Compendium of
Assistive Technologies

Simcoe/Muskoka Literacy Network

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Introduction

In 2010-11, Simcoe/Muskoka Literacy Network (SMLN) identified a need for a consolidated list of assistive technology to help people with learning and other challenges that may affect their learning. Through field support funding from the Ministry of Training, Colleges and Universities, we researched and complied the first version of this compendium, which was targeted to adult educators.

In 2018, we determined it was time to update this resource, as there have been significant developments in some areas of assistive technology. Some assistive technology has become very mainstream and is used in personal computers and mobile devices. Many of the items we've included are free or low in cost, but more costly options are also included, to give you a complete overview of available products.

What is assistive technology?

The definition of "Assistive Technology" that we used in selecting resources for this compendium is "anything that assists someone experiencing difficulty with a task – whether that task is visual, physical, or cognitive – to increase, maintain, or improve their functional capabilities". The term can be used as an umbrella term to include assistive, adaptive, and rehabilitative devices and software.

Many people have particular needs connected with functional limitations or with learning difficulties. This compendium includes a variety of assistive technologies, both software and hardware, which help people in learning, employment and life in

general. While we have made efforts to collect a range of technologies, this compendium is by no means exhaustive.

The information you find here will continue to be fluid in nature. Websites change, costs fluctuate and technology develops. We hope that you will find information which will help you and your students, clients and employees.

Please let us know how we did by completing the [evaluation survey](#).
Please contact us to let us know about additional assistive technologies that we can add to this collection.

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Acknowledgements

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Accessibility Features on Computers and Mobile Devices

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In the past decade, the accessibility features that enable people to access technology have become very common. Both PC and Mac operating systems and most smart phones and tablets have built-in accessibility features. Some accessibility features may require special software downloads.

Here are just a few types of accessibility features people may already have on their devices.

a) **Features for blind or low-vision**: Features such as **text-to-speech** allow users to hear what's on the screen instead of reading it. Other features, like **high-contrast themes** and **enlarged cursors**, make it easier for users with limited vision to see the screen.

b) **Features for deaf, deafened or hard-of-hearing**: **Closed-captioning** helps to convey audio information to deaf users in visual form. **Mono audio** systems transmit right and left audio signals through both earbuds and headphones, so users with limited hearing in one ear will not miss part of what they are listening to.

c) **Features for limited-mobility**: **Keyboard shortcuts** are convenient for many people, but they are especially helpful to those how have difficulty manipulating a mouse. For users who have difficulty pressing several keys at once, **sticky keys** allows them to press keys one at a time to activate a shortcut.[1]

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[1] https://edu.gcfglobal.org/en/computerbasics/using-accessibility-features/1/

d) **For everyone: Speech Recognition** allows users to interact with their computer or mobile device by voice, significantly reducing the use of a mouse and keyboard, while maintaining or increasing overall productivity. Speech Recognition users can dictate documents and e-mail, fill out forms on the web, and command applications and the operating system by saying what they see. Most tablets and smartphones also have speech recognition software. There are also many free speech recognition applications that have broader functions.

The accessibility applications of computers can vary depending on the operating system that the device uses.

Windows 10 has the **Ease of Access Centre**. This application has a magnifier, closed captioning, and high contrast themes. It also includes a narrator to allow voice interaction with the PC.
https://www.microsoft.com/en-us/accessibility/

Mac iOS devices use an application called **Universal Access**. This application includes such features as **VoiceOver**, which is a screen reader that allows voice interaction with the user. The settings also include a zoom function to easily increase text size, a variety of other display accommodations, and virtual assistant, Siri.
https://www.apple.com/accessibility/

Mobile devices using Android operating system use an app called **Accessibility**. This is found in the device's list of apps. Check the accessibility section of the manufacturer's website for more details.

