Supporting General Education Classroom Teachers of Braille-Reading Students

General Information

Hello! This document is designed to help classroom teachers working with braille reading students. In these pages you will find both general and specific information to help you as you work with a student who reads braille in your classroom.

Students with visual impairments are most often educated in public schools alongside students without disabilities. While these students should have solid support from a qualified teacher of students with visual impairments who provides direct instruction, by far, most of the student's instructional time will be spent with the classroom teacher. Even so, classroom teachers often report that they have little, if any, training regarding the unique educational needs of braille-reading students.

As a classroom teacher working with a student whose primary literacy media is braille, you will have the support of a teacher of students with visual impairments who may provide general information about blindness and visual impairments and who will also support you with suggestions for your specific class situation. In addition, this specialist teacher will be providing direct instruction to your student to meet IEP goals.

This General Information section includes topics related to students who are blind, and should be of interest to teachers regardless of the age of the students they work with. Click on a title below to show current information. More specific information regarding various grade or subject matter can be found by selecting from the menu at the top of this page.

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Inclusion

Inclusion for Students with Visual Impairments

Students with visual impairments have been included in general education classrooms for many, many years. In fact, there is documentation of children who were blind and visually impaired attending public schools as early as 1903. Long before the beginning of "mainstreaming" or "inclusion" for students with disabilities was required by law, teachers and parents made accommodations for students with visual impairments to attend classes in their neighborhood schools.

While most students who are visually impaired attend public school and are enrolled in a general education classroom, there remain a number of students who attend a residential school for the blind. Additional information about residential schools and options for services in public schools can be found in the "Service Delivery Options" section.

The following are important points to consider about inclusion of students with visual impairments:

- Decisions regarding inclusion should be made on an individual basis considering the strengths and needs of each child. These decisions should not be made based on philosophy or budgets.
- Placement decisions must include input from all members of the educational team and should include documented evidence of a student's educational progress and plans for the future. Ultimately, the decision about placement will be made by the parents. The role of educators is to provide parents with information and participate in honest, straightforward discussions about educational options.
- Students who are included in general education classes should have the supports necessary to be successful. These supports include access to qualified teachers, access to educational materials and instruction, and instruction in specialized skills.
- General education classroom teachers should be provided with strong support for planning accessible curriculum and for providing instructional support throughout the day.
- Students whose only disability is a visual impairment do not require one-on-one support from a paraeducator. Paraprofessional support is valuable in assisting classroom teachers in providing individualized instruction and producing accessible materials (e.g., braille copy of classroom handouts).
- Students with visual impairments must be truly included in all classroom activities. Participation in academic, social, and recreational activities is critical for educational and emotional development.

Time is a big issue for students with visual impairments in general education classrooms. Classroom teachers and teachers of students with visual impairments should work together to ensure that students have adequate time to complete assignments as well as participate in direct instruction on specialized skills with the TVI.

Service Delivery Options and Professionals

If you have a student who is visually impaired enrolled in your general education class, you should have a great deal of support! Successful inclusion of students with disabilities is dependent on the provision of appropriate support for the student within the inclusive classroom

Every student who is visually impaired should have support from a qualified teacher of students with visual impairments (TVI) who should provide the following:

- support to you as you plan and implement instruction,
- support to you as you plan and implement evaluation and progress monitoring,
- direct, consistent, on-going instruction to the student who is visually impaired in areas of the expanded core curriculum (for additional information on this, see the discussion of the expanded core curriculum under the "curriculum" link on the front page of this website),
- assessment information based on specialized assessments, especially on a yearly functional vision assessment and learning media assessment.
- on-going connection with the student's parents and other community partners who can provide support for the student's education.

There are several options for providing specialized educational services to students who are blind or visually impaired. Decisions related to the type of educational services (or educational placement) appropriate or a student is highly individual and is based on a number of family and academic factors. In addition, a number of professionals is likely to help you as you include this student into your classroom. Below is a list of professionals and service delivery options that are commonly used for inclusive education with this population.

Professionals Who Work with Students with Visual Impairments

- **Teacher of students with visual impairments** - A teacher of students with visual impairments (TVI) is a qualified teacher with special training in areas necessary to support students who are blind or visually impaired. Many TVIs have qualifications and experience in another area of education (e.g., elementary education, science education, special education). The TVI who works with your student will let you know how and when he or she will be providing support. Some students need support and instruction from a TVI on a daily basis while others need less intense support.
- **Orientation and Mobility Specialist** - An orientation and mobility specialist (O&M Specialist) will likely be a member of your student's educational team. O&M specialists (sometimes called COMS—Certified Orientation and Mobility Specialist) provides direct instruction to individuals with visual impairments in moving safely and efficiently from one location to another. In addition, this professional will help the student orient (become accustomed to) the school environment, including your classroom and their route from class to class or from class to the cafeteria, etc. The O&M Specialist usually provides instruction outside of the classroom and sometimes outside of the school day.
- **Braillist** - Some school districts employ a qualified (and sometimes certified) person to produce braille materials as needed for class academic work. Typically, this person would be responsible for supporting classroom teachers in obtaining accessible class materials (including worksheets, handouts and copies of overhead or PowerPoint slides) but would not be responsible for the provision of textbooks which will likely be ordered from a provincial or state agency.
- **Paraprofessional** - The practice of assigning a one-on-one paraprofessional to support an individual student who is blind or visually impaired is frowned upon. However, having an additional pair of hands in the room to support the learning environment which allows a classroom teacher to provide more direct instruction to all students is often helpful. Paraprofessional support for a student with visual impairments should be closely monitored by the TVI and parents. Direct instruction is the responsibility of a qualified teacher. Paraprofessional support for students with visual impairments should always have the goal of independence. With the goal of independence in mind, paraprofessionals can be an important member of a student's educational team.

Service Delivery Models

There are several ways to provide educational support for students with visual impairments. The definitions of service delivery models listed below outline how specialized services are provided to support students using various models. Each model includes a brief description along with a list of issues related to classroom teachers working with students in each model.

