be reviewed often to accommodate the student’s changing needs. Eventually, braille and/or a system of fingerspelling and sign language will likely be necessary for this student.

The following considerations must be given to the unique needs of students who are deafblind:

- Making contact: Care must be taken to always alert the student who is deafblind that you are present, and you must have an established means of identifying yourself. Respect must be shown when entering his or her personal space.

- Environmental awareness: It must be remembered that for a student with a significant level of hearing and vision loss, the world can become very small. Every opportunity must be taken to draw the student’s attention to things happening around the student, and to assist the student in interpreting the environment.

- Communication: You must identify and know the student’s preferred modes of communication, e.g., fingerspelling, sign language, speech, braille or a combination of these. You must know if the student is able to receive and interpret cues given through body language, facial expressions, gestures, and so on.

- Mobility: Techniques such as using sighted guide or the white cane to facilitate mobility for a student with vision loss may need to be taught. Inability to hear may result in the need for instruction in the use of adaptive
equipment such as vibro-tactile alerting systems (to ensure safety). Mobility is necessary for exploring and interacting with the environment. Therefore, it is a major area of importance.

- Social Skills: The difficulties posed by having a dual sensory impairment will likely result in the need for direct teaching in the area of social skills, and how to address social situations unique to a student who is deafblind (e.g., needing to remember to alert the student that you are leaving for a moment so that the student doesn’t keep talking to empty space, letting the student know in an appropriate way when you have returned and so on).

This list is not exhaustive, but does indicate some of the significant concerns associated with deafblindness.
Section Seven

Assessment of Children who are Blind or Visually Impaired
Assessment of Children who are Blind or Visually Impaired

How are children with visual impairments assessed?

All members of the ISSP team are involved in comprehensive assessment of a child’s functioning and progress. The Educational Psychologist, Guidance Counsellor and/or Special Education Teacher (where qualified) may carry out specific psychological or psychoeducational assessments. The Itinerant Teacher for Students who are Blind or Visually Impaired may assess specific compensatory skills such as visual efficiency or appropriate use of a white cane for mobility. The Ophthalmologist or Optometrist may assess changes in the child’s visual acuity since his or her last appointment. Parents of the child may assess whether or not homework is being carried out more or less independently as the school year progresses, whether or not stress levels are changing or whether or not learned skills are being generalized. Assessment of the child is ongoing, comprehensive, formal and informal.

Are results from psychoeducational assessments interpreted in the same way for children who are blind or visually impaired as they would be for those with normal vision?

Psychoeducational assessments are designed for, and normed on, various populations. It is crucial to know whether or not an assessment tool has been normed on children who are blind or visually impaired. Since there is a small population of children with visual impairments, examination of results may be more subjective as there will not likely be a large norm group from this population. Results from assessment tools will tell a great deal about a child’s functioning but they may have to be interpreted differently, taking into account the effect of the child’s visual condition on his or her functioning. For example, tasks which assess the child’s ability to perform visual tasks will be difficult or impossible for the child with a visual impairment. Verbal ability will be influenced, in varying degrees, by the effect of visual impairment on concept development and language. It is essential that the examiner is familiar with particular tools used with children who are blind or visually impaired and makes the necessary adjustments to interpretation of results in order to accurately conduct a psychoeducational assessment.
What about the participation of children who are blind or visually impaired in standardized assessment procedures?

Departments of Education in provinces across Canada routinely assess public school children to gather data on student performance. Assessment is typically scheduled for completion by children in a particular grade or in a specified subject area. Data gathered from assessment results is used to evaluate student achievement, to identify the strengths and weaknesses of specific programs/curricula, to compare the performance of children in various locations within a province, to improve teaching and learning, to facilitate student certification and to ensure accountability.

Children who are blind or visually impaired in Newfoundland and Labrador are fully integrated in their local schools. Because they participate in all aspects of the regular education program, it is important that they be involved in the standardized provincial assessment if deemed appropriate through the ISSP process. Some of these children have additional needs which require the expectation of different curriculum outcomes. A child who is blind or visually impaired who completes a course or program with modifications might not participate in standardized assessment if a decision is made to exclude him or her through the ISSP process.

When a child with a visual impairment is scheduled to participate in provincial assessment, it is necessary to provide equal access. Specific adjustments to the examination (with permission from the test publishers), and/or accommodations/adaptations to the assessment process and environment, will ensure that the child with a visual impairment participates in the examination. The accommodations/adaptations required will be based on the individual needs of the child and are those used in the child’s day to day programming.
What are some common tools used by Itinerant Teachers in assessing children who are blind or visually impaired?

Assessment of students who are Blind or Visually Impaired targets concept development, social skills, careers and other such areas. Assessment tools are chosen according to the child’s needs and at the request of the ISSP team. These needs are determined by the age, ability and degree of visual impairment of the child being assessed. Various checklists of skills may prove useful as well, particularly when observing children.

All children referred to an Itinerant Teacher receive a functional vision assessment. There is a variety of functional vision assessment tools available and a variety of tests for depth perception, visual acuity and contrast sensitivity. Each Itinerant Teacher determines the most appropriate tool or tools for functional vision assessment for each child.

Skills of preschool children may be assessed using tools such as the Oregon Project (Aderson, Boigan, & Davis, 1994), Reach Out and Teach (Ferrell, 1985), and the Perkins Activity and Resource Guide (Cushman, Heydt, Edwards, Clark, & Allon, 1992), among others.

The Learning Media Assessment (Koenig & Holbrook, 1993) is used to determine the most appropriate reading medium for each child. Children who will use other technological equipment will be assessed using the APSEA Technology Assessment.

All children are assessed for Orientation and Mobility skills using the TAPS (Teaching Age-Appropriate Purposeful Skills) (Progrund, 1993) Comprehensive Assessment. This ongoing evaluation form enables teachers to follow the child’s progress throughout his or her school years.
Section Eight

Special Medical Considerations
Special Medical Considerations

What are the Occupational Therapy and/or Physiotherapy needs which children with visual impairments might have?

Children with visual impairments may need services of the Occupational Therapist and/or Physiotherapist prior to and after school entry. Such needs will be discussed during the ISSP team meetings, if necessary, and these professionals may be drawn into the child’s team. Positioning and establishing proper form for reaching may enable a child with multiple disabilities to use his or her vision more efficiently, thereby allowing him or her to participate in classroom activities more easily. Young children whose vision loss affects their motor development may benefit from services from these professionals as well.

Children who are blind or visually impaired may have needs which can be addressed by the Occupational Therapist and Physiotherapist in the following areas:

- independent movement and exploration (fine motor and gross motor skills)
- posture and gait
- self care and independence skills in feeding, hygiene, toiletting and dressing
- seating and positioning
- hand function
- eye-hand coordination
- awareness of the environment
- handwriting and/or computer use
- structure of physical environment
- use of adaptive equipment
- promoting sensory exploration of the environment

For information on the roles of the Occupational Therapist and Physiotherapist, please refer to Section Ten.

What is delegation of function?

Where Teachers or Student Assistants are required to perform special health related procedures, a delegation of function procedure should apply.
This involves a coordinated effort between the Public Health Nurse, parents, Teacher and Student Assistant. The Public Health Nurse is responsible for assessment, training, certification and supervision of non-nursing personnel who perform delegated procedures, e.g., special health related procedures to ensure they are performed safely. This is carried out in accordance with the Position Statement by the Department of Health and Department of Education on the Performance of Personal Care/Student Specific Health Related Procedures in School. Delegation of function is carried out on an individual basis.

**What are some possible side effects of medications on vision?**

Many medications taken long-term for systemic diseases can have side effects on the eyes including vision changes or physiological changes within the eye. It is important for the parents to ask their family Doctor what the possible side effects are of the medication their child is taking, particularly if they think their child’s eyes are being affected. If there is an actual change in the child’s visual behavior as a result of the medication, parents should inform the Classroom Teacher and/or the Itinerant Teacher so that suitable accommodations/adaptations may be made to the learning environment for the child in the classroom.

**What are some common eye problems which could require surgery?**

There are many visual conditions which may require surgery, but a few which are commonly found in general populations are listed below. For further information on eye conditions, please refer to Appendix E.

**Amblyopia**, or “lazy eye”, is a condition in which one eye has reduced acuity although examination shows no disease or malformation of that eye. There are various reasons for amblyopia. If the eyes are not straight (strabismus), the child’s brain may suppress the vision in the turning eye to avoid seeing double. In other cases, the two eyes may be seeing quite differently due to presence of unequal refractive errors (different degrees of nearsightedness or farsightedness). In all cases, one eye is being “shut off” to favor the eye with better vision.

The Ophthalmologist, Optometrist or Orthoptist must find the cause of the amblyopia and treat it accordingly. This may involve prescribing eyeglasses to correct any significant refractive error, patching the good eye to force the lazy eye to work or performing surgery to mechanically realign the eyes. Treatment of amblyopia can sometimes
involve one or all of the above treatments, depending on the type and duration of the problem. Amblyopia therapy is unlikely to be successful after the child is eight or nine years of age as the child’s vision has matured by this time.

**Strabismus** is a condition in which the two eyes are not straight. This occurs in approximately 2% - 4% of the general population. The most common forms of strabismus are inherited. Strabismus can result from uncorrected refractive error. It may also be due to the misalignment of the eye muscles and is commonly associated with children with Down’s syndrome or spina bifida. Treatment for strabismus might involve patching the good eye. Glasses may be prescribed and/or surgery may be necessary to align the eye muscles.

**Cataract(s)**, a clouding of the normally clear and transparent lens of the eye, is a very common cause of impaired vision due to the changes in the lens. These changes may be caused by aging, heredity, birth defects, injury to the eye or systemic diseases. Although not common, cataracts may develop in children as well as in adults. When a cataract causes loss of sight that interferes with a person’s ability to do things, it is usually time to have it removed. Surgery is the only effective way to have the cloudy lens removed. If a lens implant is not done at the time of the surgery, eyeglasses for distance vision and for reading will have to be worn.

**Ptosis** refers to a drooping of the eyelid caused by improperly functioning muscles. Some cases of ptosis can be so severe that the child has little or no use of the eye because it is covered by the eyelid. Therefore the child will not develop normal vision. Amblyopia frequently develops if the condition is not corrected. Ptosis surgery allows for proper surgical positioning of the eyelid.

**Cysts** may form on the eyelid area and irritate the eye. Surgical removal of the cyst will stop the irritation.

**Tear duct probing** will be performed where there is an indication of tear duct blockage. The procedure improves tear flow in infants and young children.
What emergency response protocols should be followed?

A true ocular emergency may result from a sports related eye injury, or a perforating eye injury from an accident. If this occurs, the Public Health Nurse (if available) and parents should be informed immediately. At the discretion of the parents, the child should be taken to the family Doctor or hospital Emergency Department for immediate medical attention and follow-up by the on-call Ophthalmologist. Do not try to diagnose or treat such an injury. Familiarize yourself with and follow the emergency response protocols approved by your school.

When other non-emergency complaints of blurred vision, floaters, blackout episodes and frequent headaches are received in school, the Teacher should alert the parents promptly to ensure proper medical attention can be sought as early as possible.

What are the considerations for specific visual conditions?

Each visual condition has its own set of implications and educational considerations. In knowing the effects of the eye condition of a student, programming is appropriately designed and carried out. Refer to Appendix E for descriptions of various eye conditions and their educational considerations and/or contact the Itinerant Teacher for Students who are Blind or Visually Impaired in your School District or your local CNIB office if you would like further information concerning specific eye conditions.
Section Nine

Roles of Education Personnel
Roles of Education Personnel  
Various individuals will make up a child’s Individual Support Services Planning (ISSP) team. Each member has a part to play in the delivery of programming for children who are blind or visually impaired. Following are outlines of the roles of education personnel as they relate to children who are blind or visually impaired.

What is the role of the Classroom Teacher?  
The Classroom Teacher facilitates the development of the physical, social and intellectual potential of children who are normally sighted as well as those who are blind or visually impaired. He or she is the expert in subject areas at a given grade level, classroom management and group interaction. It is the Classroom Teacher who can give children who are blind or visually impaired the maximum opportunity to develop and learn within as normal an environment as possible. Some aspects of the Classroom Teacher’s role, as it pertains to children who are blind or visually impaired, are:

- to participate as a member of the ISSP team
- to contribute to the identification of strengths and needs of the child
- to contribute prereferral strategies already tried, and other aspects of programming in the school environment, which would address the child’s strengths and needs
- to ensure that the goals of instruction are attainable
- to monitor and record the child’s progress in designated areas of responsibility
- to use a variety of stimulating instructional methods
- to provide for the child’s participation in classroom activities
- to adapt instructional strategies to meet the needs of the child as decided by the team
- to consult with appropriate team members concerning specific adaptive techniques to be used with the child who is blind or visually impaired
- to facilitate academic and social development similar to the child’s peers
• to initiate a close working relationship with the home and other ISSP team members in order to maximize the effectiveness of all available services

• to consult with the Itinerant Teacher to ensure that the child has access to necessary materials and equipment
What is the role of the Educational Psychologist?

The Educational Psychologist provides a range of services in the education system from consultation and collaboration, planning and evaluation, to psychological and psychoeducational assessments. There are many issues that the Educational Psychologist must consider before assessing children who are blind or visually impaired. (For specific information about standardized assessment for these children, please refer to Section Seven). Some of the aspects of the role of the Educational Psychologist, as it pertains to children who are blind or visually impaired, are:

- to provide informal consultation/support to teachers and parents/guardians during the prereferral stage and more formal consultation throughout the Individual Support Services Planning (ISSP) process

- to carry out individualized psychological/psychoeducational assessments as part of the ISSP process, ensuring that assessment information is current

- to present data and interpret the results of his or her assessments at the ISSP team meetings, or provide a written or oral report to another member of the team

- to participate in ISSP team meeting discussions of strategies, curriculum, approaches, services and supports required by the child

- to assist in writing any component of the ISSP for which he or she has been assigned responsibility for implementation.

- to provide suggestions, resources and/or support to others involved in developing the ISSP

- to implement those portions of the ISSP for which he or she has been designated responsible

- to monitor and record the progress of the child as designated

- to be aware of the unique needs of the child with a visual impairment and the needs of the child’s family
• to work closely with the teachers of children with visual impairments to coordinate services

• to remain knowledgeable about special considerations for children with visual impairments when conducting assessments
What is the role of the Guidance Counsellor?