Assistive Software

● ●

Ease of Access Tools

Virtual Magnifying Glass

Virtual Magnifying Glass Portable is the free, handy Virtual Magnifying Glass utility packaged in PortableApps.com format so users can easily use a screen magnifier on any PC you use.

System: Windows

Website:

http://portableapps.com/apps/accessibility/virtual_magnifying_glass_portable

Click-N-Type with Word Prediction

Click-n-Type is a free on-screen virtual keyboard designed for anyone who has difficulty typing on a physical computer keyboard. As long as the user can control a mouse, trackball, touch screen or other pointing device, this software keyboard allows you to send keystrokes to virtually any Windows application.

System: Windows

Website: http://cnt.lakefolks.com/#Download Click-N-Type

Point-N-Click

Point and Click is a free, stand-alone, on-screen virtual mouse designed for anyone who finds it difficult or impossible to click a physical computer mouse. As long as users can move a mouse, trackball or other pointing device, they can send virtual mouse clicks to virtually any Windows application.

Maybe you just have difficulty double clicking or switching to right clicking? Try **ClickAid** mouse helper – it will work with all mouse systems including head mice, tablet PCs, and touch screen devices.

Point-N-Click also acts as a companion product to Lake Software's **Click-N-Type**. The combination of **Point-N-Click** and **Click-N-Type** or other virtual keyboard will give the user complete freedom to use a computer.

System: Windows (Point-N-Click)

Website: http://www.polital.com/pnc/index.htm

SwiftKey

Swift Key is a virtual intelligent keyboard from Microsoft that learns your writing style, so you can type faster. SwiftKey is always learning and adapting to match the user's unique way of typing. The keyboard provides autocorrect that actually works and helpful predictions, so you can get your point across fast, without errors.

SwiftKey caters to all typing tastes, with free designs and free themes to suit every style. Type and text any way you like, with swipe-to-type, tap-to-type, predictive emoji and a GIF keyboard.

System: Windows

Website: https://play.google.com/store/apps/details?id=com.touchtype.swiftkey

Viacam

Viacom is a mouse replacement software that moves the pointer as you move your head. It works on standard PC equipped with a good quality wireless webcam. No additional hardware is required. Simple installation with an integrated configuration wizard. User controls the computer with intuitive head movements and can customise the pointer speed, motion acceleration and smoothness, dwelling

time, and many other variables. Specifically designed to eliminate the need for assistance after installation.

System: Windows

Website: http://eviacam.crea-si.com/index.php

Reading Tools

Rewordify

This software simplifies text to make it easier to understand words. Users paste text or a web page address into the tool. Rewordify then replaces the difficult words in the text or web page with simpler words or definitions. In the tool's settings, users can choose their reading level. This is a free program.

System: web-based

Website: https://rewordify.com/

Kurzweil 3000™

Kurzweil 3000 is a comprehensive reading, writing and learning software solution for any struggling reader, including individuals with learning difficulties, such as dyslexia, attention deficit disorder or those who are English Language Learners. As an integrated literacy software, Kurzweil 3000 can read text aloud from digital and print formats. Kurzweil 3000 includes the highest quality Optical Character Recognition (OCR) software available, which reproduces scanned print documents with the exact layout and formatting found in the original. Scan single sheets to entire textbooks. Writing Path facilitates writing from beginning to end, including brainstorming, word lists, spelling check and speech-to-text dictation.

A free 30-day trial is available. Single user license pricing starts a $995.

System: Windows

Website: https://www.kurzweiledu.com/k3000-firefly/overview.html

Read&Write GOLD (for Windows); Read&Write 4 GOLD (for Mac)

This software is similar to Kurzweil, but less expensive and can also read math. Read & Write highlights and reads text aloud using natural sounding voices and also includes a set of support tools for reading, writing, studying, research, and test taking. The product is a customizable easy-to-use toolbar that integrates with familiar applications, including Microsoft Word, Internet Explorer, and Adobe Reader. This allows users to access the support tools they need from within the programs they use every day. There is a free 30-day trial available. Approximately $145. for a single license.