- **Itinerant Services** - Some students who attend their neighborhood or other public school are provided specialized services from a TVI who travels from school to school. In most cases, the student will be the only student who is visually impaired in the school and so, the TVI comes to the school, provides instruction and consultation and then travels to another school where he or she provides support to another student. The amount of support provided by an itinerant teacher of students with visual impairments varies widely and can be as much as half a day or more every day of the week and as little as a few visits a year. The amount of time provided by the TVI should be based solely on the educational needs of the individual student.
- Suggestions for classroom teachers working with an itinerant teacher
    - Arrange a meeting with the TVI as soon as you know that the student will be enrolled in your classroom. Teachers of students with visual impairments are a wealth of information and are willing to support you as you begin to think of how a braille reading student will fit into your classroom. The earlier you can meet with the TVI, the better!
    - Create an on-going system of communication with your student's TVI. Since itinerant teachers will not be on-site at all times throughout the school day, it is important that you establish an effective way to communicate with him or her. Some people find that email is a good tool while others effectively use cell phones.
    - Spend some time with the TVI as his or her schedule is being developed to decide how to most effectively use the TVI's time.
    - Discuss with the TVI setting up a system for getting classroom materials in an accessible format for your student.
- **Resource Room** - Some schools set up a resource room for students with visual impairments in a single school building. In this model, the teacher of students with visual impairments stays at the school all day every day and provides both intense instruction and on-the-spot support for students with visual impairment enrolled in classes at that school. For the most part, resource rooms for students with visual impairments are located in urban areas where the population supports such a delivery model.
- Suggestions for classroom teachers working with a TVI in a resource setting
    - Get to know the TVI assigned to your school. Include him or her in planning for class instruction, activities and extra events.
    - Determine a system of asking for on-the-spot support when necessary.
- **Residential Schools** - Some students who are enrolled in a residential school for the blind take classes at a local public school. In some cases these classes are taken because the specific course content is not available at the residential school. In other cases the student attends a public school because it is seen as the most appropriate educational setting in combination with support he or she receives from the residential school.
- Suggestions for classroom teachers working with teachers from a residential school
    - Schedule a meeting prior to the beginning of the year to discuss how to effectively include the student in your classroom and to determine what supports are available from the school.
    - Familiarize yourself with the staff at the school and ask for a list of resource people with
    - phone numbers and email addresses.

Eye Conditions Resulting in Visual Impairments

It is important for people working with a student who is visually impaired to understand the cause of the visual impairment. This is important because:

- students with some eye conditions perform better or worse with certain classroom lighting conditions,
- students with some eye conditions fatigue easily,
- students with some eye conditions are susceptible to secondary eye conditions that could further complicate their use of vision,
- students with some eye conditions cannot participate in certain classroom activities (i.e., rough contact sports) because of a danger of damage to the eyes.

You will hear visual impairments discussed in the context of a clinical evaluation (i.e., a doctor's evaluation of vision loss), a "clinical low vision evaluation" (i.e., an examination of the students vision loss and possible optical devices that may be of assistance) and functional vision assessment (i.e., an evaluation of how well the student uses his or her vision in daily activities). It is important to pay attention to all three, but you will likely be most interested in how the student will "function" in your classroom, including what adaptations will be most helpful for him or her.

You will not need to be an expert on ophthalmology, but it will be helpful for you to have a working knowledge of the eye so that you can ask meaningful questions about the visual impairment of the student in your classroom. The teacher of students with visual impairments who works with you will be able to answer most of your questions and discuss your student's functional vision.

It might be helpful for you to know that there are three main types of visual impairments: visual impairments that result in total (or almost total blindness), visual impairments that result in vision that is less clear than typical either at a near or far distance, and visual impairments that result in a loss of visual field (either central field or peripheral field).

Who Will Help You?

As a secondary classroom teacher who teaches in the inclusive setting, you are faced with a very interesting situation. Many of you have to teach in classroom with a variety of different learning styles, including students with different types of disabilities. We recognize the pressures you feel to be flexible in teaching to today's diverse groups of high school students. It's common for many secondary teachers to feel initially overwhelmed with having a visually impaired braille-reading student in their classroom. However, you are not alone. There are many people that and resources, such organizations, web-based materials and qualified professionals the vision impairment discipline that are available for you. The following information will provide with an outline of the many people that can help you in your teaching journey.

Team Members

The following list of people may become an important part of your teaching team.

Parents

Who knows a child better than their parent? That is why parents play such an important role in the development of the IEP. Parents can provide insight and suggestions that are instrumental in teaching skills to the student. We need to ensure that parents are actively involved in the IEP process and are kept abreast of new developments and strategies that are used in the classroom. For an IEP to work parents need to be on board and reinforcing skills at home that are being taught at school. If parents are aware of these skills and trained on how to work with their child at home then the IEP will run more smoothly and be more effective.

Teacher of Students with Visual Impairments

The teacher of students with visual impairments (TVI) is a teacher that has taken extra training, usually a Masters Degree, in specifically teaching students who are blind or visually impaired. Because of their knowledge in the field, the TVI is an important member of the team that works with all team members, including the students themselves, parents, teachers, administrators and support staff, to assess, develop and implement teaching strategies in the classroom and provide direct instruction in the areas of the Expanded Core Curriculum. Often, the TVI will take the lead role in monitoring and implementing the IEP, although this may not always be the case. Your student's TVI is also an important resource in sharing knowledge through workshops, in-services, meetings and email. It is important that you take full advantage of the resources and assistance of a qualified teacher of students with visual impairments.

Although there are many ways that you can utilize the expertise of the TVI, a transdiciplinary service delivery model is seen as most appropriate approach. Although you may think of your student's TVI as a specialist in the field of teaching braille-reading students, it is important to remember that they are first and foremost trained as a teacher. Many secondary classroom teachers of braille-reading students utilize both, the general teaching and specific specialist skills in their classrooms. Many teachers of the visually impaired work in the classroom, sometimes even sharing instruction with the classroom teacher. The TVI could work specifically with the braille-reading student, or teach small classroom groups which includes the braille-reading student. This approach is valuable for classroom teachers because it provide an opportunity for them to learn, by watching, different strategies for teaching visually impaired students in the inclusive setting.