The Guidance Counsellor is an important member of the ISSP team for children who are blind or visually impaired. He or she will often have cumulative information about the child from having been involved in his or her case for several years. He or she may be involved in the comprehensive assessment of a child with a visual impairment. (There are many issues that must be considered before assessing children who are blind or visually impaired. For specific information about standardized assessment for these children, please refer to Section Seven). Some aspects of the role of the Guidance Counsellor, as it pertains to children who are blind or visually impaired, are:

- to provide the full range of counselling services to children with identified exceptionalities

- to provide informal consultation/support to teachers and parents/guardians during the prereferral stage and more formal consultation throughout the Individual Support Services Planning (ISSP) process

- to conduct individualized assessments including career/vocational assessment as part of the support services planning process, ensuring that assessment information is current

- to present data and interpret the results of his or her assessments at the ISSP team meetings, or to provide a written or oral report to another member of the team

- to advise the ISSP team on behavioral approaches (depending on training), social/emotional/personal or behavioral programming, transitional strategies and supports, and community services which may be accessed by the child/youth

- to make referrals as required to the appropriate educational and/or psychological services and/or community agencies

- to be aware of the unique needs of the child with a visual impairment and the needs of the child’s family
• to work closely with the teachers of children with visual impairments

• to remain knowledgeable about special considerations for children with visual impairments when conducting assessments

• to give suggestions to the ISSP team on strategies, curriculum, approaches, services and supports required by the child

• to assist in writing any component of the ISSP for which he or she has been assigned responsibility for implementation

• as designated, to provide suggestions, resources and/or support to others involved in developing the ISSP

• to implement those portions of the ISSP for which he or she has been designated responsible
What is the role of the Itinerant Teacher for Students who are Blind or Visually Impaired?

The Itinerant Teacher provides support to children, teachers and parents. The Itinerant Teacher encourages realistic understanding of the individual child’s needs and abilities, thus helping the child realize his or her highest potential. Some aspects of the role of the Itinerant Teacher are:

- to recommend any child/youth suspected of having a vision problem to be checked by an ophthalmologist or optometrist and recommend that any child with a known visual impairment is seen regularly by an ophthalmologist or optometrist
- to assess visual functioning in students with diagnosed visual impairments
- to assist in programming and transition for all preschool children who are blind or visually impaired prior to their entering school
- to facilitate transitional planning for children/youth moving between schools and for youth leaving high school
- to recommend access to specialized equipment and materials to support children/youth who are blind or visually impaired, monitor the functioning of such equipment and arrange for the provision of appropriate vision-specific teaching aids
- to carry out direct teaching duties in the areas of appropriate use and maintenance of personalized specialized equipment
- to facilitate the child’s, parents’ and team members’ understanding of the educational implications of that child’s/youth’s specific eye condition and acuity
- as a member of the ISSP team, to provide assessment of progress of child/youth who are blind or visually impaired through a formal and consistent assessment program, supplemented by informal observation
- to carry out direct teaching duties in areas such as braille, orientation and mobility, language, concepts, social skills, independent living skills, use of low vision aids, listening skills, keyboarding skills, assertiveness training, organizational skills, visual
efficiency and post-secondary counselling

- to transcribe braille when necessary

- to prepare materials in alternate format or adapt environment to ensure access to information for the student with a visual impairment
• to lend curricular support in all Pathways to Programming and Graduation

• to consult with school personnel, providing suggestions to teachers who have children/youth who are blind or visually impaired in their classes regarding instructional strategies, appropriate teaching techniques and environmental adaptations

• to participate in programming and placement decisions in consultation with the ISSP team

• to consult with parents, providing information, advice and guidance where required

• to counsel the family in issues related to adjustment to vision loss

• in conjunction with ISSP teams, to develop the schedule of delivery of support services to eligible children/youth

• as part of the ISSP team, to identify the services required by children/youth who are blind or visually impaired and to facilitate delivery with appropriate support agencies by liaising with them as required (e.g., Ophthalmology, Optometry, Speech-Language Pathology, Occupational Therapy, Physiotherapy, APSEA, Neuromotor Division of the Child Health Program at the Janeway Child Health Centre, etc.)

• to remain knowledgeable of new trends, programs and materials in the field of visual impairment, and to participate in ongoing professional development relevant to the field

• to conduct workshops and inservices with teachers, parents and administrators relating to the education of children/youth who are blind or visually impaired

• to encourage children/youth who are blind or visually impaired to explore the extent of their potential

Please refer to the Standards of Practice located in Appendix A for further information on the role of the Itinerant Teacher for Students who are Blind or Visually Impaired.
What is the role of the Program Specialist for Student Support Services?

The Program Specialist for Student Support Services serves in a leadership and advisory capacity on all aspects of support services to children. He or she works with other district office and school personnel to ensure that a continuum of supports and services are provided to children. Some aspects of the role of the Program Specialist, as it pertains to children who are blind or visually impaired, are:

- to provide leadership in the development, implementation and evaluation of school board policies, procedures and guidelines as they pertain to children who are blind or visually impaired as guided by provincial policy and standards of practice
- to work closely with all Student Support Services personnel to ensure that children with visual impairments receive quality and effective programming
- to ensure that each school in the district has an effective support services planning process in place for children with exceptionalities that focuses on profiling, comprehensive assessment, programming, transition planning, transportation, facilities and equipment and parental involvement (ISSP process)
- to provide leadership, consultation and coordination of services with regard to the professional development needs of personnel working with children who have visual impairments
- to provide leadership at the district level on service coordination and collaboration within schools, between schools, communities and other agencies to address the support needs of children who have visual impairments
- to ensure that school assessment/school improvement processes include programming for children with visual impairments, where appropriate
- to ensure the continuing professional development around all aspects of programming for children with visual impairments
• to coordinate the provision of documentation for the allocation of resources for children with visual impairments

• to liaise with the Department of Education, other agencies and organizations on matters with respect to programming for children who have visual impairments.
What is the role of the Provincial Consultant for Students who are Blind or Visually Impaired?

The Provincial Consultant for Students who are Blind or Visually Impaired serves as a liaison between various agencies and professionals and is peripherally involved in the programming of all children in Newfoundland and Labrador who have been diagnosed as being blind or visually impaired. Some aspects of the role of the Provincial Consultant, as it pertains to children who are blind or visually impaired, are:

- to liaise with Program Specialists, Special Education Teachers, Itinerant Teachers for Students who are Blind or Visually Impaired and other Board office personnel to facilitate problem solving around individual students and situations

- to liaise with Atlantic Provinces Special Education Authority (APSEA) personnel concerning programs and supports available

- to liaise with other agencies and Departments of Government who deliver services to children who are blind or visually impaired (e.g., CNIB, Department of Health and Community Services)

- to meet regularly with other Provincial Supervisors for Programs for Students who are Blind and Visually Impaired from the Atlantic Provinces

- to approve technology and equipment requests submitted to APSEA for children in Newfoundland and Labrador

- to approve short term placement requests submitted to APSEA for children in Newfoundland and Labrador

- to maintain a database on children who are blind or visually impaired at the Department of Education

- to liaise between Itinerant Teachers and APSEA

- to advocate that children who are blind or visually impaired have ISSPs in place

- to facilitate the implementation of Student Support Services policies
• to provide or access expertise in the field of educating students who are blind or visually impaired for Itinerant Teachers as requested
What is the role of the School Administrator?

The School Administrator provides support to children, Classroom Teachers, parents and Student Assistants and helps to ensure that team members are working collaboratively and efficiently within a mutually agreeable schedule. The School Administrator is a key player in monitoring the roles of team members who are working with individual children. Some aspects of the role of the School Administrator, as it pertains to children who are blind or visually impaired, are:

- to ensure learning takes place in a safe, caring, committed and respectful environment
- to ensure that children who are blind or visually impaired have their programs designed and implemented by the appropriate personnel
- to create schedules which optimize availability of special education personnel
- to monitor the development and implementation of Pathways to Programming and Graduation (Division of Student Support Services, 1998)
- to ensure that children with visual needs have access to the ISSP process
- to provide administrative support to teachers and other educators in their efforts to meet the needs of children
- to facilitate the use of in-school facilities to conduct support services planning team meetings
- to collaborate with the Individual Support Services Manager (ISSM) to ensure that the equipment, materials and human/material resources committed by education are accessed
- to ensure that appropriate forms are signed before comprehensive assessments are completed
- to provide accessible storage space for equipment which will be used in the regular classroom such as
braille writer and paper, low vision aids and tape recorders
What is the role of the Special Education Teacher?

The non-categorical and categorical Special Education Teacher works closely with the Classroom Teacher to develop and implement components of the ISSP as assigned by the team. He or she may be involved in the comprehensive assessment of the child with a visual impairment. (There are many issues that must be considered before assessing children who are blind or visually impaired. For specific information about standardized assessment for these children, please refer to Section Seven). Some aspects of the Special Education Teacher’s role, as it pertains to children who are blind or visually impaired, are:

- to provide support to the child, family and the regular education personnel
- to ensure that a comprehensive assessment process takes place
- when asked, to assist the Individual Support Services Manager (ISSM) in bringing together the parents, School Psychologist, Public Health Nurse, Classroom Teachers, tutors and any other individuals pertinent to the ISSP team
- to initiate and carry out aspects of the ISSP as assigned
- to provide assistance in adapting materials
- to work collaboratively with other team members who may be working with the child who is blind or visually impaired
- to remain knowledgeable about special considerations for children with visual impairments when conducting assessments
What is the role of the Speech-Language Pathologist?

The Speech-Language Pathologist is a professional trained in the study of human communication, its normal development and its disorders. The Speech-Language Pathologist diagnoses and treats a variety of speech and language disorders. He or she provides service to schools because communication impairment may affect a child’s academic and social development. He or she may be involved in the comprehensive assessment of a child with a visual impairment. (There are many issues that must be considered before assessing children who are blind or visually impaired. For specific information about standardized assessment for children who are blind or visually impaired, please refer to Section Seven.) Some aspects of the role of the Speech-Language Pathologist, as it pertains to children who are blind or visually impaired, are:

- to identify children having a communication delay or disorder following a referral
- to carry out specific assessment and diagnosis of children who have communication problems, to address their communicative needs and to reassess as necessary
- to participate as a member of the ISSP team
- to provide direct or indirect therapy
- to provide consultation and advice to parents, teachers and other professionals on speech and/or language related issues
- to refer to other professionals as necessary
- to offer inservice in the areas of articulation, phonology, fluency, voice, receptive language, expressive language and pragmatics
- to be aware of the functional vision of children who are blind or visually impaired and their unique educational needs in the areas of communication (particularly language development), concept development, academic skills and sensory/motor skills
- to work closely with the teachers of children with visual impairments to coordinate instruction and services
What is the role of the Student Assistant?

When the child meets the criteria for such support, the Student Assistant acts as an important support to children who are blind or visually impaired. Some aspects of the role of the Student Assistant, as it pertains to children who are blind or visually impaired, are:

- to be a member of the child’s ISSP team by contributing information regarding the child’s strengths and needs
- to assist the child in utilizing adaptive equipment
- to reinforce skills which have been taught as directed by the Classroom Teacher, Special Education Teacher and Itinerant Teacher for Students who are Blind or Visually Impaired
- to assist with child-specific assistive devices, taking notes, taping lectures, reading, acting as a scribe
- to prepare student-specific materials under the direction of the Classroom Teacher and/or Itinerant Teacher
- to assist with personal care needs where recommended by the ISSP team

What is the role of the Parent?

The parents are the final authority in the decisions affecting their child. As a result, they are full partners on the ISSP team and may also accept the role of case manager. Their hopes, plans for and knowledge about their child are important for program development and should be shared with the ISSP team. Implementation of the ISSP will be enhanced through coordination and collaboration between the Parents and the child’s teachers. Some aspects of the role of the Parents as it pertains to children who are blind or visually impaired include:

- to liaise with educational professionals during the pre-referral stage, where applicable
- to participate as a member of the ISSP team
- to question unclear aspects of the ISSP or ISSP process
- to contribute to the identification of the child’s
strengths and needs

• to provide accurate relevant medical and family information about the child to ISSP team members

• to provide consent/acknowledgment as required for assessment, service provision and programming

• to write or assist in writing components of the ISSP in the areas they have agreed to implement

• to implement those portions of the ISSP for which they have designated responsibility

• to ensure the child has a medical vision examination at least once every two years

• to work collaboratively with other team members who are working with their child

• to monitor their child’s overall progress
What other education agencies are involved in programming for children who are blind or visually impaired?
The Atlantic Provinces Special Education Authority (APSEA) is a jointly funded, interprovincial co-operative agency which was established in 1975 by joint agreement among the Ministers of Education of New Brunswick, Nova Scotia, Newfoundland and Labrador and Prince Edward Island. This agency’s mandate is to offer programs and services to support school districts in their service to children between the ages of 0 to 21 who are deaf, hard of hearing, blind or visually impaired. Newfoundland and Labrador purchases only those services for children who are blind or visually impaired.

What is the role of APSEA?
APSEA provides materials, equipment and support for children who are blind or visually impaired in the four Atlantic Provinces. All technology, equipment, braille, large print and audiotaped resources used by children who are blind or visually impaired in Newfoundland and Labrador comes through APSEA. A wide variety of support personnel are available for assessment and consultation. Short term programs for students in specific areas are available through APSEA for children who are blind or visually impaired, at the request of the School Board through the Itinerant Teacher. The nature of requests would be determined by the child’s ISSP team. For further information on specific APSEA services, please see Section Ten.
Section Ten

Additional Resources
Additional Resources

What educational resources are available through APSEA?

As stated in Section Nine, the Atlantic Provinces Special Education Authority (APSEA) provides a variety of services to children who are blind or visually impaired. These services are provided without charge to children who meet the medical criteria and are requested through the Itinerant Teacher with the approval of the child’s ISSP team. Following is a list of services available from APSEA:

Library Services

- Provision of brailled text materials and tactile diagrams
- Provision of enlarged print materials
- Provision of texts on tape
- Provision of various types of braille paper
- Provision of some supplies adapted to accommodate visual impairment (e.g., braille rulers, dark lined exercise books, slate and stylus for brailling, combination locks with levers instead of numbered dials, slanted reading stands)
- Provision of various types of low vision aids (e.g., handheld magnifiers, binocular and monocular telescopes)

Technology Services

- Provision of specialized technological equipment such as braille notetakers, laptop computers with large print software programs and/or speech synthesizers, printers and braille embossers, closed circuit televisions (CCTVs), large print and talking calculators and four track tape recorders
- Provision of repair and maintenance of such equipment
- Provision of consultation regarding availability of and appropriateness of different pieces of technology for children with particular eye conditions
- Provision of training for children and Itinerant Teachers on proper use of equipment
Short Term Programs

APSEA provides various short term program opportunities for children. Short term programs are opportunities designed to provide children with specific skills in a set amount of time. Programs of this nature can vary in duration from one week to five months. If their ISSP team recommends it, children can travel to the APSEA Center in Halifax to avail of services provided there. Short term programs are available in the following areas:

- Career preparation
- Counselling
- Adjustment to newly acquired vision loss (adjustment to blindness)
- Orientation and Mobility
- Social Skills
- Training on specific technology
- Braille reading and writing
- Independent living skills
- Assessment of various domains
- Parent coaching
- Special needs assessment and programming suggestions

APSEA staff are also available to consult with Itinerant Teachers for Students who are Blind or Visually Impaired on all aspects of programming for children having visual impairment, and are important colleagues of Itinerant Teachers. For further information about APSEA services, please contact the Itinerant Teacher in your School District.