System: Windows, Mac, Android, iPad

Website: https://www.texthelp.com/en-us/products/read-write/

Free NaturalReader 7

NaturalReader software is an easy-to-use, professional text-to-speech program that converts any text into spoken words. Free NaturalReader lets users listen to text instead of reading on screen. The program will allow the computer to speak any text aloud in a clear, natural sounding human voice. The free version gives user unlimited use, but restricts the selection of voices available. Paid versions start at $99.50USD, one-time purchase.

System: Windows, Mac

Website: https://www.naturalreaders.com/

Speakonia

Speakonia is a free, text-to-speech program which is controlled through a graphical user interface (similar to Notepad). Speakonia reads aloud any given text. The reading can be paused, resumed and can be exported to a wave file. Speakonia is able to fetch web pages through an internal http interface and read them aloud. Users can have e-mails read to them using the 'Clipboard Reading' feature.

System: Windows

Website: http://download.cnet.com/Speakonia/3000-7239_4-10125328.html

TextAloud

TextAloud 4 is text-to-speech software that converts text from documents, webpages, PDF Files and more into natural-sounding speech. The user can listen on their PC or create audio files for use on various mobile devices. TextAloud has built in web browser extensions for Firefox, Chrome and Edge. A floating toolbar lets TextAloud speak selected text from any window. Cost is $46.80CAD. Free trial available.

System: Windows

Website: https://nextup.com/

Select and Speak

Select and Speak is a free extension for the Chrome internet browser that reads aloud text selected by the user. It uses iSpeech's human-quality text-to-speech (TTS) to read any selected text in the **browser**. It includes many iSpeech text-to-speech voices in different languages. The user can configure the voice and speed options by changing the settings on the options page.

System: Web-based on Chrome browser

Website: https://chrome.google.com/webstore/detail/select-and-speak-text-to/gfjopfpjmkcfgjpogepmdjmcnihfpokn?hl=en

For more information on screen readers and where to get them, go to: http://www.afb.org/ProdBrowseCatResults.aspx?CatID=49

TalkTyper

This is a simple, free, on-line dictation tool. When users speak into their computer mic, the tool types out what they're saying. The dictated words and sentences are collected in a basic word processor and can be edited with a keyboard. The finished writing can then be printed, emailed, or copied and pasted elsewhere.

System: Web-based on Chrome browser

Website: https://talktyper.com/

Dragon

(formerly Dragon Naturally Speaking for PC and Dragon Dictate for Mac)

Dragon Speech Recognition software is sold by Nuance Communications. The software has three primary areas of functionality: dictation, text-to-speech and command input. The user is able to dictate and have their speech transcribed as written text, have a document synthesized as an audio stream, or issue commands, such as formatting, that are recognized as such by the program. Tiered versions for Home and business uses start at $150.00USD.

System: Windows; Dragon Dictate for Mac has been discontinued, but may still
                 be available on discount re-sale websites.

Website: https://www.nuance.com/dragon.html

Scanning and OCR (Optical Character Recognition)

Optical Character Recognition is the mechanical or electronic conversion of images of typed, handwritten or printed text into machine-encoded text which is editable and searchable. The original can be a scanned document, a photo of a document, a scene-photo (for example the text on signs and billboards in a landscape photo) or from subtitle text superimposed on an image (for example from a television broadcast). The scan of an image creates a series of black and white dots. OCR software can single out letters on the image, put them into words and then put words into sentences. This allows users to read and edit the content of the original document.

SimpleOCR

Users can convert their scanned images to text files or Word documents with SimpleOCR. This application is a free to download. SimpleOCR features include TWAIN scanning, ability to manually specify text. It can be used with English, French and Dutch dictionaries. It also uses interactive correction with suggestions from a dictionary, and can export to plain text or Rich Text Format (MS Word) formats. It provides all of the most commonly used OCR features. Users will need to create an account to gain access to the download site.