Administration

Your administrator, whether being your immediate principal or director of special education, should be an important resource. These individuals will help you by providing the time and resources for you to plan and implement lessons in your inclusive high school class. Don't be afraid of approaching your administrator. Administrators are busy, but they do need to know how your braille-reading student is

progressing in your class. Make them a part of your team by inviting them to your to watch how your braille-reading student works in your class.

Orientation and Mobility Instructor (O&M)

The O&M Instructor has taken extra training, usually to specifically teach visually impaired students how to develop safe and effective travel skills. Again, don't think of this person as a specialist in an area that you don't have to participate in. Interestingly enough, the concepts learned during O&M practice can be paired with concepts learned in some high school subject areas, such as geometry and spatial awareness, employment, mapping and orienteering, landscapes and geography and physical education. Combining learning opportunities with O&M instruction will provide your students with hands-on and meaningful ways in learning different concepts. Talk to your student's TVI and O&M instructor to develop integrated teaching opportunities.

Paraprofessional and Teaching Assistants

A paraprofessional can be a very important member of your classroom. Some of these support staff may have taken specific courses in assisting braille-reading students in the inclusive classroom. However, usually these individuals are provided with training and in-service from the qualified teacher of students with visual impairments. Despite this training, it is important to remember that the paraprofessional works under your direct supervision in reinforcing skills that are taught by you, or getting materials transcribed and ready for your braille-reading student to use during your lesson. With current teaching pressures, it may be tempting to rely on the paraprofessional to teach the bulk of the concepts being learned in your class. However, remember, you, not the paraprofessional, are the expert in the field that you are teaching. However, when used appropriately, the paraprofessional can help you in providing adaptations where needed.

Transcribers and Other Support Staff

Transcribers have received special training to turn print materials into more accessible braille or electronic format. Every school district uses their transcribers differently. Some school districts have a central transcriber who brailles materials for a few different students, sometimes even from different schools. Other districts have transcribers working in the different schools for specific students. Whichever model your district uses, your transcriber will become a very important part of your team. It will be imperative that any written materials that are handed out in your class be sent to the transcriber in a timely fashion so that they are transcribed in time for your class.

The way you get this information to the transcriber may different between schools. One of the most effective methods is to put your hard-copy materials into the transcriber basket. Some secondary teachers also take the time to email electronic materials to the transcriber. Your TVI will help you decide on an efficient way of getting your materials to the transcriber.

Environment

Creating an Appropriate Educational Classroom Setting

There are many issues related to logistics of creating an appropriate and accessible classroom environment that you will want to address. Schools today are engaged in important discussions about differentiated instruction and universal design for learning that address the fundamental issues related to making sure that classrooms are effective learning environments for all students. Addressing the environmental needs of the student with a visual impairment in your classroom will be a part of the bigger picture of making your class welcoming for all of your students.

The decisions you make about your classroom environment will need to include a consideration about the needs of all of the students in your class as well as your instructional needs. You may have a class that allows opportunities for individual work and group work, you may use instructional centers or circle time. On the other hand, you may have a classroom that is set up in a lecture-style or seminar-style format. Your braille-reading student will have some needs related to the educational environment but addressing these needs will not necessarily mean a dramatic change to your classroom. Your student, his or her parents, and the teacher of students with visual impairments who supports your student will all be able to help with this planning.

This section of the website contains a sample of issues that you may need to address. The suggestions contained in this website are merely examples of ideas that may be useful, but because your student and your class will have individual characteristics, it is best to address these issues based on these individual needs and preferences.

Student Desk and Storage

If you have already wondered about desk placement and size, you have begun to understand that braille-reading students have a great deal of equipment and books that are larger than typical materials. Because of this, it is unlikely that they will be able to effectively and comfortably use regular classroom furniture.

Braille-reading students have a great deal of equipment and books that are larger than typical materials and are unlikely to be able to use regular classroom furniture. Your student's TVI will help you create an efficient system that will include desk space and a storage area for special equipment, materials and volumes of braille textbooks. Listed below are some suggestions that you might find helpful as you consider your student's desk and storage needs:

- Consider the students equipment and construct a desk that allows him or her to have easy access to the equipment needed for class. Most braille-reading students use a variety of equipment to access the variety of class materials presented during a lesson. The student will likely have a device that produces Braille (e.g., a Perkins Brailler, Mountbatten Brailler, Braille

notetaker) and also access to a computer. The student may need access to both more than one piece of equipment during class and having a desk with plenty of room will be important.
- Pay attention to the physical comfort of the student. A braille-reading student will need a desk with a flat top to accommodate equipment that can't be used when seated at a slanted desk. A swivel chair may be helpful as the student moves from one piece of equipment to another. Make sure that the desktop allows the students forearms to be roughly parallel to the floor when the student is working on equipment on the desktop.
- Make sure that there is enough access to electricity. Since most of the equipment used by a braille-reading student is electronic, the student will need plenty of access to electrical outlets.
- Place the student's desk in the room so that the student can have the space necessary but can also have a feeling of connection with his or her classmates. There is a danger in allowing the physical aspects of the student's workspace to isolate the student from class peers. It may be difficult to find the appropriate space that provides appropriate support for the student's equipment and materials but also encourages social interactions. The student may be able to help you brainstorm what he or she needs.

Bulletin Boards and Information / Work Posting

Teachers often use wall space and bulletin boards to communicate important ideas to their students or to display interesting items or student work. The braille-reading student in your class will also benefit from your efforts at posting class information and student work.

Students who are blind need and enjoy the same information that other students have access to through bulletin boards, posters and other information posted on walls of the classroom (e.g., class schedule, class rules). Some of this information (especially information that does not change from week to week) can be brailled and placed in a notebook that is stored at the student's desk. Other, more temporary information can be handled in a variety of ways. For example:

- Use a buddy system so that every week a friend gives the braille-reading student a "tour" of the newly posted information, allowing the braille-reader to ask questions about information of interest.
- Set up a routine in which new information is placed in a specific notebook by the classroom door (or some other easily accessible location). In this way, the student can check for him or herself each week for new information. While this would require that some material (like classmate's work) be transcribed into braille for the student, it would allow for independent exploration of new class material.