The Canadian National Institute for the Blind (CNIB) is a national, not-for-profit agency that provides a variety of services and supports to individuals who are experiencing difficulty with daily activities due to vision loss or blindness. This is the only criteria for referral to the CNIB. CNIB services are available throughout the province. These services include: rehabilitation teaching, counselling and referral, low vision services, career counselling, orientation and mobility training, technology training and library services.

The CNIB Child and Family Counsellor is the primary contact person for children and their families. This worker focuses on services to preschool children, but is available
to assist Itinerant Teachers to meet the needs of school-aged students as is necessary. The CNIB has Toy Lending Libraries in its offices in St. John’s, Grand Falls-Windsor and Corner Brook. Items are available for loan that can be used in the child’s home or school. The CNIB also offers a Summer Intervention Program to assist children who are particularly at-risk when away from the structured school environment. This program has been in existence for many years and has been of great benefit to numerous blind, visually impaired and students with multiple disabilities throughout Newfoundland and Labrador.

The CNIB Library offers a vast array of reading materials in print, print/braille and audio format. The Library also lends Descriptive Videos to children who cannot easily access visual information. A narrator describes the setting and appearance of visual material contained in the video. The Library also offers summer reading and writing programs for braille users.

The Information Resource Library provides reference material for students in various formats and can be a great resource for the completion of classroom projects.

For more information about the CNIB and any of its services, please contact your nearest CNIB office or visit their website at www.cnib.ca.

**What Health and Community Services are available?**

There are various professionals and agencies under the Department of Health and Community Services providing services to children who are blind or visually impaired. These professionals would act as ISSP team members where appropriate and would liaise with professionals working under the Department of Education on a continual basis. The roles of some professionals and agencies working under the Department of Health and Community Services are outlined below.

**What is the role of the Public Health Nurse?**

The Public Health Nurse, in some areas of the province, conducts vision screening to identify decreased visual acuity and the presence of strabismus. Such screening is performed:

- during Child Health Clinics
- at the Preschool Health Check for children between
the ages of 3 years, 9 months and 4 years, 2 months. (The practice of completing Preschool Health Checks may vary throughout the province.)

• at school age on request of parent/teacher/student

The Public Health Nurse will make a referral to an Ophthalmologist or Optometrist if a screening is failed and/or will make a referral for other services (e.g., Occupational Therapist, Physiotherapist or Speech-Language Pathologist) as needed. The Public Health Nurse may be a key player in the initiation of ISSP process prior to school entry and will serve as part of ISSP process at school age, if necessary. The Public Health Nurse provides support to children with visual impairments and to their families.

What is the role of the Occupational Therapist?

An Occupational Therapist is a professional who focuses on enabling a person to participate in everyday activities such as learning, performing self-care, working, playing and living independently. An Occupational Therapist works with people with a variety of disabilities. He or she provides assessment and intervention in the fundamental sensory and motor skills which are the basis for learning. By understanding the importance of vision and how visual impairment affects an individual's ability to function at home, at school and in the workplace, an Occupational Therapist can help the person achieve his or her goals.

The level of involvement of an Occupational Therapist with a child who is blind or visually impaired depends on factors such as the degree of visual impairment, cognitive abilities, presence of other diagnoses and level of independence.

The ultimate goal of occupational therapy for the school-aged child is to promote the child’s ability to participate in all school experiences. The Occupational Therapist works closely with students, teachers, families and other ISSP team members to identify how aspects of a child’s disability and the school environment is affecting the student’s performance at school.

The Occupational Therapist can assist with assessment and make recommendations to the child's ISSP team in the following areas:
Fine Motor Skills:
• adaptations/accommodations
• consultation regarding alternate courses
• standardized assessment

Handwriting:
• writing aids
• visual-motor/visual perceptual skills
• alternate writing programs (loops and groups)

Adaptive Equipment:
• wheelchair desks
• computers
• seating and positioning devices

Self-Help Skills:
• self care/hygiene devices
• eating/toiletting
• goal-setting

School Accessibility:
• bathroom assessment
• work station set-up

Mobility:
• training of school staff in lifting/transferring
• power mobility training/safety

An Occupational Therapist may serve as an active member of a child’s team. Initiation of services would result from a request of the team.

What is the role of the Physiotherapist?

A Physiotherapist is a professional who develops and maintains gross-motor function within the limits of physical potential of a person. Focus is placed upon prevention of deformities, encouraging proper body alignment and mechanics and promotion of physical fitness.

The level of involvement of a Physiotherapist with a child who is blind or visually impaired would depend on factors such as the degree of visual impairment, cognitive abilities and presence of other diagnoses such as cerebral palsy, spina bifida, arthritis, orthopedic problems and so on.
Physiotherapists can assist with assessment and make recommendations to the child’s ISSP team in the following areas:

Gross-Motor Development:
- gross-motor skills
- gait
- adaptations for physical education
- balance and coordination
- ambulation

Assistive Devices:
- walkers, crutches
- braces, splints
- positioning equipment

Body Alignment:
- posture
- joint alignment
- normalize tone

Physical Fitness:
- muscle strength
- endurance
- flexibility

A Physiotherapist may serve as an active member of a child’s team. Initiation of services would result from a request of the team.

What is the role of the Behaviour Management Specialist?

The Behaviour Management Specialist may be involved with school aged children who are blind or visually impaired and their families and act as a member of the ISSP team. Some aspects of the role of the Behaviour Management Specialist, as it pertains to children who are blind or visually impaired, are:

- to offer a community-based behavioral support and training program serving children and adults with a developmental disability and an accompanying intellectual impairment, as outlined by the American Association on Mental Retardation (1992), who exhibit significant behavioral concerns
• to offer support and training to families in the home setting

• to provide consultation around behavioral interventions in the classroom setting with parental permission

• to provide consistency in application of interventions between the school and home environment, with parental permission

• to receive referrals from the teacher for service, providing parents are in agreement with the referral

The Behavior Management Specialist may not participate in the actual implementation of interventions but may participate and provide technical support and assistance as school personnel design and implement programs in a school setting
What is the role of the Child Management Specialist?

The Child Management Specialist may be involved with children who are blind or visually impaired and their families, acting as a member of the ISSP team. Some aspects of the role of the Child Management Specialist, as it pertains to children who are blind or visually impaired, are:

- to provide service to families where one or more of their children, aged 0 to 5 years, are considered to be at risk or demonstrate significant developmental delay in any one of the areas of: learning ability, language, physical, social or self-help skills
- to provide early and consistent developmental and family supportive services
- to receive referrals from anyone provided the family supports the referral
- to assist with the transition from home-based intervention to school programs
- with the family’s permission, to share current information regarding the child’s level of skill in five domains: physical, self-help, social, academic and communication
- to provide written reports, visit schools and attend ISSP team meetings to share information
The Neuromotor Division of the Child Health Program at the Janeway Child Health Centre in St. John’s (formerly the Children’s Rehabilitation Centre) is a provincial resource centre which provides programs and services to children and adolescents with physical disabilities.

Team members, which include Physicians, Nurses, Social Workers, Occupational Therapists, Physical Therapists, Speech-Language Pathologists, Recreation Workers, orthotists and an Orthoptist, are committed to family-directed services. An individual program is developed for each child and family. The Neuromotor Division staff work closely with the child and family at home, at school, in the community or at the Neuromotor Division. The common goal of all team members is to help the child become a confident member of the community, enjoying all of life’s experiences. The Neuromotor Division offers a variety of speciality clinics which address specific needs, including Seating and Adaptive Equipment, Technical Aids and Feeding. Outreach services are provided through school and home visits. Outreach is also provided through travelling clinics and from regional teams located in Corner Brook, Gander and Grand Falls.

The Neuromotor Division has a school therapy services program which highlights services of Occupational Therapists and Physiotherapists. Teachers can call on these professionals for a consultation on children who are registered with the Division.

The role of the Regional Community Health Board is to promote and provide comprehensive and integrated community-based preventive, promotive, curative and rehabilitative care programs and services for individuals, families and communities in a defined geographical area.

The Regional Health and Community Services Board provides support for children with visual impairments by educating and supporting personnel in the ISSP process. They continue an ongoing review of the literature to provide evidence-based nursing practice and to determine the most efficient and effective approach to vision screening for children.
What are the roles of those professionals who work specifically in the field of vision?

An **Ophthalmologist** is a medical doctor with a speciality in diagnosis and treatment of eye diseases and defects. Treatment may include prescription of drugs, glasses, surgery or other therapy.

An **Optometrist** is a licensed, non-medical practitioner who measures refractive errors and eye muscle disturbances. Rather than the diagnosis of eye diseases, the optometrist focuses on the prescribing and fitting of glasses, contact lenses, prisms and recommending specific exercises.

An **Orthoptist** is a trained person who directs prescribed exercises or training to correct eye muscle imbalance for developing or restoring the normal teamwork of the eyes. The Orthoptist works on referral from medical personnel.

An **Optician** is a person who fits, adjusts and dispenses glasses and other optical aids upon receipt of a written prescription from an Optometrist or Ophthalmologist.
Appendix A

Standards of Practice for Itinerant Teachers for Students who are Blind or Visually Impaired
Standards for Educating Students with Visual Impairments

Standards of practice for Itinerant Teachers for Students who are Blind or Visually Impaired were developed during 1993-1994 through the Division of Student Support Services with the Department of Education in Newfoundland and Labrador. The Standards are designed for cognitively able students who are blind or visually impaired. They should be used in conjunction with other relevant provincial documents. Following is a simple list of the Standards of Practice. For a more comprehensive explanation of each Standard with accompanying information, please request a copy of the Standards of Practice from the Division of Student Support Services, or from the Itinerant Teacher in your District.

Standard 1: The School Board’s Manual of Policies, Procedures and Guidelines addresses the needs of students with visual impairments.

Standard 2: Districts and schools profile annually the numbers of students with visual impairments within their jurisdictions, including future projections and required support levels.

Standard 3: Each District has a procedure for the completion of an annual district-wide profile and has an ongoing process to routinely evaluate its effectiveness and improve the identification, assessment, planning and provision of instruction and services to meet the unique educational needs of students with visual impairments.

Standard 4: The nature of visual impairments is understood by those performing assessments and appropriate techniques are chosen to derive the information necessary for programming and planning.

Standard 5: The transdisciplinary team members are determined by the visual disability and its impact on the student’s functional and academic performance.
Standard 6: The assessment of a student with a suspected visual impairment involves, where appropriate, the following areas related to the student’s disability: vision/low vision, visual efficiency, concept development and academic skills, communication skills, social and emotional skills, sensory/motor skills, orientation and mobility skills, daily living skills, skills required to participate in co-curricular activities, use of special aids and appliances (including technology), and career and vocational skills.

Standard 7: Individual support service plans (ISSPs) are developed for students receiving two or more services and/or requiring modification to the provincial curriculum.

Standard 8: Transitional planning is a component of the ISSP process for students with visual impairments at least 1 year prior to each anticipated move and four years prior to graduation.

Standard 9: A continuum of supports is provided for students with visual disabilities; students access the appropriate level of support as identified during the assessment process.

Standard 10: The assignment of itinerant teachers and special education teachers ensures that priority is given to students according to the level of support needed.

Standard 11: Programs for students with visual impairments are implemented in environments with their peers except for compelling reasons.

Standard 12: Special education teachers allocated to work with students with visual
impairments have a degree in special education or its equivalent.

Standard 13: Itinerant Teachers have a graduate degree in this area of specialization or equivalent in the education of the visually impaired.

Standard 14: A professional development plan is designed for each professional involved in the education of students with visual impairments.

Standard 15: Parental education is provided, based on a needs assessment that reflects the unique educational needs of the visually impaired child.

Standard 16: Coordination exists among all of the individuals involved in providing instruction and services to students with visual impairments, and delivery of appropriate instruction and services is provided through a full range of program options provided, as necessary, on a regional basis.

Standard 17: Ideally, new facilities are designed or, where appropriate, are modified to enable the provision of instruction and services to meet the unique needs of students with visual impairments, and enable the independent functioning of the student with a visual impairment.

Standard 18: Transportation for students with visual impairments is suitable to the unique health and safety needs of each student with a visual impairment.

Standard 19: Each student whose only impairment is visual leaves school having fulfilled the graduation requirements for the province and mastered the compensatory skills identified as requisite for students with visual impairments.
Appendix B