System: Windows

Website: http://www.simpleocr.com/Download.asp

On-line OCR

This OCR can be found on-line and is also very simple and easy to use. 'Free On-line OCR' supports 46 languages including Italian, Portuguese, Spanish, Japanese and Chinese. It works by selecting and uploading a file (limited to 5MB) and

converting it to Microsoft Word, Excel or plain text file. Users have a limited amount of time to use this OCR. Once that time have been used, it becomes a paid application.

System: Web-based

Website: http://www.onlineocr.net

Office Lens

This product is another mobile-based OCR created by Microsoft. It can digitise notes on whiteboards or blackboards. It can also make digital copies of your printed documents. Office Lens is a free download from the App Store and Google Play. Once scanned pictures can be saved to OneNote, OneDrive, or locally on the device. It can also convert images to Word (.docx), PowerPoint (.pptx), or PDF (.pdf) files.

System: Windows, Mac

Website: https://www.microsoft.com/en-ca/p/office-lens/9wzdncrfj3t8?activetab=pivot:overviewtab

Google Docs

Google Documents has an OCR built into Google Drive. It allows you to convert an image file or PDF into a Google Doc. It works best with originals using Arial or Times New Roman fonts. Users can further improve results by making sure the image scanned has even lighting and clear contrast between colours. Images can be processed individually (.jpg, .png, and .gif files) or in multi-page PDF documents. It also supports a number of languages.

System: Web-based

Website: https://www.google.com/docs/about/

Organization and Planning Tools

FreeMind

FreeMind is intended for creating and editing Mind maps, XML/HTML documents, and directory trees. It is free to download and written in Java but does not have an easily accessible tutoring program.

System: Windows, Mac and Linux

Website: https://sourceforge.net/projects/freemind/

Dia

Dia is open-source visual-editing software that can be used to draw many different kinds of diagrams. It currently has special objects to help draw entity relationship diagrams, UML diagrams, flowcharts, network diagrams, and many other diagrams.

System: Windows, Mac and Linux

Website: http://dia-installer.de/

Inspiration 9

Inspiration is used for visual mapping, outlining, writing and making presentations. Users can use the tool to brainstorm ideas, structure thoughts and visually communicate concepts to strengthen understanding with the Diagram and Map Views. Users can also take notes, organize information, and structure writing for plans, papers and reports. They can use the integrated Outline View to focus on main and supporting ideas and to clarify thinking in written form. This type of

mapping can help users with dyslexia in organizing and assimilating information. Free 30-day trial available; download purchase price $69.00.

System: Windows, Mac, iOS mobile

Website: http://www.inspiration.com/

Mind Maps with free versions

Coggle is freeware, on-line mind-mapping web application. Similar to other mind-mapping software, Coggle produces hierarchically structured documents, like a branching tree. Coggle comes with Chrome as an add-on extension for the browser. This add-on is available as a free version, but also has two paid versions.

System: Web-based on Chrome

Website: https://coggle.it/#pricing

MindMaple Lite is a free application that allows users to create mind maps that help increase productivity and creativity. There is a more robust paid version of this product available as well.

System: Windows

Website: https://mindmaple-lite.en.softonic.com/?ex=DSK-1052.2

NovaMind is a software that helps users record the ideas that evolve during a brain storming session and create a mindmap. It is a commercial software but also has a free version. NovaMind starts you off with an interactive tutorial to introduce the basic concepts.

System: Windows, Mac, iPad, Android, and on-line as NovaMind Cloud

Website: https://novamind.com

Mind42

Mind42 is a free, on-line mind mapping software. It is free to use but supported by ads. Users can create mind maps that are private, but can be shared with others if the user chooses. Users can sign up for a free account.