Safety in the Classroom

Safety is a very important part of any school environment for all students and staff. The safety of your braille-reading student will need to be considered in all learning environments. The following is a list of safety measures that you can take within the classroom, school, playground and field trip environments.

Orientation and Mobility in the School Environment:

- Pre-expose your braille-readings student any new environment. The Orientation and Mobility Instructor and TVI will help your student develop a mental map of the different and important areas of the school so that he or she can safely move through his or her school environment.

Safety in the Classroom:

- Develop classroom paths that are wide enough for your braille-reading student to navigate through using his or her cane.
- Make sure the classroom and floor clutter is kept under control to reduce the risk of tripping. Talk to your class about the importance of keeping a clutter-free classroom.
- Create classroom furniture plan that stay relatively consistent throughout the year. If possible, keep desks, recycling bins and garbage cans in the same place.
- Discuss and show any classroom changes with your braille-reading student so that he or she is familiarized with the new furniture plan.

Safety on staircases:

- Paint the edge of stairs a contrasting colour.
- Show your braille-reading student how to safely walk down the stairwell, staying on the right side at all times.

Safety on the Playground:

- Expose your braille-reading students to potential outdoor hazards, such as drains and gutters.
- Be aware of any trip hazards that develop from weathering, such as frost heaves, or icy surfaces.
- If your braille-reading student has some usable vision, it may be useful to paint trip hazards, such as the edge of the raised playground perimeter, a contrasting colour.
- Pre-expose your braille-reading student to any new playground equipment before they go out to play with the rest of the students.

Safety on field trips:

- Discuss or pre-expose your braille-reading student to the new environment.

Prepare and field trip presenters or organizations of the safety needs of your braille-reading student before you get to the field trip site.

Fire and earthquake emergencies:

- Show your braille-reading student the different exits within the school.
- Practice fire drills and earthquake skills while your braille-reading student is in different parts of the school environment, not just in the classroom
- Introduce your braille-reading student to all of the fire bell switches in the school.
- Have plan set up with different teachers and staff members within different parts of the school.

Noise in the Classroom

Your braille-readings student most likely uses a braille writer. Elementary braille writers, such as the Perkins or Mountbatten Brailler, make some noise that may initially be distracting to you and the students in your classroom. It is important to remember that these noises give your braille-reading student specific information about what their writing, such as when they have approach the end of a line on their braille writer or how much battery life is left on the brailler. More advanced braille notetakers, such as the Pac Mate or BrailleNote that are mostly used by older elementary and high school students, are not as distracting as the elementary braille writers.

Although the noise from the Mountbatten and Perkins Braillers may be initially disturbing for you and the students in your class, in most cases the students do get used to the rhythmic sounds of this writing tool. However, there are few ways in which you can reduce the noise levels of the Mountbatten and Perkins Braillers.

- Put a rubber pad under the braille writers to reduce vibration and buffer the noise.
- Use regular weight print paper in the brailler so that you can reduce the embossing power, and thus reduce the noise.
- Have the student use earphones to access the voice output of the Mountbatten Brailler.

Encouraging Social Interaction in the Classroom

Creating opportunities for students to socially interact is important in developing strong social skills. Most children learn develop appropriate social skills by observing how others act in different environments, situations and with different types of people.

You may already create opportunities for the students in your class to develop these skills through daily small-group activities. However, your braille-reading student may still have difficulty interacting with his or her classmate as subtle social language cues will not be picked up visually. This is why it will be important for you to create opportunities for your braille-reading student to interact with others within the class.

The following are some simple ways that you can assist your braille-reading in developing social interaction skills.

- Be cognizant of the seating placement of your braille-reading student. Placing him or her away from other students may be an initially logical choice due to the amount of materials that he or she may use. However, this placement may be more socially isolating with less opportunities for social interactions to occur naturally.
- Encourage your braille-reading student to ask questions and start conversations with their classmates. Conversation starting is a skill that needs to be learned. Ask your student's TVI to help you develop ways that you can teach conversation skills.
- Distribute specific instructions to each student when working in small groups.

- Verbalize, describe and comment on what other students are doing in the class. This will give your braille-reading student information about how they are to act in specific situations. Tell your braille-reading student when he or she is behaving inappropriately. They may not know they their behaviors are out of place. Give him or her examples of how to act in different situations.

Encouraging Independence at School

You may initially feel that your braille-readings student will need lot of support in the classroom. You are probably correct. However, the type of support you give your student will be vital in helping him or her develop skills to be an independent member of society in the future.

While the use of a Paraprofessional or Teaching Assistant may be needed in the classroom, we want you to think about how this support should be used with your braille-reading student. It will be important that what is being taught to your student comes from you, the expert in that subject area. If possible, it is recommended that your braille-reading student stay in the classroom and learn how to complete work as independently as possible during class time. This may be initially difficult and perhaps you will need to initially lean on your student's paraprofessional to help get your student started. However, as your braille-reading student learns classroom routines, it will be important for you to pull away from 'doing for' the student and allow them to practice independence skills.

Here are some ways in which you can help your student develop and practice independence skills:

- Provide as many opportunities for your student to do things by themselves. Start off by watching them complete activities only helping when they ask for help or are in need of extra assistance.
- Try not to assume that your braille-reading student cannot do something simply because they have a visual impairment. You may be surprised at what they can do by simply watching him or her complete a task.
- If you have an older braille-reading student in your class, ask them if they need assistance before providing it.
  Provide opportunities for your braille-readings student to work with other students in the class instead of an adult volunteer or paraprofessional.

Literacy in Your Classroom

Regardless of what grade level and subject you teach, as a teacher, you will be concerned about how your braille-reading student has access to information (typically printed) that you will use in your class. This website is designed to address the needs of classroom teachers working with braille-reading students, and so, obviously, the use of braille will be of paramount importance. But the braille-reading student in your class will also be using a variety of other literacy tools and it will be important for you to recognize and understand how those tools can be used most effectively.

You will probably want to know more about the braille code and it would be most helpful for you to learn how to read and produce the alphabet and numbers in braille so that you can support the student and write brief feedback notes to him or her.