Glossary of Terms and Visual Conditions
# Glossary of Terms and Visual Conditions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4-Track Tape</strong></td>
<td>Material taped on four tracks of a single cassette tape. This allows more material to be placed on a tape. Four track tapes must be played on tape recorders designed to read all four tracks.</td>
</tr>
<tr>
<td><strong>20/20 (6/6) Vision</strong></td>
<td>Normal visual acuity: ability to correctly perceive an object or letters of a designated size from a distance of 20 feet (6 metres).</td>
</tr>
<tr>
<td><strong>Abacus</strong></td>
<td>A mathematical device adapted from the Asian abacus. An abacus used by students who are blind has beads that do not move easily.</td>
</tr>
<tr>
<td><strong>Accommodation</strong></td>
<td>The ability of the lens to adjust its shape for clear vision at various distances.</td>
</tr>
<tr>
<td><strong>Adventitious</strong></td>
<td>Acquired after birth.</td>
</tr>
<tr>
<td><strong>Amblyopia</strong></td>
<td>Blurred vision without any apparent cause: often found with strabismus.</td>
</tr>
<tr>
<td><strong>Astigmatism</strong></td>
<td>Defect of the curvature of the cornea or lens resulting in a distorted image: light rays cannot focus on a single point on the retina.</td>
</tr>
<tr>
<td><strong>Binocular Vision</strong></td>
<td>Coordinated use of the eyes to focus on one object and to fuse the two images into one.</td>
</tr>
<tr>
<td><strong>Braille Writer</strong></td>
<td>A mechanical device that allows a person to produce braille by embossing raised dots on paper.</td>
</tr>
<tr>
<td><strong>Braille</strong></td>
<td>A writing system that consists of letters, letter groups or numbers comprised of combinations of six dots. The dot combinations are read by touching the line of dots with the fingers.</td>
</tr>
<tr>
<td><strong>Cataract</strong></td>
<td>Opacity or cloudiness of the lens that blocks passage of light to the retina limiting vision.</td>
</tr>
<tr>
<td><strong>Central Visual Field</strong></td>
<td>Portion of the visual field seen without moving the head or eyes.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cerebral Palsy</td>
<td>A disorder resulting from brain damage before the age of three which involves movement, balance and coordination.</td>
</tr>
<tr>
<td>Closed Circuit Television (CCTV)</td>
<td>A magnification device with a television screen which enables an individual to see printed material enlarged and illuminated as preferred.</td>
</tr>
<tr>
<td>Color Blindness</td>
<td>Diminished ability to perceive difference in color.</td>
</tr>
<tr>
<td>Congenital</td>
<td>Present at birth.</td>
</tr>
<tr>
<td>Cortical Blindness</td>
<td>A term used by some ophthalmologists as a diagnosis for children who have no obvious eye abnormalities but who do not respond visually.</td>
</tr>
<tr>
<td>Cortical Visual Impairment</td>
<td>A visual loss due to damage to the part of the brain that interprets visual information.</td>
</tr>
<tr>
<td>Daily Living Skills</td>
<td>Those skills needed for independence, for example: personal care, cooking, banking, cleaning.</td>
</tr>
<tr>
<td>Depth Perception</td>
<td>The ability to perceive the solidity of objects and their relative position in space.</td>
</tr>
<tr>
<td>Distance Vision</td>
<td>Ability to distinctly perceive objects at a distance usually tested at 20 feet (6 metres).</td>
</tr>
<tr>
<td>Esophoria</td>
<td>A tendency of the eyes to turn inward.</td>
</tr>
<tr>
<td>Esotropia</td>
<td>Obvious inward turning of one or both eyes.</td>
</tr>
<tr>
<td>Exophoria</td>
<td>A tendency of the eyes to turn outward.</td>
</tr>
<tr>
<td>Exotropia</td>
<td>Obvious outward turning of one or both eyes.</td>
</tr>
<tr>
<td>Field of Vision</td>
<td>The entire area which can be seen without shifting the gaze.</td>
</tr>
<tr>
<td>Functional Vision Assessment</td>
<td>An assessment of the vision and visual skills used by a person in everyday tasks.</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>Eye disease associated with excessive pressure within the eye, from accumulated aqueous humour, causing a wasting away of the optic nerve and defects of the visual field.</td>
</tr>
<tr>
<td>Hemianopsia</td>
<td>Defect in one half of the visual field: left or right half.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
</tr>
<tr>
<td>Hereditary</td>
<td>Appearing in, or characteristic of, successive generations; individual differences in human beings passed from parent to child.</td>
</tr>
<tr>
<td>Hydrocephalus</td>
<td>Excess fluid collection in the ventricles of the brain.</td>
</tr>
<tr>
<td>Hyperopia</td>
<td>Farsightedness; a condition in which visual images come to a focus behind the retina of the eye and vision is better for distant than near objects.</td>
</tr>
<tr>
<td>ISSP</td>
<td>Individual Support Services Plan, which is required for all students receiving support services.</td>
</tr>
<tr>
<td>Large Print</td>
<td>Print that is put in an 18 point or higher font; print at the primary level is large print.</td>
</tr>
<tr>
<td>Legal Blindness</td>
<td>Defined in either of two ways: a central visual acuity of 20/200 (60/60) or less in the better eye with corrective lenses or vision in the peripheral field of 20 degrees or less.</td>
</tr>
<tr>
<td>Low Vision</td>
<td>A significant visual impairment which may interfere with academic programs but includes some usable vision. May be moderate (20/70) or severe (20/200 or less vision).</td>
</tr>
<tr>
<td>Low Vision Aids</td>
<td>Optical devices useful to persons with a visual impairment that is not corrected with prescription lenses.</td>
</tr>
<tr>
<td>LP</td>
<td>A notation used by vision specialists to indicate light perception or the ability to tell light from dark.</td>
</tr>
<tr>
<td>Macular Degeneration</td>
<td>A condition in which central vision is impaired.</td>
</tr>
<tr>
<td>Myopia</td>
<td>Nearsightedness; a condition in which visual images focus in front of the retina resulting in vision better for near than for distant objects.</td>
</tr>
<tr>
<td>Night Blindness</td>
<td>Condition in which sight is good by day but deficient at night and/or in any faint light.</td>
</tr>
<tr>
<td>NLP</td>
<td>A notation used by vision specialists to indicate no light perception or the inability to distinguish light from dark.</td>
</tr>
<tr>
<td>Nystagmus</td>
<td>An involuntary rapid movement of the eyeball; it may be lateral, vertical, rotary or mixed.</td>
</tr>
</tbody>
</table>
OD

Oculus dexter; medical term for the right eye.

Optic Atrophy

The wasting away of the optic nerve fibers causing visual loss.

OS

Oculus sinister; medical term for the left eye.

Orientation and Mobility

Prepares a student to move safely, efficiently and gracefully through both familiar and unfamiliar environments.

OU

Oculus unitas; medical term for both eyes together.

Peripheral Field Loss

The loss of the ability to perceive objects outside the direct line of vision.

Peripheral Vision

The ability to perceive objects outside the direct line of vision; side vision.

Photophobia

Abnormal sensitivity to light.

Ptosis

Drooping of the upper eyelid(s).

Refractive Error

A defect in the eye that prevents light rays from focusing accurately on retina.

Refreshable Braille

Braille produced by electronically-driven pins that enables a person to read text on a computer screen or on a note taking device; electronically produced braille that changes as the cursor moves along a line of text on a computer screen.

Residual Vision

One’s remaining vision.

Retinal Detachment

The separation of the sensory retina from the underlying retinal layer causing disruption and/or destruction of vision.

Retinitis Pigmentosa

An hereditary degeneration and atrophy of the light-sensitive cells of the retina which begins as night blindness but can result in a gradual loss of vision.

Retinopathy of Prematurity

A condition caused by damage to the retina which can result in vision loss of infants born prematurely.

Rod/Cone Dystrophy

An hereditary degeneration of retinal cells which can result in gradual loss of vision.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotoma</td>
<td>A blind or partially blind area of the visual field surrounded by an area of normal vision.</td>
</tr>
<tr>
<td>Speech Synthesizer</td>
<td>A combination of software and hardware added to a computer that allows verbal access to what is printed on the computer screen.</td>
</tr>
<tr>
<td>Strabismus</td>
<td>Crossed eyes; failure of the two eyes simultaneously to direct their gaze at the same object due to muscle imbalance.</td>
</tr>
<tr>
<td>Tunnel Vision</td>
<td>Visual field constricted to give the impression of looking through a tunnel.</td>
</tr>
<tr>
<td>Visual Acuity</td>
<td>Ability to distinguish visual characteristics and to give them meaning.</td>
</tr>
<tr>
<td>Visual Perception</td>
<td>The interpretation made by the brain of what is seen by the eye.</td>
</tr>
<tr>
<td>Visual Efficiency</td>
<td>The use of residual vision to the fullest possible extent.</td>
</tr>
</tbody>
</table>
Appendix C

Bibliography
Section One: The Structure and Function of the Eye


Section Two: The Child Who is Blind or Visually Impaired


Division of Student Support Services. (2000). *Student support services: Definitions of exceptionalities*. St. John’s, NF: Department of Education.


Section Three: Support Services Planning and The Child who is Blind or Visually Impaired


Division of Student Support Services. (1997b). Coordination of services to children and youth in Newfoundland and Labrador: Profiling the needs of children/youth. St. John’s, NF: Department of Education.


Section Four: The Preschool Child Who is Blind or Visually Impaired


**Section Five: The Expanded Curriculum for Children Who are Blind or Visually Impaired**


Anatomy Models, Department of Education, Newfoundland (*Models of male and female genitals*)


Lueck, A. H. Incorporating unique learning requirements into the design of instructional strategies for students with visual and multiple impairments: The basis for an expanded core curriculum. RE:view, 30, 101-115.


Sexuality for high school students. (1989). [Video]. (Available from Atlantic Provinces Special Education Authority)


Chapter Six: The Student Who is Blind or Visually Impaired in the Classroom


Condra, E. (1994). See the ocean. Nashville, TN: Ideals Children’s Books. (A primary level book about a young girl who is blind and her visits to the ocean with her family)


Chapter Seven: Assessment of Children Who are Blind or Visually Impaired


Chapter Eight: Special Medical Considerations


Chapter Nine: Roles of Educational Personnel


Appendix D

Other Resources
Appendix D: Other Resources

Websites

**General Information and Links to Other Sites**

- **Blind Links**
  - [http://seidata.com~marriage/rblind.html](http://seidata.com~marriage/rblind.html)

- **Internet Resources for Special Children (IRSC)**
  - [www.irsc.org/index.htm](http://www.irsc.org/index.htm)

- **Macula Lutea**
  - [www.home.swipnet.se/~w.70870/alphaac.htm](http://www.home.swipnet.se/~w.70870/alphaac.htm)

- **Special Education Resources on the Internet**
  - [www.hood.edu/seri/serihome.htm](http://www.hood.edu/seri/serihome.htm)

- **Tiresias**
  - [www.tiresias.org](http://www.tiresias.org)

**Organizations**

- **American Foundation for the Blind**
  - [wwwafb.org](http://wwwafb.org)

- **American Printing House for the Blind**
  - [www.aph.org](http://www.aph.org)

- **Atlantic Provinces Special Education Authority**
  - [www.apsea.ca](http://www.apsea.ca)

- **Blind Children’s Center**
  - [www.blindcntr.org/bcc/](http://www.blindcntr.org/bcc/)

- **Canadian National Institute for the Blind**
  - [www.cnib.ca](http://www.cnib.ca)

- **Council for Exceptional Children**
  - [wwwcec.sped.org/](http://wwwcec.sped.org/)

- **Lighthouse International**
  - [www.lighthouse.org](http://www.lighthouse.org)

- **SET BC (Special education technology site)**
  - [http://setbc.sd59.bc.ca/](http://setbc.sd59.bc.ca/)

- **Tetra Society of Newfoundland**
  - [www.tetra.engr.mun.ca](http://www.tetra.engr.mun.ca)

- **Texas School for the Blind and Visually Impaired**
  - [www.tsbvi.edu](http://www.tsbvi.edu)

- **Royal National Institute for the Blind**
  - [www.rnib.org.uk/](http://www.rnib.org.uk/)
  - [For Toy Catalogue](http://www.rnib.org.uk/wesupply/product/towcat83616e.htm)
Support Groups
Low Vision
  www.lowvision.org/disease.htm
National Association for Parents of the Visually Impaired
  www.spedx.com/NAPVI
National Association for Visually Handicapped
  www.navh.org
NOAH (Albinism)
  www.albinism.org/

Discussion Groups
Association for Education and Rehabilitation of the Blind and Visually Impaired
  Maiser@fs1.sched.pitt.edu
Canadian National Institute for the Blind–issues
  owner-skyclub-1@icomm.ca
Parent’s Discussion
  bvi-parents-subscribe@onelist.com

Magazines
Closing the Gap: Resources Directory: Yearly review of software and hardware
for children with disabilities.
  P.O. Box 68
  Henderson, MN 56044
  1-612-248-3294
  www.closingthegap.com

Exceptional Parent: Monthly magazine for parents of children with disabilities.
  P.O. Box 3000, Dept. EP
  Denville, NJ, 07834-9919
  1-900-247-8080

Expectations Braille Institute: A yearly anthology of children’s stories in braille
available free to children who are blind.
  741 North Vermont Avenue
  Los Angeles, CA 90029-9988
  www.brailleinstitute.org

Catalogues
American Foundation for the Blind: Books for professionals working with children
who are visually impaired or blind.
  11 Penn Plaza, Suite 300
  New York, NY 10001
  1-800-232-5463
  www.afb.org
American Printing House for the Blind: Materials for children who are visually impaired or blind Materials for the professional.
1839 Frankfort Ave.
P.O. Box 6085
Louisville, KY 40206
1-502-895-2405
www.aph.org

Discovery Toys Canada, Inc: Toys for young children
Box 5084
5316 John Lucas Drive
Burlington, ON L7R 3Y8
(Ask for the local distributor)

Don Johnston: Computer software and hardware.
Available from Bridges
1-800-353-1107
e-mail info@betacom.com

Edmark: Educational software.
Available from Bridges
1-800-353-1107
e-mail info@betacom.com

Educational Resources: Educational software and technology.
235 Martindale Road
Unit 18
St. Catherines, ON L2W 1A5
1-800-565-5198
www.edresources.com

Exceptional Teaching Aids: Teaching materials for students with visual impairments.
20102 Woodbine Ave.
Castro Valley, CA 94546
1-800-549-6999
www. exceptionalteaching.com

Flaghouse: Equipment for children with multiple disabilities.
235 Yorkland Blvd. Suite 300
North York, ON M2J 4Y8
1-800-265-6900
www.flaghouse.com
Guide to Toys for Children who are Blind or Visually Impaired: Listing of toys available commercially with recommendations based on the visual level of the children.


Laureate: Software for children with multiple disabilities.
Available from Bridges
1-800-353-1107
e-mail info@betacom.com

Lighthouse International: Materials for both people with visual disabilities and professionals in the field.
111 East 59th Street
New York, NY 10022-1202
1-800-829-0500
www.lighthouse.org

Mayer-Johnson Co.: Augmentative communication products.
Available from Bridges
1-800-353-1107
e-mail info@betacom.com

Inclusive Technology: Hardware and software for children with multiple disabilities.
Available from Bridges
1-800-353-1107
e-mail info@betacom.com

IntelliTOOLS: IntelliKeys and other hardware and software for children with multiple disabilities.
55 Leveroni Court
Suite 9
Novato, CA 94949
1-800-899-6687
www.intellitools.com

88 St. Stephen Street
Boston, MA 02115
1-800-548-7323
www.nbp.org/index.html
   24843 Del Prado #283
   Dana Point, CA 92629
   1-800-752-6673
   www.rjcooper.com/

Seedlings...Braille Books for Children
   15100 Hubbard, Room N-86
   Livonia, MI 48154
   1-800-777-8552
   www.seedlings.org

   Available from Bridges
   1-800-353-1107
   e-mail info@betacom.com

TASH: Catalogues for materials for children with multiple disabilities.
   Unit 1 - 91 Station Street
   Ajax, ON L1S 3H2
   1-800-463-5685

Toys for Special Children: Materials for children with multiple disabilities.
   385 Warburton Ave.
   Hastings-on-Hudson, NY 10706
   1-914-478-0960

   7512 Dr Phillips Blvd.
   #50-316
   Orlando, FL 32819
   1-407-352-1200
   e-mail at vassociates@sprintmail.com
Appendix E

Eye Conditions
Achromatopsia (uh-krome-uh-tope-see-uh)
Rod Monochromatism (mon-o-krome-uh-tiz-um)

What is achromatopsia?
Achromatopsia (also known as rod monochromatism) is a rare genetic eye disorder which is present from birth and results in little or no function of the cone cells of the retina (back wall of the eye). In the normal eye, there are about six million cone receptors located mostly at the center of the retina. Cones permit light adaptation, color perception and perception of fine detail. Individuals with achromatopsia are either partially or totally color blind. Their eyes cannot adapt normally to lighting brighter than twilight conditions. Since cones are located in the area of the retina responsible for central vision, the result is reduced visual acuity which cannot be corrected by glasses or contact lenses.