System: Web-based

Website: https://mind42.com/

Rainlendar Lite

Rainlendar is a free, feature-rich calendar application that is easy to use and doesn't take much space on a desktop. It helps the user keep track of timelines and projects deadlines. Users can customise the appearance with background designs to create interesting visuals. Rainlendar is available in 50 languages.

System: Windows, Mac, Linux, Ubuntu

Website: http://www.rainlendar.net/cms/index.php?option=com_rny_download

Writing and Editing Tools

WordWeb

This thesaurus/dictionary can be used to look up words from almost any program. In addition to displaying definitions and synonyms, WordWeb can find sets of related words. The database has more than 150,000 root words and 120,000 synonym sets, many proper nouns, pronunciations, and usage tags. Available in 6 languages. WordWeb works off-line, but when on-line you can also quickly view Web references such as Wikipedia.

System: free version Windows: paid version Windows and Mac, mobile systems

Website: https://wordweb.info/free/

Global Spell Checker

GlobalSpellChecker is a tool for checking the spelling or meaning of words from any application using Microsoft Word. It displays the meaning or spelling suggestion in a non-distracting way so that users do not have to shift from the application they are working in.

System: Windows

Website: http://download.cnet.com/GlobalSpellChecker/3000-2079_4-10443586.html?tag=mncol

Grammarly

This is a free tool available as an extension to **Firefox browser** that will make contextual and accurate suggestions for text-based communication. It is configured with the Firefox browser and an extension. Grammarly also has a professional paid version that offers more features. Users will have to create an account to be able to access the download.

System: Web-based

Website: https://www.grammarly.com/

Ginger

Ginger is a software that offers several features to help users with writing. It is also designed for speakers of languages other than English. Features include a grammar checker that analyzes context to determine any errors or misspellings. For example, Ginger can recognize whether "there," "their" or "they're" should be used in a sentence, which is a common mistake in writing. It can also predict words, rephrase sentences, and read back text that the user writes. This product includes a personal trainer that provides practice sessions based on past mistakes

made by the student. Free version plus paid upgrade versions. Ginger is available for.

System: Windows; iOS and Android mobile devices; Mac users can use Ginger's extensions for Safari and Chrome for writing on-line

Website: https://www.gingersoftware.com/

Ghotit

Ghotit is an on-line reading and writing spell checker. Many spellings are counterintuitive, especially for those with dyslexia. Ghotit dedicates itself to helping children and adults who struggle with writing accurately. This product features the ability to learn from the user's past mistakes, personalizing suggestions for spelling and grammatical errors. Ghotit can predict words, check passages of text contextually, read text aloud using TTS technology and recognize split and merged words. The software costs $199USD/year.

System: Windows, Mac, iOS and android mobile

Website: https://www.ghotit.com/

Research

Scrible

This product allows users to take notes on Internet articles as they research on-line. Users can use "highlighters", "sticky notes" and other tools to mark key information. All work is saved in an on-line account. Scrible automatically creates citations for articles and puts them into a bibliography, too. The free version of Scrible has all of the basic note-taking tools. The Pro version ($10 per year) has more storage space

and more functions, such as the ability to collect notes and highlighted text into a summary document.

System: Web-based

Website: https://www.scrible.com/

Math Tools

A range of technology and tools can help users that have trouble with math, most commonly found in a learning disability called dyscalculia. Dyscalculia makes it difficult to grasp numbers, and it is characterized by a general lack of understanding in the field of math. Assistive technology in math is not just for those with dyscalculia. It can also help users who have difficulties with vision, fine motor skill disabilities or other challenges that makes it difficult to perform math-related work

MathTalk

This is a speech recognition software program for math that can help users with a range of disabilities. From pre-algebra to Ph.D. level mathematics, users can perform math problems by speaking into a microphone on their computer. The program works with Dragon products for voice-to-text capability, making it a good tool for users who have fine motor skill disabilities. This product comes with a braille application for visually impaired users.