The following are important points to remember as you work with a braille-reading student in your class:

- Braille equals print. Everything that can be represented in print can be represented in braille.
- Students who read braille should have the same classroom materials at the same time as their print-reading peers. The teacher of students with visual impairments can help set up a routine for making sure that this happens.
- Students with visual impairments effectively use a wide variety of literacy tools to accomplish daily, educational and vocational tasks including reading text, using taped or digital recordings, live readers and other tools.

This section will help you understand braille and how a student who uses braille will learn braille as a part of reading and writing instruction or as a unique code.

Technology

Technology in Your Classroom

The education of braille-reading students in inclusive classrooms is fundamentally different today than it was in the past in large part because of the availability of technology that supports this effort! The role of technology in providing access to general education curriculum and information cannot be overstated. You will probably be surprised by the many ways that technology (both high tech and low tech) can be used to support your student.

The amount and type of technology that will be used by the braille-reading student in your class will depend on the grade level and subject area you teach. Your student may use an “old-fashioned” braille writer or may use a high-tech braille note-taker with a refreshable braille display.

Braille-reading students in your class will likely be expected to use a computer as soon as possible and will probably be given instruction in the use of a computer earlier than other students in the classroom.

This section will provide an introduction to a variety of tools that will probably be used in your class.

Low Tech Devices

Your braille reading student will be using a variety of devices that will help them access the general education curriculum. The following is a description of a few of the devices that your braille-reading student may be using.

Perkins Brailler

The Perkins Brailler is a portable low-tech braille-writing tool. It is the most commonly used device in schools today although other tools for producing braille are also very popular. This tool has six keys that the user will press in different combinations to produce braille. The Perkins Brailler has a handle on the top of it for easy portability. However, due to the tool's larger size and weight, it is usually only transported within the school or home.

Slate and Stylus

The Slate and Stylus is a low-cost, highly portable low-tech writing tool. It is equivalent to the pencil and paper used by your sighted students. The Slate is made from two metal or plastic panels that are attached together on one side, similar to a book. There are holes located on the top panel, while the bottom panel is smooth. You can place a piece of paper between the two panels by opening it up like a book. Close the slate over the paper and use the stylus to punch through the holes to create the braille dots. The slate comes in many sizes, from two-line to full-page.

Jot-A-Dot

The Jot-A-Dot is a portable low-tech braille-writing tool. It made from light weight plastic materials that make it light enough for your braille-reading student to wear around his or her neck. The braille is embossed through six keys entry onto note-sized paper. The Jot-A-Dot comes in handy when needing to make quick and short notes on the go. However, it's not useful for jotting down longer notes or larger pieces of writing.

Dymo Braille Labeler

The Dymo Brailler is tool used to make quick braille labels. It is a wonderful tool for classroom teachers who have little to no knowledge about the braille code, but would like to label materials in the classroom or school. This portable and lightweight tool includes print letters that are viewed on a wheel. Spin the wheel to choose the letter you want and press on the handle to emboss that letter onto the label. Teachers love this tool because it gives them quick and immediate access to braille.

Tactile Drawing Pad

The simplest tactile drawing board is made from a piece of tinfoil that is placed on top of a rubber pad. The student uses a stylus or tracing wheel (used for sewing) to emboss a graphic onto the tinfoil. When finished, take the tinfoil off and turn it around to view the picture. You can purchase tactile drawing kits that may come with different types of styluses.

High Tech Devices

As students progress in their braille reading and writing skills, they will likely be introduced to more high tech devices, similar to having a student graduate from a typewriter to a computer. You will likely be unfamiliar with much of these high-tech braille writing devices. Don't worry. Your teacher of the visually

impaired will help you learn about these devices and will explain how they will be used in your classroom. The following are list of high tech devices that your braille-reading student may use in your classroom.

Electric Perkins Brailler

The Electric Perkins Brailler is a high-tech option of the regular Perkins Brailler. It's electric feature allows the braille user to press down on the keys with minimal force. This machine is a good option for users with weak finger strength.

Mountbatten Brailler

Like the electric Perkins Brailler, the Mountbatten Brailler is an electronic brailler writing device that allows the writer to use minimal force to emboss the braille. However, its capabilities go beyond just an electronic writing tool. Like a computer, the Mountbatten brailler can edit, save and read written work. This technology can connect to computer to access web pages and saved files. Finally, the Mountbatten Brailler can be connected to a regular computer keyboard so that classroom teachers can type out assignments without needing to know the braille code. In addition, work completed by the student can be translated into print and printed out on a regular printer.

Refreshable Braille Note takers (Braille Note and Pac Mate)

Note takers, such as the BrailleNote or PacMate are much like a PDA (Personal Digital Assistant). Like a small computer, these note takers can be used for word processing, accessing the internet, computer games, calculator, spread sheet, address book and schedule and recording voice messages. Recently, braille note takers have started to be used as GPS devices for travel by the blind and visually impaired user.

Individuals can read materials through a refreshable one or two line braille display which changes (refreshes) as the document is being read or use the speech output option to listen to the text. This refreshable braille display can be connected to a computer to access print documents from a regular computer.

Students who have a good understanding of the braille code and are cable of navigating through different computer operating systems are good candidates for using refreshable braille note takers, such as the Braille Note and Pac Mate.

Computer with speech output

JAWS, (which stands for Job Access for Windows and Speech) is a user- friendly screen reading program that can be used with regular computers or refreshable braille note takers. JAWS can allow the user to operate a regular computer without the use of a mouse. It allows the user to access different types of software on a computer, including word processing, internet and spread sheets.

Kurzweil 1000: This software allows the visually impaired user to read, write and listen to materials. Kurzweil 1000 can be used braille transcribing software, such as Duxbury (DBT) to convert print to braille for embossing.

Duxbury Braille Translator: This braille-transcribing software allows electronic print materials to be turned into an electronic braille file. Files can be saved as DBT file or embossed into braille hard copy.

Dragon Naturally Speaking is a speech to text software. With this tool, the user can dictate materials into a microphone. The dictation is translated into print on a word processing program, such as Microsoft Word or Kurzweil. The higher versions of DNS allow the user to listen to their dictation in their own voices.

Scanners

Scanners are an important part of the lives of many braille-reading students. Student materials, such as textbooks, are often scanned into the computer and later accessed through the JAWS or Kurzweil 3000 programs. Your student's braillist may also use scanners to scan textbooks which are later embossed into braille.