What are the characteristics of achromatopsia?
- possible nystagmus (uncontrolled movement of the eyes)
- possible difficulty or inability to see colors
- extreme photophobia (sensitivity to light)
- near vision is generally less affected than distance vision
- student will see best in the evening or in dimly lit environments
- visual acuity is reduced and not able to be corrected with glasses or contact lenses

What are the functional implications of achromatopsia?
- student will experience fluctuating visual functioning depending on lighting
- student may not be able to move safely through his or her environment
- visual tasks will cause fatigue
- glare must be avoided
- rest periods may be needed when doing close work
- low vision aids may be needed

What are some educational considerations for a student with achromatopsia?
- print materials may need to be enlarged with high contrast
- dark-lined exercise books and black felt tip pens may be beneficial
- lighting will be a major factor in the student’s visual functioning
- care must be taken that tasks requiring color vision are adapted/modified
- student may need extra time to complete visual tasks
- student may benefit from breaks from visual tasks to combat eye fatigue
- student may require orientation and mobility training
- physical activities may need to be restricted for safety
- student may need to sit closer to chalkboard and demonstrations
- low vision aids may be helpful
- student may need time to adjust to changes in lighting
- student must be permitted to wear sunglasses, visors, etc. in school, if desired
- student must be asked for his or her own preferences regarding lighting, seating, magnification, etc.
Amblyopia (am-blee-ope-ee-uh)

What is amblyopia?
Amblyopia, or “lazy eye,” is a condition in which one of the eyes has poor vision although there is no disease or malformation of that eye. If the eyes are not straight (strabismus), the student may suppress the vision in the turning eye to avoid seeing double. In other cases, the two eyes may be seeing quite differently due to the presence of unequal refractive errors (nearsightedness or farsightedness). In all cases of amblyopia, the brain “shuts off” one eye to favor the eye with better vision. Amblyopia may be treated by patching the good eye, by surgery or with corrective lenses.

What are the characteristics of amblyopia?
• eyes may not be straight
• depth perception may be reduced or absent
• disturbance in vision
• visual acuity is likely less than average, particularly in near vision

What are the functional implications of amblyopia?
• depth perception may be reduced or absent
• student may have difficulty discerning fine details
• student may have difficulty with fine motor skills
• student may require wearing a patch, which would result in decreased vision initially
• student may have self-esteem issues because he or she looks different
• student may possibly have field loss

What are some educational considerations for a student with amblyopia?
• large print and high contrast materials may be helpful
• student may need to sit closer to the board or demonstrations
• student may have difficulty with fine motor skills such as cutting paper, coloring or printing within lines
• student may need to use black felt pen or marker for writing
• reading/writing sessions should be kept as brief as possible when student is wearing a patch to reduce eye fatigue
• tasks requiring depth perception, such as catching a ball or moving in uneven terrain, may be difficult
• classmates may benefit from an explanation about the patch so that the student is made to feel comfortable
• mobility around school and playground may need to be monitored due to reduced depth perception
• preferential lighting may be considered
• glare should be avoided
• student may need familiarization with the environment to help anticipate distances and heights
Aniridia (an-er-id-ee-uh)

What is aniridia?
Aniridia is a rare, hereditary condition in which the iris does not completely form. The iris is the colored part of the eye. It controls the amount of light entering the eye by varying the degree of the pupillary opening. Aniridia is often accompanied by cataract formation and/or glaucoma.

What are the characteristics of aniridia?
- decreased visual acuity
- nystagmus
- photophobia (extreme sensitivity to light)
- field loss corresponding to the area where the iris is absent
- cataracts and glaucoma frequently present
- fluctuating vision depending on lighting conditions and glare

What are the functional implications of aniridia?
- orientation and mobility will be of concern
- glare must be avoided
- use of low vision aids may be helpful
- lighting will be a major factor in visual functioning
- student will need time to adapt to changes in lighting; recovery from glare is slow
- eye fatigue may be a concern

What are some educational considerations for a student with aniridia?
- student will need lighting considerations (normal or dim lighting may be preferable)
- student may need extra time to complete visual tasks
- large print and high contrast materials may be helpful
- student may need to sit closer to the board or demonstrations
- student may need to use black felt pen or marker for writing
- student may need to use dark-lined paper
- training in the area of orientation and mobility will be necessary
- student may benefit from breaks from visual tasks to combat eye fatigue
- stress will complicate nystagmus, therefore assignments and writing tasks should be as brief as possible
- keyboarding skills will likely be important as students may have difficulty with handwriting
- use of low vision aids may be helpful
- glare should be avoided in all situations
- student may benefit from a tilted reading stand
- student may need to use sunglasses or visors for light sensitivity
- student may need time to allow eyes to adjust to changes in lighting
Astigmatism (uh-stig-muh-ti-zum)

What is astigmatism?
Astigmatism is an irregular curvature of the cornea (or lens) of the eye. The primary cause of astigmatism is the cornea being shaped more like a football than being rounded. Light entering the eye will not be bent equally in all directions, resulting in distorted vision. Regular astigmatism may be simple or compound and frequently accompanies myopia (nearsightedness) and hyperopia (farsightedness). Regular types may often be remediated using corrective lenses. Irregular astigmatism would result when the cornea has been damaged by trauma, inflammation, scar tissue or developmental problems. This type may not always be corrected completely by corrective lenses.

What are the characteristics of astigmatism?
- clear visual acuity may not be possible
- depth perception may be affected
- physical activities may be restricted
- corrective lenses may be necessary to achieve optimum vision

What are the functional implications of astigmatism?
- glare must be avoided
- high contrast materials are important
- orientation and mobility skills may be of concern
- use of certain low vision aids may be helpful
- lighting will be a major factor in visual functioning
- lack of depth perception may cause some difficulty
- student may have sensitivity to certain levels or types of light
- visual fatigue may be experienced when performing visual tasks
- doing close work and reading may cause headaches

What are some educational considerations for a student with astigmatism?
- student will need lighting considerations
- student may need extra time to complete visual tasks
- student may need to sit closer to the board or demonstrations
- student may need assistance or alternate ways to take notes
- student may need to use black felt pen, marker and/or dark-lined paper for writing
- student may benefit from breaks from visual tasks to combat eye fatigue
- student may require orientation and mobility training
- physical activities may need to be restricted
- using color computer monitors may be useful for some students
- a slanted or tilted reading stand may be helpful
Cataracts (kat-er-acts)

What are cataracts?
Cataracts are opacities (cloudiness, fogginess) of the lens which restrict the passage of light into the eye, thus preventing a clear image from forming on the retina (back wall of the eye). Cataracts may be congenital or adventitious, progressive or nonprogressive. They may be caused by injury or trauma, some eye diseases (glaucoma, retinitis pigmentosa, etc.), intrauterine infections, aging or heredity. Visual fields are usually normal, and severe cases may be accompanied by nystagmus (uncontrolled movement of the eyes). Cataracts may be surgically removed, and wearing eyeglasses or contact lenses will compensate for the loss of the lens. Artificial lenses may also be implanted in some children. Aphakia (uh-fake-ee-uh) refers to the condition in which the lens has been surgically removed from the eye.

What are the characteristics of cataracts?
• student may exhibit nystagmus
• student may experience blurred vision
• a milky white spot may be visible in the student’s pupil
• student may exhibit photophobia (extreme sensitivity to light) and/or distorted color vision
• if cataracts are not surgically corrected, amblyopia (“lazy eye”) may develop
• student may experience double vision

What are the functional implications of cataracts?
• student may utilize eccentric viewing (turning head or body to see)
• student may not be able to move safely through his or her environment
• visual tasks will cause fatigue
• glare must be avoided
• rest periods may be needed when doing close work
• visual functioning may fluctuate depending on maturity of cataracts
• if wearing strong eyeglasses (“coke bottle” lenses), the student may have restricted peripheral vision

What are some educational considerations for a student with cataracts?
• high contrast materials will be beneficial
• lighting will be a major factor in the student’s visual functioning
• student may need extra time to complete visual tasks
• student may benefit from breaks from visual tasks to combat eye fatigue
• student may require orientation and mobility training
• physical activities may need to be restricted for safety
• print materials may need to be enlarged and high contrast materials provided
• dark-lined exercise books and black felt-tip pens may be helpful
• low vision aids may be useful
• student may need time to adjust to changes in lighting
• student may need to sit closer to chalkboard or demonstrations
• student may benefit from wearing specially colored (NOIR orange) lenses
• teacher should not stand in front of the window or other light source
Coloboma (ko-luh-bo-muh)

What is coloboma?
Coloboma is a rare, congenital condition in which there is a cleft or defect in a part of the eye. It sometimes involves the iris, retina, optic nerve or optic disk. A coloboma is sometimes accompanied by glaucoma or cataracts. A coloboma may have minor or major effect on visual functioning.

What are the characteristics of coloboma?
• decreased visual acuity which varies according to the number of parts of the eye affected
• possible peripheral or central field loss if coloboma extends to the retina
• possible nystagmus
• photophobia (extreme sensitivity to light)
• cataracts and glaucoma may be present
• possible problems with depth perception
• eye fatigue likely

What are the functional implications of coloboma?
• glare must be avoided
• use of low vision aids may be helpful
• lighting will be a major factor in visual functioning
• eye fatigue may be a concern
• depth perception may be affected

What are some educational considerations for a student with coloboma?
• student will need lighting considerations
• student may need extra time to complete visual tasks
• large print and high contrast materials may be helpful
• student may need to sit closer to the board or demonstrations
• student may need to use black felt pen or marker for writing
• student may need to use dark-lined paper
• student may benefit from breaks from visual tasks to combat eye fatigue
• glare should be avoided in all situations
• student may benefit from a tilted reading stand
• student may need to use sunglasses or visors for light sensitivity
• student may benefit from orientation and mobility training because of depth perception and field loss
• keyboarding skills may be helpful if student experiences difficulty with handwriting
Cortical Visual Impairment (CVI)

What is cortical visual impairment?
Cortical visual impairment (CVI) is a condition in which the vision is reduced, but the vision loss cannot be explained by ophthalmological findings. The eyes appear normal and capable of functioning, but the brain does not process the visual information which it is given. There is usually clinical evidence of damage to the cortical area of the brain (the outer layer of gray matter over most of the brain). The process of receiving visual information may be disturbed, the interpretation of that information may be disturbed or there may be a combination of both. CVI may be caused by a great variety of diseases and disorders such as malformation of the brain, lack of oxygen at birth or later in life, head injury and infections such as meningitis. Children with CVI will usually have additional neurological difficulties such as cerebral palsy, seizures or developmental delay. There are, however, children with CVI who have no additional disabilities. Children with CVI usually have residual vision, but their visual functioning is extremely variable and fluctuates. Visual functioning may improve in some children as further cognitive development occurs.

What are the characteristics of cortical visual impairment?
- student will have extremely variable visual functioning (day to day, hour to hour)
- student will exhibit visual inattention or lack of visual curiosity
- students will usually see better in familiar environments and with familiar objects
- student will not “look blind” - eyes appear normal and appear to be focused
- student will not often exhibit self stimulating behaviors
- student will seem to recognize (primary) colors more easily than shapes
- student may see moving objects more easily than stationary objects
- student may look to the side when reaching in order to use peripheral vision
- student may have difficulty crossing midline

What are the functional implications of cortical visual impairment?
- student will need flexibility in his or her programming to accommodate fluctuating vision
- student may not move safely through his or her environment
- visual clutter must be avoided to minimize distraction
- care must be taken to avoid overloading the student with visual information
- student will need to make maximum use of all his or her senses
- student will benefit from consistent repetition of tasks and routines

What are some educational considerations for a student with cortical visual impairment?
- high contrast materials will be beneficial
- use primary colors to outline simple shapes to make them more visible
- student may need extra time to complete visual tasks
- give student time to process visual information
- use familiar objects in familiar environments
- keep the number of people working with the student to a minimum
- keep visual information simple, constant and predictable
- student may benefit from breaks from visual tasks to combat eye fatigue
- encourage student to explore what he or she sees
- lighting will be a factor in the student’s visual functioning
- student may require orientation and mobility training
What is glaucoma?
Glaucoma is a disease in which increased pressure of the fluid inside the eye (intraocular pressure) causes degeneration of the optic disk and visual field loss. The fluid inside the eye is called the aqueous humor. It carries nutrients to the front part of the eye and is then drained into the bloodstream through a channel called the canal of Schlemm. In glaucoma, the canal of Schlemm becomes blocked, causing a buildup of pressure within the eye. When intraocular pressure is too high, it is difficult for the blood to supply the retina and optic nerve nutritionally. This results in a reduction in the visual field and in visual acuity. There are four types of glaucoma: chronic open angle, acute angle closure, congenital and secondary. Glaucoma may be treated with medications or surgery. Vision loss due to glaucoma is not reversible.

What are the characteristics of glaucoma?
- if chronic open angle glaucoma, the student may not exhibit physical symptoms until visual impairment occurs
- if acute angle closure glaucoma, the student may experience sudden onset of blurred vision followed by excruciating pain, nausea and vomiting, redness of the eye, cloudy vision and a multicolored halo may be seen around lights
- if congenital glaucoma, the child may present as photophobic (extremely sensitive to light) and may have excessive tearing and cloudiness of the cornea
- if secondary glaucoma, student will have had an eye insult or injury, or will be reacting to another disorder such as cataract surgery, infection, aniridia, medication, etc.
- student may describe blurring in specific areas of their vision
- depending on site of lesion, student may have difficulty with speech and language, ability to concentrate and visual attention
- student may not move with ease through his or her environment
- night vision may be reduced

What are the functional implications of glaucoma?
- student may have poor night vision and poor peripheral fields
- student may exhibit photophobia (extreme sensitivity to light)
- reading or seeing large objects at close range may be difficult
- medications needed to treat glaucoma may require monitoring
- visual functioning may fluctuate
- student may present with headaches, pain, redness of the eye, cloudy cornea and/or wide open pupil

What are some educational considerations for a student with glaucoma?
- student may need extra time to complete visual tasks
- student may need assistance or alternate ways to take notes
- student may benefit from breaks from visual tasks to combat eye fatigue
- print materials which are enlarged and high contrast will be necessary
- lighting will be a major factor in the student’s visual functioning
- glare should be avoided and bright lights may not be tolerated
- use of low vision aids may be beneficial for some students
- use of closed circuit television (CCTV) may be beneficial
- student may require orientation and mobility training for night travelling
- physical activities may need to be restricted; check with the student’s ophthalmologist
Hemianopsia (he-mee-in-op-see-uh)

What is hemianopsia?
Hemianopsia is a condition in which there is blindness or impaired vision in one half of the visual field (literally, "half vision"). Hemianopsia may be caused by factors such as stroke, tumor or traumatic brain injury affecting the optic nerve. The particular portion of the visual field affected depends on the site of the damage. One or both eyes may be affected, and acuity usually is not affected in the intact portion of the visual field.