MathTalk also appeals to users with dyscalculia. The program functions as an electronic math worksheet, allowing the user to organize and work through

problems on the screen, making it helpful for users who have difficulties performing math problems on paper. This product is priced at $325.00USD.

System: Windows

Website: https://mathtalk.com

WebMath

WebMath is a free, on-line calculator and problem solver. It has templates for many different math problems, like counting coins or calculating area. The templates are divided into categories like Algebra and K–8 Math. Users choose a template and fill in the numbers and symbols. WebMath gives the answer, along with a step-by-step explanation for how it's solved.

System: Web-based

Website: http://www.webmath.com/

Assistive Hardware

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Recording devices

Smart Phone Notes or Voice memos

Most smart phones and tablets make excellent use of the microphone technology and are able to act as recording devices. Users could use their smart phones to record notes in the same way that a digital recorder does. The smart phone microphone will record notes that came be saved as audio files and stored in the user's files.

Digital recorders

These devices allow users to record a lecture, conversation or a meeting, and mark specific points on the recorder, to replay later. There are many brands on the market starting as low as $29.95USD. For example: Dell offers the Olympus VN-541PC Digital Voice Recorder for $49.99USD.

https://www.toptenreviews.com/electronics/home-entertainment/best-digital-voice-recorders/

Livescribe Echo Pen

Using special paper, this device records everything a user writes and synchronizes it to everything the user hears at the time. The user need write only a few words for the full discussion to be recorded. This saves had strain and is ideal for people who may suffer from repetitive strain. The user can tap anywhere in the writing and hear what was being said at that time. The 2GB of memory can hold almost 200 hours of audio. Actual recording time varies by audio quality setting.

Using Livescribe Desktop software, the pen uploads the recorded notes and audio to a computer, where they are stored as PDFs, and pencasts. Livescribe Connect software can store files in the cloud. There is also a paid transcription service, MyScript, that will convert stored files into Word files. The Desktop software is available for both PC and Mac.

Cost starts at $310.00 for the 2GB model: $365 for the 8GB .

http://www.livescribe.com/en-ca/smartpen/

Other types of smart pens record what the user writes, but they do not record the audio.

Reading Tools

C-pen

This read-aloud pen uses highly accurate Optical Character Recognition to enable the user to read printed text. It will also suggest definitions for words that the user may need help to understand. The pen retails for approximate $330.00CAD.

http://www.readerpen.com

Quicktionary Reading Pen

Run this pen over any printed text from 6pt to 22pt and it will read aloud single words or a whole line of text. The Quicktionary reading pen will also read aloud the definition of the word to help users to understand what the word means. The pen can read out each letter of the word to spell it aloud for users, if needed. It can also

display the syllables which make up each scanned word to help a student sound out the words. Quicktionary pen costs approximately $299.US

http://www.spectronics.com.au/article/13647/print

Devices for Physical Accessibility

Alternative Mice – BIGtrack

The BIGtrack has the largest trackball available. The bright, large 3" trackball helps to make mouse movements easier. The large ball requires less fine motor control than a standard trackball, and it is ruggedly built. It has a left and a right mouse click button located behind the trackball to avoid unwanted mouse clicks. The BIGtrack also allows for a second mouse connection. Both the BIGtrack and a second mouse can be connected simultaneously. The BIGtrack is available for $87.00 USD

https://www.infogrip.com/bigtrack-trackball.html

Alternative Keyboards

Users with some physical challenges might like to use alterative keyboards. There are various **one-handed keyboards** on the market, ranging in price from $140 to $500+. Below are a few sources:

http://www.ergovancouver.net/keyboards_one_handed.htm

https://www.beeraider.com/one-handed-keyboard/

https://www.specialneedscomputers.ca/index.php?l=product_list&c=32

Another alternative to consider is a **mini-keyboard**. The smaller size allows someone with reduced hand mobility to function more easily. Prices for mini-keyboards begin around $60.00.

https://wiki.ezvid.com/best-mini-keyboards

A **split keyboard** enables users to place two keyboard halves at a distance that's more conducive to natural hand positioning. This reduces strain while typing, and makes for a more comfortable overall work experience. Split keyboards are a popular ergonomic choice because they eliminate so many pain and discomfort issues with a very low learning curve, so you won't sacrifice typing speed while transitioning to a split keyboard. There are a variety of split and other types of ergonomic keyboards on the market, starting around $50CAD. It is best to research different types to find the best one for the individual.