Embossers

Braille embossers are essential tools for any braille-reading student. These machines turn print materials into braille materials. There are many types of embosser. The most sophisticated ones can produce braille on both sides of a page (interlined). New embossers are able to produce print on a line on top of the braille. Braille embossers are valuable pieces of technology when placed in the classroom, but can be very noisy when in use.

FAQ's

The use of specialized technology will become an important part of learning process for your braille-reading student. You may be feeling overwhelmed by the unfamiliar computers and technology that your students uses. Don't worry, it won't take you long to understand why and how your braille-reading student uses his or her specialized technology. Remember, you have the expertise of your student's TVI to help you understand how all of technology will be used in your class. Review the low tech and high tech pages on this website. This will give you a baseline understanding of how different types of technology will assist your student.

The following are some questions that were posed by classroom teachers like yourself.

My student has a lot of equipment, such as his brailler and braille textbooks. I have many students in a very small class. Where should I put him and all of his 'stuff?'

Your braille-reading student will most likely need a larger space to house the equipment and materials needed for his or her learning. It is sometimes hard to find a large enough space to meet the needs of

these students. Elementary classrooms seem to have the most difficulty, as student in high school can keep their equipment and materials in their locker.

Some elementary braille-reading students have a closet or shelf in the class where they can place the materials and equipment not being used. Larger equipment, such as braille embossers and volumes of brailled textbooks, are sometimes housed in a different room, but one that is just as accessible to the student.

While you may be inclined to place your braille-reading student at a large work table away from the rest of the class, consider first the social implications of placing him or her in this spot. You may need to have two areas in the classroom for the student; one to house the equipment and another desk located with the rest of the students in the class.

My student relies a lot on his high tech devices, like braille computers. What happens if this computer breaks down and needs to be sent away for a while to get fixed?

This is a very common question. While using high tech devices are fast, they may not always be reliable. When our computer dies on us, we can always revert to writing with our hands. The same is also true for braille-reading students. When their technology fails, he or she can always use low-tech devices to finish work. While this is easy to say in theory, it is important that your braille-reading student continues to work periodically with low-tech devices, such as the Perkins Brailler or Slate and Stylus, so that they are able to use them when their high tech devices fail.

My student uses a high tech braille device. He often has to leave the room to print out his assignments to hand in to me. Is there an easier way of getting assignments from him?

Many students who use high tech devices have access to internet. If they know how to access the internet, assignments can be easily emailed to you in print form. You can then print it out yourself or make comments right on the document and email it back to the student or braillist for it to be embossed.

I don't like using computers, let alone high tech devices for my braille-reading student. I don't feel like it should be my responsibility to fix computer problems that often occur in my class. Whose responsibility should it be?

For many, the use of any type of high tech device is scary. If this is you, don't worry. The best thing that you can do is to be proactive about your concerns. Tell your student's TVI about some of your concerns and if inclined, ask them to provide you with a workshop to review your student's technology. If your braille-reading student has problems with his or her technology, it is important that you address this with the TVI as soon as possible so that the problem can be fixed.

Some schools have a teacher or staff member who is technically inclined and love to learn about new technology. If you know a person who fits this characteristic, ask them to help you when needed. Talk to

your district's special education director so that this person can get some training about your student's technology.

Finally, it is important that your braille-reading student be comfortable in fixing small technology glitches. Your student should receive training on how to use a device and what to do with the device fails.

Assessment

Assessment for Students with Visual Impairments

Assessment is one area that is often a concern for teachers working with braille-reading students. Assessments can be used to determine student mastery and overall achievement as well as characteristics that indicate ability. Today, teachers are faced with rising demands to demonstrate learning outcomes for students in their classrooms and "high-stakes testing" puts increased accountability pressure on schools. This section of this website will address both specialized assessments (i.e., those that gather and provide information specific to students with visual impairments), and general assessments (i.e., those that are given to all students).

Specialized assessments for students with visual impairments include the following:

- Functional Vision Assessments
- Learning Media Assessments
- Adaptive Technology Assessments

The results of these assessments provide important information regarding how to create and adapt the learning environment to be most beneficial to the student.

On the other hand, general assessments provide teachers and parents with information about a student's progress in a wide variety of school endeavors. General assessments range from weekly spelling tests that show progress in small increments, to yearly achievement tests that may indicate readiness to move forward to the next school grade.

The information contained in this section will help you understand the information that can be gathered using each type of assessment. In addition, information is provided to help you decide how to make adaptations to general assessments routinely used in your class.

Accessible Classroom Assessments

When planning your assessments, consider the following information:

Your Role

You will not be expected to create alternate assessments for your braille-reading student. They will be taking part in the same assessments as the rest of the students in your class, although these assessments will be transcribed and models graphs and diagrams may be created in tactile format.

Accessibility of tests

When planning informal teacher-made classroom assessments, keep in mind that placing the assessment document in a braille format may take some time. The teacher of students with visual impairments will help you schedule an appropriate amount of time for your assessment to be transcribed, so that your braille-reading student can take the test at the same time as the rest of the students in your class.

Time

Depending on the topic, the length and the complexity of the assessment some braille reading student may require additional time to successfully complete the assessment. For instance, if the assessment was on the anatomy of the human body, and the student was required to identify parts of the body using a tactile model, it may take your student additional time to access the model and complete the questions. Your student and his or her teacher of the visually impaired will help determine an appropriate amount of time for each classroom assessment.

Environment

Your braille-reading student will likely complete his or her assessment in the general education classroom. However, if the student needs additional time, alternative tactile format of graphs, maps or diagrams or use of technology that may be disruptive in the class, it may be advisable to have an alternate work space of the student during the assessment times.

Curriculum

Curriculum for Students with Visual Impairments

Students with visual impairments should be held to the same standards with the same high expectations as students without visual impairments in the general education curriculum. Just like students without visual impairments, braille reading students are diverse in their abilities and interests and should be encouraged to explore areas of interest to them.