What are the characteristics of hemianopsia?
- student may frequently bump into objects
- student may exhibit possible blurring in specific areas of his or her vision
- depending on site of lesion, student may have difficulty with speech and language, ability to concentrate, and visual attention
- student may seem hesitant to move with ease through his or her environment
- night vision may be reduced

What are the functional implications of hemianopsia?
- visual fatigue may be experienced when performing visual tasks
- reading speed is reduced and strategies need to be taught to help the student find information on the page
- reading ability may be affected to such a degree that audiotaped materials may be useful
- student may use eccentric viewing (turning the head or body to facilitate seeing)
- student may not move efficiently or safely through environment
- scanning and tracking is difficult

What are some educational considerations for a student with hemianopsia?
- student may benefit from using mirrors and/or prisms
- visual clutter should be avoided
- student may need extra time to complete visual tasks
- student may need assistance or alternate ways to take notes
- student may benefit from breaks from visual tasks to combat eye fatigue
- student may require orientation and mobility training
- skills needed for reading may need to be specifically taught (e.g., scanning, tracking, keeping place on page, finding information on page, etc.)
- care should be taken to accommodate the student’s attention span, frustration level and other such characteristics when assigning tasks
- student may benefit from training in techniques of eccentric viewing (turning the head or body to facilitate better viewing)
Hyperopia (hipe-er-ope-ee-uh)

What is hyperopia?
Hyperopia, commonly referred to as “farsightedness,” is an eye condition in which light rays from distant objects do not converge soon enough to focus on the retina. It causes the individual to not be able to see things close to them as clearly as things which are farther away from them. It is a refractive error and is related to shortness of the eyeball or to reduced curvatures of the cornea or lens. Hyperopia may be progressive or not and may affect individuals of any age. Convex or “plus” lenses correct this difficulty.

What are the characteristics of hyperopia?
- clear visual acuity may not be possible
- student may bring objects in close to his or her face in order to focus, thus appearing to be very nearsighted
- corrective lenses are necessary to achieve optimum vision
- student may squint or frown in an attempt to narrow what he or she sees because it is easier to see that way

What are the functional implications of hyperopia?
- high contrast materials are important
- use of certain low vision aids may be helpful
- lighting will be a major factor in visual functioning
- visual fatigue may be experienced when performing near vision tasks
- student may complain of eyestrain
- performing visual tasks may cause headaches
- student may avoid near vision tasks such as reading

What are some educational considerations for a student with hyperopia?
- glare must be avoided
- student will need lighting considerations
- care must be taken to provide student with high contrast print materials
- student may need extra time to complete visual tasks
- student may need to sit further away from the board or demonstrations
- student may need assistance or alternate ways to take notes
- student may need to use black felt pen, marker and/or dark-lined paper for writing
- student may benefit from breaks from visual tasks to combat eye fatigue
- student may require orientation and mobility training
- physical activities may be preferred to visual activities
- where possible, student should be given opportunities for manipulation of concrete objects instead of pencil and paper tasks
Leber’s (lay-bers) Optic Atrophy

What is Leber’s Optic Atrophy?
Leber’s Optic Atrophy is a condition in which there is rapidly progressive optic atrophy (degeneration of nerve tissue which carries optic messages to the brain). This is a rare disease which occurs mostly in young men aged 20-30 years and is hereditary (due to an X-linked recessive gene). The disease may include other types of central nervous system involvement.

What are the characteristics of Leber’s Optic Atrophy?
- decreased visual acuity in central field
- fluctuating visual performance
- color vision may be reduced
- visual perception may be impaired
- eye fatigue when performing visual tasks

What are the functional implications of Leber’s Optic Atrophy?
- orientation and mobility will likely be of concern
- depth perception may be affected
- glare must be avoided
- use of low vision aids may be helpful in some situations
- lighting will be a major factor in visual functioning
- student may have sensitivity to certain levels or types of light

What are some educational considerations for a student with Leber’s Optic Atrophy?
- student will need lighting considerations
- student may need extra time to complete visual tasks
- large print, high contrast and audiotaped materials may be helpful
- student may need to learn braille
- student may need to sit closer to the board or demonstrations
- student may need to use black felt pen or marker for writing
- student may need to use dark-lined paper
- avoid visual clutter
- student may benefit from breaks from visual tasks to combat eye fatigue
- glare should be avoided in all situations
- teacher needs to be aware that student’s visual functioning may fluctuate, therefore so should expectations
- student may benefit from use of low vision aids
- student will require orientation and mobility training
- keyboarding skills may be necessary
- student may need time to adjust to changes in lighting
- physical activity may be restricted; check with the student’s ophthalmologist
Macular degeneration is a condition in which there is progressive degenerative damage to the central part of the retina, the macula. There are two types: juvenile (less than 7 years of age) or senile. The latter is commonly present in elders, but sometimes is present in children. Associated with macular degeneration is central field loss, which affects acuity and color vision. Peripheral vision is normal. The condition also causes light sensitivity.

What are the characteristics of macular degeneration?
- decreased visual acuity in central field
- loss of central vision while peripheral vision is normal
- color vision reduced
- photophobia (extreme sensitivity to light)
- may need to use eccentric viewing (tilting or turning head to find best viewing position)
- eye fatigue when performing visual tasks

What are the functional implications of macular degeneration?
- orientation and mobility will be of concern
- training in daily living skills may be necessary
- glare must be avoided
- use of low vision aids may be helpful in some situations
- lighting will be a major factor in visual functioning
- student may have self esteem issues due to use of eccentric viewing

What are some educational considerations for a student with macular degeneration?
- student will need average or dim lighting
- student may need extra time to complete tasks
- large print, high contrast and audiotaped materials may be helpful
- student may need to use black felt pen or marker for writing
- student may need to sit near board or demonstrations
- training in the area of orientation and mobility will be necessary
- use of low vision aids may be helpful
- glare should be avoided in all situations
- student may benefit from a tilted reading stand
- student may need to use sunglasses or visors for light sensitivity
- student may need to learn organized search patterns to locate objects or visual targets
- materials which require color vision should be adapted or not used
- student may use eccentric viewing and classmates should know why
- training may be necessary in daily living skills
- student may benefit from adjustment to blindness counselling
Myopia (my-ope-ee-uh)

What is myopia?
Myopia, commonly referred to as “nearsightedness” or “shortsightedness,” is an eye condition in which light rays from distant objects converge too soon to focus on the retina. It causes the individual to not be able to see things far away from them as clearly as things which are close to them. It is a refractive error and is related to extra length of the eyeball or to increased curvatures of the cornea or lens. Myopia may be progressive or not and may affect individuals of any age. Concave or “minus” lenses correct this difficulty. Individuals with high myopia may be at increased risk for retinal detachment.

What are the characteristics of myopia?
- clear visual acuity may not be possible
- student may bring objects in close to his or her face in order to focus
- corrective lenses are necessary to achieve optimum vision
- student may not be interested in activities which require distance vision, particularly physical education activities
- night vision may be poor

What are the functional implications of myopia?
- high contrast materials are important
- use of certain low vision aids may be helpful
- lighting will be a major factor in visual functioning
- visual fatigue may be experienced when performing visual tasks
- student may complain of eyestrain
- performing visual tasks may cause headaches

What are some educational considerations for a student with myopia?
- glare must be avoided
- student will need lighting considerations
- care must be taken to provide student with high contrast print materials
- student may need extra time to complete visual tasks
- student may need to sit closer to the board or demonstrations
- student may need assistance or alternate ways to take notes
- student may need to use black felt pen, marker and/or dark-line paper for writing
- student may benefit from breaks from visual tasks to combat eye fatigue
- student may require orientation and mobility training
- physical activities may need to be restricted; check with the student’s ophthalmologist
- where possible, student should be given opportunities for manipulation of concrete objects instead of pencil and paper tasks
Nystagmus (ni-stag-mus)

What is nystagmus?
Nystagmus means the rhythmical, involuntary movement of one or both eyes. It is a physical sign of utmost importance because it can signal the presence of other eye conditions. It can be so slight that it is hardly noticeable or it can be rapid with a wide range of movement. It is really a defense mechanism of the muscles of the eyes in search of fixation (focus) and orientation in space.

What are the characteristics of nystagmus?
• involuntary, rhythmic movement of the eyes which can be horizontal, vertical, rotary or mixed
• two types: congenital (most common in children) and acquired (not present at birth)
• most frequently occurs in both eyes and is usually a connected movement
• possible head tilting and nodding
• possible dizziness
• possible disturbance in vision
• clarity is always less than average, particularly in near vision
• may be more noticeable when the student is sick or tired

What are some functional implications of nystagmus?
• student often experiences myopia (“nearsightedness”) resulting in reduced visual acuity
• student experiences eye fatigue when asked to use vision continuously
• student may experience vertigo
• stress or spinning movements increase nystagmus and should be avoided when fixation is required
• head tilting may decrease nystagmus and is usually involuntary
• student may exhibit head nodding

What are some educational considerations for a student with nystagmus?
• large print materials may be helpful
• magnifiers may not always be helpful
• print materials should be as uncluttered as possible
• line markers, line guides or rulers may help student keep place on the page
• handwriting may be difficult, so keyboarding skills are helpful
• reading/writing assignments should be kept as brief as possible to reduce stress and eye fatigue
• use of dark-line paper may be helpful
• directions and special words should be underlined
• attention should be paid to lighting and contrast
• window card with rectangular hole to view one word or line at a time may be useful for younger children
• telescope may be useful for distance vision tasks (watching television, street crossings, etc.)
• student may benefit from counselling for adjustment to visual impairment
• vary tasks where possible to allow student a brief break from continuous reading
Ocular Albinism (ock-you-ler al-bin-iz-um)

What is ocular albinism?
Ocular albinism is a hereditary deficiency of pigmentation which affects the retina and iris. Ocular albinism is commonly associated with high degrees of refractive error (nearsightedness and farsightedness), nystagmus (involuntary motion of the eyes) and severe photophobia (sensitivity to light). Individuals with ocular albinism may or may not have pale skin and hair (oculocutaneous albinism).

What are the characteristics of ocular albinism?
- decreased visual acuity
- nystagmus
- photophobia (extreme sensitivity to light)
- eye fatigue when performing visual tasks

What are the functional implications of ocular albinism?
- orientation and mobility will be of concern
- training in daily living skills may be necessary
- glare must be avoided
- use of low vision aids may be helpful
- lighting will be a major factor in visual functioning

What are some educational considerations for a student with ocular albinism?
- student will need lighting considerations (normal to dim lighting may be preferable)
- student may need extra time to complete tasks
- large print, high contrast and audiotaped materials may be helpful
- student may need to sit closer to the board or demonstrations
- student may need to use black felt pen or marker for writing
- student may need to use dark-lined paper
- training in the area of orientation and mobility may be necessary
- student may benefit from breaks from visual tasks to combat eye fatigue
- stress will complicate nystagmus, therefore assignments and writing tasks should be as brief as possible
- keyboarding skills will likely be important as students have difficulty with handwriting
- use of low vision aids may be helpful
- glare should be avoided in all situations
- student may benefit from a tilted reading stand
- student may need to use sunglasses or visors for light sensitivity
- student may need to learn organized search patterns to locate objects or visual targets
- training may be necessary in daily living skills
- student may benefit from adjustment to blindness counselling
- teacher should not stand in front of the window or other light source
Optic Nerve Atrophy

Optic Atrophy

What is optic (nerve) atrophy?
Optic nerve atrophy is a condition where there is degeneration of nerve tissue which carries messages from the retina to the brain. Optic nerve atrophy may be caused by many factors and may develop in the prenatal, perinatal or postnatal period. Optic nerve atrophy may be progressive or stable and may affect both central and peripheral vision. The effects of this condition are very specific to individuals.

What are the characteristics of optic (nerve) atrophy?
- decreased visual acuity
- peripheral or central field loss, depending on site of damage along the optic nerve
- color vision may be impaired
- visual perception may be impaired
- fluctuating visual performance

What are the functional implications of optic (nerve) atrophy?
- glare must be avoided
- orientation and mobility skills will be of concern
- use of low vision aids may be helpful
- lighting will be a major factor in visual functioning
- depth perception may be affected
- student may have sensitivity to certain levels or types of light

What are some educational considerations for a student with optic (nerve) atrophy?
- student will need lighting considerations
- student may need extra time to complete visual tasks
- large print, high contrast and audiotaped materials may be helpful
- student may need to learn braille
- student may need to sit closer to the board or demonstrations
- student may need to use black felt pen or marker for writing
- student may need to use dark-lined paper
- avoid visual clutter
- student may benefit from breaks from visual tasks to combat eye fatigue
- glare should be avoided in all situations
- teacher needs to be aware that student’s visual functioning may fluctuate, therefore so should expectations
- student may benefit from use of low vision aids
- student will require orientation and mobility training
- keyboarding skills may be necessary
- student may need time to adjust to changes in lighting
- physical activity may be restricted; check with the student’s ophthalmologist
Optic Nerve Hypoplasia (hi-po-play-shuh) (ONH)

What is optic nerve hypoplasia?
Optic nerve hypoplasia (ONH) is a condition in which there is incomplete development of the optic nerve. It may occur in one or both eyes and the visual loss is variable. ONH occurs in association with other developmental anomalies, fetal alcohol syndrome and substance abuse. Less severe and subtle cases may go undetected into adulthood. Vision loss associated with ONH is not progressive.