Some people may find it easier to use **non-QWERTY** keyboards that are not set up in the standard QWERTY letter format. These keyboards have the letters and symbols differently organised in a variety of ways.

http://mentalfloss.com/article/52483/6-non-qwerty-keyboard-layouts

Sip-and-Puff Systems

Sip-and-puff systems are used by people who have mobility challenges, such as paralysis and fine motor skill disabilities. Sip-and-puff systems are a type of switch device, which refers to the technology used to replace a computer keyboard or mouse. These systems allow the user to control a computer, mobile device or some other technological application by moving the device with their mouth. Similar to a joystick, the user can move the controller in any direction and click on various navigational tools using either a sip or a puff. An on-screen keyboard allows the user to type using the same movements. Systems start at $411.00USD

Sip-and-Puff Systems from Origin Instruments

Origin Instruments offers a range of sip-and-puff products that users can use to control an electronic device. Using a head-mounted device, or tubing the learner can control a mouse, joystick or keyboard. Prices vary according to the components of the system selected. Software available for both Windows and Macintosh.

http://www.orin.com/access/sip_puff/

Some other manufacturers

Special Needs Computers

Enabling Devices

Devices for Deaf/Hard of Hearing

Neck-looped Amplifiers

A hearing **loop** (sometimes called an audio induction **loop**) is a special type of sound **system** for use by people with hearing aids. The hearing **loop** provides a magnetic, wireless signal that is picked up by the hearing aid when it is set to 'T'

A variety of hands-free solutions for T-coil hearing aid users.

Available from ALDS (Assistive Listening Device Systems) $69-$200+CAD

https://alds.com/#!

For other types of personal devices that amplify hearing, check with the Canadian Hearing Society.

Assistive Listening Systems for Meeting Rooms

Assistive Listening Systems for classrooms and other meeting rooms include FM, Infrared and loop systems. They are designed to connect the sound from the main speaker, sound system or other audio source and send the signal directly to wireless receivers worn by people with a hearing loss. The receivers allow individuals to adjust the volume to a comfortable level and can be used with a variety of headsets, including neckloop listening accessories for those with telecoil equipped hearing aids. Assistive Listening systems help to reduce background noise and compensate for poor room acoustics or distance from the sound source. These Systems can be portable and/or permanently installed and are recommended for all meeting assemblies where people with a hearing loss are present.

https://www.chs.ca/corporate-products-categories/?tid=75

FM systems are for users with sensorineural hearing loss. FM systems work using radio broadcast technology. With a transmitter microphone and a receiver, the teacher and student can maintain a consistent sound level regardless of distance and background noise. The hearing aid microphone can be turned off, so the student can concentrate on the teacher alone.

Infrared Systems (IR) work like TV remote controls. A transmitter sends speech or music from a public address or sound system to an IR receiver using invisible infrared light waves. This technology is line of sight and cannot be used outdoors during the daytime due to being affected by light. Because IR signals are sent and received in a straight line, users are encouraged to sit as centrally as possible; those sitting in balconies or other areas with poor sight lines may experience interference or receive no sound signal at all.

Everyone using either kind of system needs a receiver and either a headphone or a neck loop. For those who have telecoil-equipped hearing aids and cochlear implants, neck loops eliminate the need for headphones.