Classroom teachers and other educators should avoid creating separate standards for students with visual impairments in the classroom. In other words, avoid assigning every-other-problem to students with visual impairments if the remainder of the class is completing every problem. Students with visual impairments may be allowed to use alternate methods of completing assignments (e.g., using a talking

calculator or other piece of assistive technology), but the ultimate goal of completing an assignment should remain the same.

In addition to the general education (core) curriculum, it is widely accepted that students who are visually impaired should receive direct instruction in areas of the "expanded core curriculum" (ECC).

Expanded Core Curriculum

All students participate in education designed to address the core curriculum (e.g., Reading, Mathematics, Science, Social Studies). Students who are blind or visually impaired must also participate in educational opportunities designed to address skills that they need that are unique to them. These skills comprise the "Expanded Core Curriculum" (ECC) and are listed below:

- Compensatory / Access to the Core Curriculum
- Orientation and Mobility
- Social Interaction Skills
- Independent Living Skills
- Recreation and Leisure Skills
- Career Education
- Technology
- Self-determination
- Sensory Efficiency Skills

Because of the wide diversity of skills included in the ECC, students who are visually impaired receive support for developing these skills in a wide variety of ways including instruction in the home and instruction that is imbedded in areas of the core curriculum or throughout the school day. Also, a wide variety of people work with these students on the skills of the ECC including parents, community partners, teachers of students with visual impairments, and orientation and mobility specialists.

TVI's

Locating a Teacher of Students with Visual Impairments

If you have braille-reading students in your school or school district, you will be required to hire a qualified teacher of students with visual impairments. Sometimes, locating a qualified TVI may be difficult, particularly if the student is located in rural or remote areas with limited availability of specialists. Your first job is to try to find a person who already has the training in the area of teaching students with visual impairments.

You can contact provincial or state agencies to find qualified personnel. If you come to a roadblock, your next option is to find a university that offers a master's program in teaching students who are blind or visually impaired. Your best option may be to locate an enthusiastic teacher in your area and enroll

them into such a program. While completing a master's program will take some time, your school or school district will have a qualified professional in that community.

Determining Appropriate Caseloads for TVIs

Depending on your province or state laws, you may be in charge of determining the caseload and teaching assignment for your school or school district's teacher of students with visual impairments. Clearly, the percentage of braille-reading students in your school or school district may not be high. While these low numbers may give the impression of low workload, this may not be the case at all. Keeping this point in mind, you may want to consider learning about the student's needs by observing the student and speaking to their parents and teacher of the visually impaired before making any caseload decisions. In order for your teacher of the visually impaired to have an appropriate caseload, you must first consider the following points.

The needs of the student

As an administrator, you know how important it is to look directly at the specific needs of each child when developing their educational plan. Clearly, some students will need more support than others. To determine the needs of a visually impaired student, consider asking yourself the following questions:

- Has the student been exposed to a tactile learning environment, or will this be the beginning of their learning of braille?
- What is the child's functional vision?
- Does the student have any additional disabilities?
- What type of school does the student attend? Is it a multi-aged, multi-grade class or a single grade class?

Time needed for teaching and learning

When working with braille-reading students, particularly young students who are beginning braille readers, it will be important to have the teacher of students with visual impairments working with them frequently. Ideally, such students require daily instruction in learning how to read and write using the braille and Nemeth (math) codes, along with other types of direct instruction from the expanded core curriculum. Not providing the student with daily braille practice from a qualified teacher is equivalent to only periodically teaching language arts skills or math skills to sighted students. We all know that this would never happen because these subjects require daily learning and practice in order to master skills. Learning to read and write using the braille code or learning to use Nemeth code to access math materials takes time to learn. Consider speaking with your teacher of students with visual impairments in order to gain a better understanding of how much TVI time the braille-reading student will need in order to be successful in their learning.

Time used to travel by the itinerant teacher of students with visual impairments

If you are in a province or state that uses the itinerant service delivery model, you will need to consider the amount of time needed for the teacher of students with visual impairments to travel from one school to the next. Take into consideration the environment in which the TVI needs to travel (urban or rural), the type of roads (straight highways versus mountainous passes) and the types of driving conditions (summer versus winter snowy conditions). If the TVI is required to drive long distances to teach their braille-reading students, it may be costly and ineffective if he or she has to drive hundreds of miles or kilometers in order to see them.

Time needed to complete assessments

Most provinces and states are legally required to complete yearly functional vision and learning media assessments by a qualified teacher of students with visual impairments. In order for these assessments to be completed accurately, the teacher of students with visual impairments will need ample time to collect direct and observational data. Thorough information gathered through these assessments help provide school teams with important information about the student's educational and visual needs.

Time needed to create materials and get resources

The teacher of students with visual impairments may work closely with transcribers or braillists to create accessible tactile materials for their braille-reading students. Creating these materials take time and in most cases, classroom teachers have to provide materials to the TVI at least one week in advance in order for it to be transcribed. Maps and diagrams may take longer to make. Furthermore, the teacher of students with visual impairments is also responsible for ordering alternate format materials from their province of state's resource centers.

The use of paraprofessionals in the classroom

Paraprofessionals, educational assistants or teaching assistants, are often welcomed as a second set of hands to in the classroom. While these individuals may be valuable for the student's educational needs, it is vital that they are used appropriately in the classroom setting. It is important to remember that these individuals do not take the place of any type of trained teacher or specialist.

It may seem initially cost effective to hire a full-time paraprofessional and minimal consultation from a teacher of students with visual impairments. However, consider the accountability risk in promoting such a service-delivery model. The teacher of students with visual impairments provides direct instruction in areas of the expanded core curriculum, such as braille reading and writing and learning the Nemeth code, because they are trained and qualified to do so. However the paraprofessional can help with the mastery of skill by practicing with the student.

When determining a caseload for the teacher of students with visual impairments, remember that the TVI, not the paraprofessional, has trained expertise and is ultimately accountable for the educational needs and growth of their braille-reading student.

Caseload Assessment

There are many different types of caseload assessments that will help you determine caseload size for your teacher of students with visual impairments. These assessments are based on the needs of the students, the time needed to teach the student, travel considerations and resource and material needs. It would be helpful for you to jointly go over this assessment with the teacher of students with visual impairments that works in your school or school district.