What are the characteristics of optic nerve hypoplasia?
- possible nystagmus (uncontrolled movement of the eyes)
- possible amblyopia (“lazy eye”)
- field loss is likely
- visual loss is variable

What are the functional implications of optic nerve hypoplasia?
- use of certain low vision aids may be helpful
- lighting may be a major factor in visual functioning
- visual fatigue may be experienced when performing visual tasks
- use of large print, high contrast materials may be helpful
- braille and tactual materials may be needed by some students
- student may have social interaction problems

What are some educational considerations for a student with optic nerve hypoplasia?
- glare must be avoided
- student will need lighting considerations
- visual clutter should be avoided
- teacher should avoid standing in front of a busy background and/or wearing clothing with busy patterns
- vision stimulation is essential for young children to help them learn to interpret what they see
- care must be taken to provide student with high contrast print materials
- student may need extra time to complete visual tasks
- student may need to sit closer to the board or demonstrations
- student may need assistance or alternate ways to take notes
- student may need to use black felt pen, marker and/or dark-lined paper for writing
- student may benefit from breaks from visual tasks to combat eye fatigue
- student may require orientation and mobility training
- physical activities may need to be restricted; check with the student’s ophthalmologist
- where possible, student should be given opportunities for manipulation of concrete objects instead of pencil and paper tasks
Retinal Detachment

What is retinal detachment?
Retinal detachment occurs when the parts of the retina pull away from the supporting structure of the eye and atrophy. Retinal detachment can be caused by diabetes, a blow to the head, trauma, breaks, holes or tears in the retina, degenerative myopia ("nearsightedness") or retinopathy of prematurity (ROP). Incidents of retinal detachment occur adventitiously (after birth) and the condition may be progressive or not. Immediate intervention may allow for surgical correction of the detachment so that there are no lasting effects on the vision. Immediate attention must be given to investigate symptoms of retinal detachment such as piercing pain in the eye, flash of light in side vision, field losses, increasing difficulty with night vision, multiple dark spots floating in the field of vision, distortion of color vision, objects appearing smaller than normal or complaint of seeing a shadow or a curtain coming down or going up in the field of vision.

What are the characteristics of retinal detachment?
- possible sudden, large changes in vision
- possible gradual, cumulative changes in vision which he or she may not notice
- student may need to restrict physical activities which could lead to head trauma
- night vision may be poor
- color vision may be distorted
- visual fields or central vision may be affected
- may accompany high myopia (nearsightedness)

What are the functional implications of retinal detachment?
- use of certain low vision aids may be helpful
- lighting will be a major factor in visual functioning
- visual fatigue may be experienced when performing visual tasks
- student may complain of eyestrain
- performing visual tasks may cause headaches

What are some educational considerations for a student with retinal detachment?
- glare must be avoided
- student will need lighting considerations
- care must be taken to provide student with high contrast print materials
- student may need extra time to complete visual tasks
- student may need to sit closer to the board or demonstrations
- student may need assistance or alternate ways to take notes
- student may need to use black felt pen, marker and/or dark-line paper for writing
- student may benefit from breaks from visual tasks to combat eye fatigue
- student may require orientation and mobility training
- physical activities may need to be restricted; check with the student’s ophthalmologist
- where possible, student should be given opportunities for manipulation of concrete objects instead of pencil and paper tasks
Retinitis (ret-in-eye-tis) Pigmentosa (RP)
Rod/Cone Dystrophy

What is retinitis pigmentosa?
Retinitis pigmentosa (RP) is a disease which affects the retina, particularly the rods and cones. Rods and cones are the cells responsible for converting light entering the eye into electrical signals which travel to the brain and are interpreted as what we see around us. RP is a degenerative disease for which there are no known treatments at present. Individuals with RP have vision which begins with night blindness and gradually deteriorates into peripheral field loss (tunnel vision) and, possibly, total blindness. Rod/cone dystrophy means that the cells responsible for night vision and color vision are underdeveloped or absent, resulting in reduced visual ability.

What are the characteristics of retinitis pigmentosa?
- decreased visual acuity and depth perception
- spotty vision
- photophobia (extremely sensitivity to light)
- may be accompanied by other conditions such as myopia (nearsightedness) or cataracts
- reduced visual fields; possible tunnel vision
- night blindness
- may need to use eccentric viewing

What are the functional implications of retinitis pigmentosa?
- depth perception may be reduced
- may have difficulty discerning fine details
- lighting will be a major factor in visual functioning
- low vision aids may be necessary as vision reduces
- student may have difficulty entering or leaving different environments due to slow adjustment to light changes
- student may experience reduced peripheral vision

What are some educational considerations for a student with retinitis pigmentosa?
- student will need good lighting and high illumination of work area
- student may need extra time to complete tasks
- large print, high contrast and audiotape materials may be helpful
- student may need to sit closer to the board or demonstrations to compensate for reduced acuity or farther away to compensate for reduced visual fields
- student may need to use black felt pen or marker for writing
- tasks requiring depth perception, particularly in the area of orientation and mobility, will necessitate training in this area
- glare should be avoided
- training in braille may be necessary
- student may need to learn organized search patterns to locate objects or visual targets
- counselling for adjustment to blindness will be necessary
- consideration may need to be given for the difficulty in adjusting to changes in lighting
Retinoblastoma (ret-in-o-blas-toe-muh)

What is retinoblastoma?
Retinoblastoma is a disease in which cancerous (malignant) cells are found in the retina. Retinoblastoma occurs in children under the age of 5 and occurs in about 1 in 20,000 births. It may be found in one or both eyes and progresses through three stages: intraocular (the cancer is found in one or both eyes and has not spread to tissues around the eye), extraocular (the cancer has spread to tissues around the eye or to other parts of the body) and recurrent (the cancer has come back to the eye or another part of the body after it has been treated). In treating retinoblastoma, removal of one or both eyes (enucleation) may be necessary.

What are the characteristics of retinoblastoma?
• student may exhibit an inward or outward turn of the eye
• student may experience a whiteness or strange light to the pupil

What are the functional implications of retinoblastoma?
• depth perception may be affected
• judging of distances may be difficult

What are some educational considerations for a student with retinoblastoma?
• student may require orientation and mobility training
• physical activities may need to be restricted
• student may required training in braille
• student may benefit from counselling in adjustment to blindness
• student may require intensive orientation and mobility training
Retinopathy (ret-in-ah-puh-thee) of Prematurity (ROP)

What is retinopathy of prematurity?
Retinopathy of prematurity (ROP) is a condition in which the blood vessels in the retina are improperly formed as a result of an infant being born prematurely and supplemental oxygen being given during the neonatal period. Because the infant is premature, blood vessels are not matured and hemorrhages in the retina occur. Also, scar tissue forms and newly developing blood vessels are abnormal. The incidence and severity of ROP is related to birth weight and gestational age. There may be minimal, temporary damage or permanent and total blindness. Early laser surgery to prevent the progression of the disease is sometimes necessary. This condition used to be referred to as “retrolental fibroplasia”.

What are the characteristics of retinopathy of prematurity?
- decreased visual acuity
- at higher risk for retinal detachment
- possible severe myopia (nearsightedness)
- spotty vision
- strabismus (eyes not straight) or amblyopia (“lazy eye”)
- retinal scarring
- field loss
- possible glaucoma

What are the functional implications of retinopathy of prematurity?
- early intervention is crucial
- sensory stimulation through lots of experiences is crucial
- low contact sports and leisure activities should be considered
- orientation and mobility may be of concern, especially spatial skills
- training in daily living skills may be necessary
- glare must be avoided
- use of low vision aids may be helpful
- lighting will be a major factor in visual functioning
- often, low birth weight children have increased social problems, learning disabilities and socialization problems

What are some educational considerations for student with retinopathy of prematurity?
- student will need high levels of lighting
- large print, high contrast and audiotaped materials may be helpful
- student may need to learn braille
- student may need to use black felt pen or marker for writing
- student may need to use dark-lined paper
- training in the area of orientation and mobility will be crucial
- student will benefit from training in keyboarding skills
- use of low vision aids and CCTV may be helpful
- student may need to learn organized search patterns to locate objects or visual targets
- skills in the areas of daily living, social competence and visual efficiency will be crucial
Strabismus (struh-biz-mus)

What is strabismus?
Strabismus is a condition in which the two eyes are not straight (“crossed eyes” and/or “squint”). This occurs in approximately 2-4% of the population. The most common forms of strabismus are inherited. Strabismus is sometimes due to refractive error. Also, it may be due to misalignment of the eye muscles commonly associated with Down’s syndrome or spina bifida. If strabismus is in one eye, amblyopia (“lazy eye”) may develop. Strabismus may be treated by prescribing eyeglasses, exercises or surgery.

What are the characteristics of strabismus?
- eyes are not straight
- student may complain of double vision (“seeing double”)
- disturbance in vision
- visual acuity is likely less than average, particularly in near vision
- student may see only with one eye
- possible peripheral field loss

What are some functional implications of strabismus?
- depth perception may be reduced or absent
- may have difficulty discerning fine details
- may have difficulty with fine motor skills
- student may have self esteem issues because he or she looks different

What are some educational considerations for a student with strabismus?
- large print and high contrast materials may be helpful
- student may need to sit closer to the board or demonstrations
- classroom seating should favor the student’s functional eye
- student may have difficulty with fine motor skills such as cutting paper, coloring or printing within lines
- line markers, line guides or rulers may help student keep place on the page
- student may need to use black felt pen or marker for writing
- reading/writing sessions may need to be kept as brief as possible to reduce eye fatigue
- tasks requiring depth perception such as catching a ball or moving in uneven terrain may be difficult
- mobility around school and playground may need to be monitored due to reduced depth perception
- preferential lighting may be considered
- glare should be avoided
- student may need familiarization with the environment to help anticipate distances and heights
Usher Syndrome

What is Usher Syndrome?
Usher Syndrome is a hereditary condition characterized by a sensorineural hearing loss combined with retinitis pigmentosa. The hearing loss is normally present at birth but can also occur shortly thereafter. There is no cure for Usher Syndrome.

What are the characteristics of the visual component of Usher Syndrome?
- decreased visual acuity and depth perception
- spotty vision
- photophobia (extreme sensitivity to light)
- may be accompanied by other conditions such as myopia (nearsightedness) or cataracts
- reduced visual fields
- night blindness
- may need to use eccentric viewing (turning head or body to see more easily)

What are the functional implications of the visual component of Usher Syndrome?
- depth perception may be reduced
- may have difficulty discerning fine details
- lighting will be a major factor in visual functioning
- low vision aids may be necessary as vision reduces
- student may experience difficulty moving from one environment to another due to slow adjustment to changes in lighting

What are some educational considerations for a student with Usher Syndrome?
- student will need good lighting and high illumination of work area
- student may need extra time to complete tasks
- large print, high contrast and audiotape materials may be helpful
- student may need to sit closer to the board or demonstrations
- student may need to use black felt pen or marker for writing
- tasks requiring depth perception, particularly in the area of orientation and mobility, will necessitate training in this area
- glare should be avoided
- training in braille may be necessary
- student may need to learn organized search patterns to locate objects or visual targets
- counselling for adjustment to blindness will be necessary
- programming will have to take the hearing loss into account, therefore consideration will need to be given for using audiotaped materials
- consideration may need to be given for the student’s difficulty in adjusting to changes in lighting
Appendix F

Medical Forms
Medical Certificate: Vision

STUDENT’S NAME______________________________________________________
DATE OF BIRTH_________________________________________________________
M.C.P. __________________________________________________________________
JANEWAY NUMBER______________________________________________________
SCHOOL BOARD_________________________________________________________
DATE OF LAST OPHTHALMOLOGIST CERTIFICATE__________________________
DIAGNOSIS______________________________________________________________

RESULTS OF EXAMINATION:

1.1 This student’s Visual Acuity is less than 20/70 in the better eye after correction. Yes______No______
1.2 This student’s field of vision is 20 degrees or less. Yes______No______
1.3 This student’s eye condition and/or treatment has changed since last visit
   Yes _____ No _____  If no please sign and date
   If yes please proceed

2.1 Actual Acuity after correction
   Near (left) ______  (right) ______  Both ______
   Distance (left) ______ (right) ______ Both ______

3.1 Eye condition will remain stable Yes _____ No ______
3.2 Medication Prescribed Yes _____ No ______
   If yes, type: _____________________________________________________________________________

4.1 Comments (planned future medical interventions, recommended low vision aids, school considerations such as print size, lighting):

_______________________________________________________________________________________

5.1 Date of recall_________________________________________

Note: This medical certificate is required by the Department of Education every two years.

6.1 Date_____________________________ Physician______________________________________________

7.1 Please forward this certificate to:
Appendix G

Developmental Milestones for Infants with Visual Impairments
## Developmental Milestones for Infants with Visual Impairments

<table>
<thead>
<tr>
<th>Developmental Area</th>
<th>Birth-12 months</th>
<th>13-24 months</th>
<th>25-36 months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive</strong></td>
<td>* Imitates sounds, gestures, or actions</td>
<td>* Imitates use of toy</td>
<td>* Matches objects</td>
</tr>
<tr>
<td></td>
<td>* Shows displeasure at loss of toy or object</td>
<td>* Points to body parts</td>
<td>* Remembers past events</td>
</tr>
<tr>
<td></td>
<td>* Demonstrates object permanence</td>
<td>* Demonstrates (e.g., sings a song)</td>
<td>* Begins to sort objects by size, color, texture and shape</td>
</tr>
<tr>
<td></td>
<td>* Begins to demonstrate cause and effect or means-end behaviors</td>
<td>* Uses objects as tools</td>
<td>* Tells use of objects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Uses trial and error</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>* Smiles</td>
<td>* Uses gestures (points, waves)</td>
<td>* Uses first person pronouns (I, me)</td>
</tr>
<tr>
<td></td>
<td>* Makes eye or face contact</td>
<td>* Uses 2-word sentences</td>
<td>* Asks questions</td>
</tr>
<tr>
<td></td>
<td>* Babbles</td>
<td>* Follows simple directions</td>
<td>* Understands some prepositions (on, next to, on top of)</td>
</tr>
<tr>
<td></td>
<td>* Laughs</td>
<td>* Names familiar objects and people</td>
<td>* Begins to use imagination</td>
</tr>
<tr>
<td></td>
<td>* Says first word</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Understands “no”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Responds to own name</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gross Motor</strong></td>
<td>* Controls head (holds upright when being held or when lying on tummy)</td>
<td>* Pulls to stand</td>
<td>* Walks up and down stairs</td>
</tr>
<tr>
<td>(large muscles)</td>
<td>* Rolls over</td>
<td>* Walks</td>
<td>* Begins to run</td>
</tr>
<tr>
<td></td>
<td>* Sits</td>
<td>* Climbs into adult-size chairs</td>
<td>* Begins to jump</td>
</tr>
<tr>
<td></td>
<td>* Crawls</td>
<td>* Rolls, then throws ball</td>
<td>* Balances on one foot</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fine Motor</strong></td>
<td>* Brings hands together</td>
<td>* Releases objects on purpose</td>
<td>* Stacks objects</td>
</tr>
<tr>
<td>(small muscles)</td>
<td>* Grasps objects</td>
<td>* Uses pincer grasp (thumb and index finger)</td>
<td>* Copies geometric figures (either tactualy or visually)</td>
</tr>
<tr>
<td></td>
<td>* Reaches for toys (either visually or auditorally)</td>
<td>* Scribbles</td>
<td>* Strings beads</td>
</tr>
<tr>
<td></td>
<td>* Searches for a dropped toy</td>
<td>* Puts objects inside containers</td>
<td>* Sorts objects by size and texture</td>
</tr>
<tr>
<td></td>
<td>* Explores objects (pats, pokes, hits together)</td>
<td>* Completes simple form board puzzles</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Turns pages of books</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Uses wrist rotation (turns doorknobs, jar lids, etc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Developmental Milestones for Infants with Visual Impairments (continued)