Funding Specialized Teaching Equipment and Equipment and Materials

The education of students who are blind or visually impaired, particularly those who are braille-reading students, can be very costly. Of course, high cost does not mean that the students' educational needs should not be met. You may not be aware of the different resource options available to your braille-reading student. These resources may include:

- Braille books and materials though a state or provincial resource center
- Specialized camps or week-long courses offered through various agencies
- Technology from a state or provincial agency
- Parent support
- Teacher in-service opportunities organized from professional agencies
- Outreach consultations
- Grants from foundations and non-profit organizations

The teacher of students with visual impairments who works with braille-reading students will be able to connect you to these network of resources available to your students.

Administration

Administrative Concerns

Whether you are a director of special education who oversees a school district, or a principal of a school, it will be necessary for you to understand the educational needs of braille-reading students. The following information will allow to you better understand your role as partner in the educational process of your students with visual impairments and how to provide services that reflects best practice for the education of braille-reading students.

Understanding the Student's Needs

The education of students who are blind or visually impaired who are included in the general education setting, can be an exciting and rewarding process. Braille-reading students in particular, have very unique educational needs. He or she will likely need additional supports, adapted materials and specialized technology and extra learning from an expanded core curriculum specifically for students who are blind or visually impaired.

In order for you to gain a deeper understanding of the educational needs of your braille-reading student, consider doing the following:

- Review the provincial or state legal requirements needed for the education of students with visual impairments and make sure that you are familiar with these requirements.
- Review your student's educational file.
- Set up a meeting with the parent(s) of the braille reading student to gain an understanding of their philosophies and concerns about their child's education.
- Speak to the teacher of the visually impaired to gain a deeper understanding of the student's eye condition, functional vision, learning media needs and expanded core curriculum needs.
- Take time to observe the student in different settings, such as the classroom, gym, art or music room, on the playground and in the halls during break times. Take note of their social, emotional and educational needs in your observations.
- Develop a rapport with the braille-reading student over time to get a subjective view of their educational life at your school or in your school district.
- Touch base with the student's teacher and resource staff to gain an understanding of how the student is doing.
- Participate in the student's IEP process.
- Consider speaking with other administrators that have had braille-reading students in their schools or school districts.

The Individual Educational Plan

As braille-reading students have such unique educational needs, it will be necessary for the student and his or her team to develop an individual educational plan (IEP) for learning. When written and used appropriately, the IEP is a powerful legal document that not only reflects the needs of the student, but also identifies important learning goals and charts development and growth. It is important to remember two points when developing and IEP. First, the IEP meeting should include all of the student's educational team members. If the student is old enough or mature enough, it would be advisable for him or her to attend the meeting. Second, the student's individual educational plan should be reviewed before each reporting period. This is especially important in the high school setting, where teachers and staff changes are made each term or semester.

The use of specialists at school, in the classroom and in the community

If you have a braille-reading student, or any student who qualifies as having a visual impairment, in your school or school district, you will be legally required to provide support from two types of specialists: (1) teacher of student with visual impairments, (2) orientation and mobility instructor. The expertise from the teacher of students with visual impairments ranges from teaching braille reading and writing skills, technology and other expanded core curriculum skills to helping the classroom teachers adapt materials and lessons to an accessible format. The orientation and mobility instructor will help the student develop the necessary skills for safe independent travel in the school and around the student's community. These specialists are valuable resources and are trained to conduct specialized assessments and make recommendations.

As an administrator, it will be important for you to give these specialists the flexibility to work with their braille-reading student during different times of the day. For instance, it is common for the teacher of students with visual impairments or orientation and mobility instructor to work with their students after school. This is particularly important when working with a high school student who cannot miss any of his or her classes during the school day.

Fostering an inclusive environment in the classroom

While students may be integrated into the general education classroom, it is important that they are included in all educational activities. For instance, taking a student out of the classroom to complete an activity because of the noise made by the braille writer is not an inclusionary practice, even if he or she is completing the same activity as the rest of the students in the class. However, allowing the student to stay in the classroom by creating simple adaptations, such as pairing the braille-reading student with a sighted peer, is more inclusionary. Making simple, but appropriate adaptations that reflect inclusionary practice has been shown to increase social and educational growth. The teacher of students with visual impairments is a great resource and has experience in creating simple adaptations to help classroom teachers. As an administrator, you will likely need to periodically touch base with the classroom teachers of the braille-reading student to see if they need any additional supports or training to help them include the student in the best possible ways. By doing this, you too can directly help the classroom teachers create an inclusionary environment for the braille-reading student.

Accountability

As an administrator, you are likely keenly aware of the legal educational rights of students, particularly those who have disabilities. Teachers, schools and school districts have to be accountable for the educational process provided to their students. Classroom teachers have specific provincial or state guidelines to follow when planning and teaching their curriculum. Individual educational plans are mandatory for students who have disabilities.

Accountability assures appropriate education and is based upon the specific needs of the students gathered from assessments and data collection to determine growth and development. In order to provide an appropriate education for your braille-reading students, you will need to consider the following areas.

Specialists

If you have a blind or visually impaired student in your school or school district, you will be required to hire a qualified teacher of students with visual impairments. Based on the needs of the student, you may also need to hire a qualified orientation and mobility instructor.

Assessment

A functional vision assessment and learning media assessment will need to be completed yearly by a teacher of students with visual impairments.

Teaching

Braille-reading students, particularly those who are beginner braille readers, are required to have direct instruction in using the braille code and consistent assessments by a teacher of students with visual impairments.

Access

Braille reading students are required to be provided with materials and instruction that is delivered in an accessible format.

Materials and Resources

It is mandatory that each student who is blind or visually impaired be provided with textbooks and materials in accessible format either before or at the same time as delivered to the rest of the students in the classroom.

Time

If needed, braille reading students may be granted extra time to access tactile information during exams, particularly provincial or state exams.

Reporting

Teachers of students who are blind or visually impaired are required to report on their students' progress.

Please check your provincial or state ministry of education laws to view other areas of accountability.

If you are an administrator who works in Canada, you will want to review the Canadian National Standards for teaching students who are blind or visually impaired. It will be important for you to familiarize yourself with these standards to ensure accountability.