<table>
<thead>
<tr>
<th>Developmental Area</th>
<th>Birth-12 months</th>
<th>13-24 months</th>
<th>25-36 months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-Help</strong></td>
<td>* Eats with spoon</td>
<td>* Drinks from cup</td>
<td>* Puts on some clothing independently</td>
</tr>
<tr>
<td></td>
<td>* Holds and drinks from bottle</td>
<td>* Removes some clothing independently</td>
<td>* Puts toys away</td>
</tr>
<tr>
<td></td>
<td>* Eats some finger foods</td>
<td>* Indicates toilet needs</td>
<td>* Partially or fully toilet trained</td>
</tr>
<tr>
<td></td>
<td>* Drinks from cup</td>
<td>* Anticipates some daily routines</td>
<td></td>
</tr>
<tr>
<td><strong>Sensory</strong></td>
<td>* Focuses on and follows objects</td>
<td>* Identifies hot and cold</td>
<td>* Recognizes places or activities by odors or sounds</td>
</tr>
<tr>
<td></td>
<td>* Turns to sound</td>
<td>* Identifies familiar sounds</td>
<td>* &quot;Tracks&quot; braille (follows along in book or on label)</td>
</tr>
<tr>
<td></td>
<td>* Explores objects by touch</td>
<td>* Identifies familiar odors</td>
<td>* Identifies textures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Recognizes objects by touch</td>
<td></td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>* Makes eye or face contact</td>
<td>* Plays interactive games with adults</td>
<td>* Plays interactively with peers</td>
</tr>
<tr>
<td></td>
<td>* Smiles</td>
<td>* Hugs</td>
<td>* Shows signs of ownership</td>
</tr>
<tr>
<td></td>
<td>* Recognizes parents and family members</td>
<td>* Repeats actions that others laugh at</td>
<td>* Asks for help</td>
</tr>
<tr>
<td></td>
<td>* Reaches for familiar person</td>
<td>* Imitates household activities (feeding baby, sweeping, etc.)-fantasy play</td>
<td>* Pretends</td>
</tr>
<tr>
<td></td>
<td>* Cries when parent leaves</td>
<td>* Plays independently</td>
<td></td>
</tr>
</tbody>
</table>

Appendix H

Technology and Special Equipment Used with Students who are Blind or Visually Impaired
TEACHING CHILDREN WHO ARE BLIND OR VISUALLY IMPAIRED

STUDENT SUPPORT SERVICES (2001)

TECHNOLOGY

The technology used by students who are blind or visually impaired varies with their needs at each stage of their development. Evaluation of the student and the student's needs is usually made by the Itinerant Teacher on an ongoing basis, in consultation with the ISSP team. Most equipment is available through APSEA for the time the student is in school.

The student may need to purchase necessary equipment through the CNIB or other such sources upon graduation from high school, either for use in post-secondary education or the workplace. Students who are going on to post-secondary institutions may apply for EAPD funding to meet those needs. Should this funding not be available, applications can be made to APSEA for their trust fund to cover the costs of such equipment. Students and their families need to be aware of the temporary nature of their equipment loan and should begin purchasing equipment before the student leaves school.

Technological equipment falls into two categories: non-electronic and electronic. A list and brief explanation of both types of equipment follows.

NON-ELECTRONIC EQUIPMENT

Dark-Line Paper

This paper has dark lines and/or enlarged spaces for students who have difficulty using regular lined paper. The paper is available in loose-leaf form or in exercise books, and is provided through APSEA for students with identified visual impairments.

Non-carbonised (NCR) Paper

This paper has a front sheet which is carbonised and a second sheet which is not. It allows one student to take notes for the student with the visual impairment who cannot take notes using other equipment. The student taking the notes keeps the second sheet, giving the student with the visual impairment the top, clear sheet. This paper, in tablet form, is available through APSEA for students with identified visual impairments.

Braille Paper and Paper Holders

Students using braille are given a supply of braille paper through APSEA. This paper comes in two sizes: 8½ by 11 inch, which can be placed in a regular notebook, and 11 by
11 inch. APSEA also supplies a folder to help the student keep 11 by 11 inch paper in an organized manner.

**Large Print or Braille Textbooks and Novels**

The texts required by students who follow the prescribed curriculum are available in either large print or braille. These books are ordered by the Itinerant Teacher in the spring prior to the year they are needed. The books are supplied by APSEA. Some books may be made in a consumable or colour format, when requested.

**Reading Stands**

A variety of reading stands are available to enable the student to bring reading material closer to himself or herself. Some stands attach to the desk top and can be used with a computer, while others sit on the desk top. These stands help eliminate back and neck strain for students who need to move close to material in order to read it. The Itinerant Teacher will evaluate the student's needs and order the stand from APSEA.

**Mathematical Aids**

Mathematical aids are available for student use. These aids include dark and/or raised-line rulers, raised clock faces, geometric volume and area aids, braille protractors, braille compasses, braille rulers and braille tape measures. APSEA provides these materials on a one time only basis. Replacement costs for lost materials must be borne by the student.

**Abacus**

The Cranmer Abacus is based on the traditional abacus with movable beads indicating ones and fives. The primary difference between the two is a felt backing for the Cranmer Abacus which allows bead movement, but holds the beads in place for reading by touch. APSEA provides an abacus to students on a one time only basis. Replacement cost for a lost abacus must be borne by the student. An abacus may also be purchased through the CNIB.

**Tactile Maps and Diagrams**

Students requiring tactile maps or diagrams may have them on loan through APSEA. Specific diagrams can be made to order if the originals are sent to APSEA. These require time for production and should be sent the spring before the school year in which they are required.

**Science Aids**

Tactile aids for use in science programs may be available from APSEA. The request for aids should be made to the APSEA Resource Centre well in advance of when they are needed. The Department of Education has a set of realistic
anatomical models to be used in family life or sexuality programs. The Provincial Consultant will arrange the loan of these materials for Itinerant Teachers.

**Raised Line Drawing Kit**

The raised line drawing kit allows a teacher or student to quickly create a tactile diagram for a student who is blind. This kit is composed of plastic paper and a marking pen. When the diagram is drawn, the image forms on the plastic paper as a series of small dots. Although this is useful for quick sketches, it is not practical for long term study. A raised line drawing kit is available through APSEA.

**Braille Compass**

A braille compass allows a student who is blind to find North, South, East and West independently. This equipment is especially useful in Orientation and Mobility work. APSEA can supply this piece of equipment as part of the student’s mobility program.

**Slate and Stylus**

The slate is a small metal or plastic device in two pieces, hinged together. The bottom piece is flat, while the top piece has several rows of braille cells. The student places paper between the two pieces and uses the stylus, a small pointed instrument, to produce braille by pressing the correct dots in the braille cells. A braille letter or letter group is formed in the paper. This braille can then be read by the student. The slate and stylus is useful for quick notes, but is not as useful for longer material. The use of the slate and stylus is taught as part of a student’s braille program. The Itinerant Teacher can order a slate and stylus through APSEA.

**Braille Writer**

The Perkins Braille Writer is a non-electronic device used to produce braille material. It can be used for both long and short braille work. The use of the braille writer is taught as part of a student’s braille program. The Itinerant Teacher can order a braille writer through APSEA.

**Low Vision Aids**

Low vision aids include magnifying glasses and telescopic aids. The magnifiers may be hand-held, sitting on the material or attached to eyeglasses. These magnifiers help the student complete near distance tasks such as reading or writing. Telescopic aids are used for seeing material at a distance. They may be either hand-held or attached to eyeglasses. These devices are usually prescribed by physicians specializing in low vision devices or recommended by the CNIB Low Vision Nurse or the
Itinerant Teacher. Students receiving low vision aids require training in order to use them efficiently. A variety of low vision aids are available through APSEA.

**ELECTRONIC EQUIPMENT**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calculator</strong></td>
<td>Students may require large print or talking calculators as part of their mathematics program. Large print calculators may be purchased through local electronics and department stores. Talking calculators may either be purchased through local electronics stores, the CNIB, or ordered on loan from APSEA.</td>
</tr>
<tr>
<td><strong>Desk Lamp</strong></td>
<td>Some students require additional lighting in order to work in their classroom. After assessment by the Itinerant Teacher, lamps may be ordered from APSEA.</td>
</tr>
<tr>
<td><strong>Electronically Enlarged Material</strong></td>
<td>Material may be enlarged for students using school photocopiers or large print options on the computer. Students may also use the large print option available in most word processing programs in order to read material written. Most Internet sources may also be enlarged.</td>
</tr>
<tr>
<td><strong>4-Track Tape Recorder</strong></td>
<td>Students receiving books in audiotape format will need a 4-track tape recorder. This recorder allows the student to hear material which is recorded on two tracks per each side of a regular cassette tape. APSEA provides students using taped material with one 4-track tape recorder. Students who prefer a recorder for home and school should purchase this equipment through the CNIB or other electronic catalogue sources.</td>
</tr>
<tr>
<td><strong>Textbooks and Novels on Tape</strong></td>
<td>Students may require textbooks and novels used as part of by the prescribed curriculum in an audiotape format. Taped materials for student with identified visual impairments are available through APSEA and are ordered in the spring prior to the September in which they are needed. Other sources of taped texts and novels include some public libraries, the CNIB National Library, or Recordings for the Blind and Dyslexic (RFBD). The RFBD toll free number is 1-800-221-4792.</td>
</tr>
<tr>
<td><strong>Electronic Dictionary with Speech</strong></td>
<td>An electronic dictionary with speech may be used by a student who cannot access a print dictionary. This</td>
</tr>
</tbody>
</table>
dictation, which may also include a thesaurus, is hand-held and battery operated. It uses a standard (QWERTY) keyboard on which the words are entered. Information is produced in both a spoken and large print format. This dictionary is available to students after evaluation by the Itinerant Teacher and with approval from the Provincial Consultant at the Department of Education.

Closed Circuit Television (CCTV)  
This visual aid electronically enlarges print materials on a television screen. The printed material is placed on a movable table. A camera projects the image of the material onto a television screen at the student’s eye level. Magnification, contrast and illumination can be manipulated to suit the individual student’s needs. In black and white models, the student may also change the polarity from black on white to white on black. In color models, the student may adjust polarity as well as choose the color of text and background.

With this equipment, the student is able to view print material of all types as well as charts, diagrams, and photographs. Most models fit onto a small table and are somewhat portable. In some schools, the table is placed on wheels to allow the student to move the CCTV to various locations. Portable models are also available for students who have more movement during the school day. The CCTV is available from APSEA only after an assessment by the Itinerant Teacher and with approval from the Provincial Consultant at the Department of Education.

Portable Note Takers  
Portable note taking devices may be used by a student to take notes in class using either a braille or standard (QWERTY) keyboard. Those notes may then be transferred to a computer for storage, or printed in either braille or print formats. Many note taking devices have word processors, appointment calendars, calculators or clocks, and can do almost everything a computer can do. Some note taking devices have a speech program with braille input. The note taking devices generally are the size of a book and are easily carried and used by the student. A student may be recommended for a specific note taking device by the Itinerant Teacher. Approval is given by the Provincial Consultant at the Department of Education.

Laptop Computer  
Depending on their needs, students who are blind or visually impaired may receive a laptop computer with either
a speech synthesizer or screen enlargement program from APSEA. With either program, students will have access to materials in a format that best meets their needs. In order to qualify for this equipment, students must be evaluated by the Itinerant Teacher according to criteria developed by APSEA, and a request for the equipment must be approved by the Provincial Consultant at the Department of Education.

**Speech Synthesizers and Screen Reading Software**

With this hardware and software, students who are blind are aurally able to access print material on a computer screen. Students can use the Internet, word processing programs, calculators and access other printed material without having to see the screen. Some hardware and software for screen reading is available from APSEA for use either on the student’s laptop computer, or on a school computer. Such material may be loaned to students after an evaluation by the Itinerant Teacher and with approval from the Provincial Consultant at the Department of Education. Other material may be purchased by the family from companies specializing in speech software production. The CNIB Technology Consultant is a valuable source of information for personal purchase.

**Text Enlarging Software**

Text enlarging software enables a student with low vision to magnify any picture or text displayed on the computer screen, including icons, taskbars, word processed text or Internet web pages. This software is available already installed on laptop computers supplied by APSEA, as software to be installed on a specific computer or as purchased by the student. Loan of APSEA supplied software requires an evaluation by the Itinerant Teacher and approval from the Provincial Consultant at the Department of Education.

**Optical Character Recognition (OCR) System**

OCR systems scan text materials or pictures into computers for storage and retrieval. Text materials that have been scanned may be read by students using text enlarging programs or screen reading software. With the use of software transferring text into braille and a braille embosser, material that has been scanned and stored may be transferred into braille. Any scanning device that allows material to be saved in a text file will enable students who are blind or visually impaired, with access to a computer and appropriate software, to read the saved text.
Braille Translation Software

Braille translation software converts printed text into braille. Translated text may then be printed for the student using a braille embosser (braille printer). Braille translation software may be included as a program on a student laptop computer loaned from APSEA. Software programs may also be purchased by the student through specialty software companies. Information about this software is also available through the CNIB Technology Consultant.

Braille Embosser

The braille embosser is a printer attached to a computer which is used to produce a braille copy of text. A braille embosser may also be attached to braille note taking devices for the same purpose. With the use of a braille embosser, a student is able to print a copy of his or her personal notes and written work. Students may be eligible to receive a braille embosser after an evaluation by the Itinerant Teacher and with approval from the Provincial Consultant at the Department of Education.

Braille to Print Devices

Braille to print devices consist of a computer attachment between a standard braille writer and a standard print printer. Students using braille to print devices are able to braille material for their own use and make an additional print copy of their work for their teachers to read. Students who may be eligible for this equipment require an evaluation by the Itinerant Teacher and approval from the Provincial Consultant at the Department of Education.

Refreshable Braille Display

A braille display device connects to a standard computer with a special cable. It takes information appearing on the computer screen, translates it and displays it in braille, a line at a time. A line of refreshable braille consists of a series of electronically-driven pins that pop up to form braille characters. As the cursor on the screen moves across a line or down the page, the line of braille characters changes to reflect what is currently under or near the cursor. This ever-changing line of braille is called refreshable.

Refreshable braille is available on some portable braille note taking devices, or on a full 20, 40, or 80 character device that attaches in front of the keyboard on a standard computer. Students who wish to purchase the large refreshable braille display hardware should consult with the CNIB Technology Consultant. Portable refreshable braille note taking devices are available through APSEA for mature students. Students who may be eligible for this equipment.
require an evaluation by the Itinerant Teacher and approval from the Provincial Consultant at the Department of Education.