Soundfield Systems for meeting rooms

While not a substitute for good classroom acoustics, soundfield amplification systems ensure an even distribution of sound, allowing all students to hear well wherever they are seated in a classroom and whichever direction the teacher faces. The term "soundfield" has been adopted to describe a sound system using a number of speakers distributed around a classroom. These systems use a microphone to amplify the teacher or facilitator's voice using speakers distributed throughout the classroom or meeting space. Soundfield systems can improve the learning environment for all people, not just those with hearing loss. Also good for people who are learning English as a second language.

For more information about sound field systems, check Speech-Language and Audiology Canada. [click here](#).

All sound systems are very costly.

Devices for Vision Difficulties

Irlen Coloured Overlays

The Irlen Method is non-invasive technology that uses coloured overlays and filters to improve the brain's ability to process visual information. It is the only method scientifically proven to successfully correct the processing problems associated with Irlen Syndrome. This technology can improve reading fluency, comfort,

comprehension, attention and concentration while reducing light sensitivity. The overlays filter out offensive light waves, so the brain can accurately process visual information. The overlays come in several colours, so people can choose the colour that works best for them. Overlays come in a 5-pack for $19.99 U.S., individual coloured overlays for tablets and screens are $6.49U.S. Eye-glass filters are also available. More information can be found at www.irlen.com.

Large-print Keyboards

These user-friendly computer keyboards feature large, high-contrast, white lettering on black keys or black lettering on yellow keys. Available from CNIB for $34.95. Large-Print Keyboard Labels also available – https://shop.cnib.ca

Jumbo Talking Calculator with Display

A high-visibility talking calculator with large LCD display and clear voice announcements. Voice output has three sound levels and can be muted. Available from CNIB for $39.95. Other models also available. https://shop.cnib.ca

Hand-Held Magnifiers

Numerous models and magnifications available at CNIB. https://shop.cnib.ca

Higher-end assistive vision products

Assisted Vision Smart Glasses

Many visually impaired people have some remaining sight. These smart glasses can be tuned to make the most of it. They are constructed using transparent OLED (organic light-emitting diode) displays, two small cameras, a gyroscope, a compass,

a GPS unit, and a headphone. The incoming data can be processed and then used in various ways. For example, brightness can be used to show depth. Most visually impaired people can distinguish light and dark. These glasses can make anything that's close to the wearer brighter, so they can discern people and obstacles.

The cameras could also work with the computing module and software to recognize the number on an approaching bus, or to read a sign. The GPS module can be used to give directions. The gyroscope helps the glasses to calculate changes in perspective as the wearer moves. All of the information is spoken aloud through the built-in ear piece.

https://www.digitaltrends.com/mobile/blind-technologies

There are several types of Smart Glasses on the market or in development. All are costly. It is best to research different types to find the best one for the individual.

eSight Glasses

eSight glasses are about the size of a pair of wraparound sunglasses. They allow a user to magnify and view objects as close as 30 cm. away and as far away as an object across the room, across the street, or across a field. A high-resolution video camera with zoom capabilities is built into the bridge, and a cable runs from one of the earpieces down to a hip-carried processing unit and power source. Glasses are custom made using lenses ground to the wearer's own prescription. These lenses are then overlaid with a transparent OLED (organic light emitting diode) display that can be user adjusted to fill their entire field of view.

The eSight camera captures what's ahead and sends it to the processing unit, which is about the size of a large-screen smartphone and about twice as thick. There the images are processed frame by frame in real time. This unit allows the user to adapt to their personal preferences and needs with two easy-to-use dial controls,

including an up to fourteen times zoom, contrast, and various color adjustments to make the real-time image easier to see and enjoy.

https://www.esighteyewear.com/

LaVoice Portable Talking CCTV

LaVoice is a simple scanning, reading and magnifying device with all the features needed to make reading easy. This scanner works while connected to a laptop to magnify text for reading. This product is the smallest, most affordable optical character recognition (OCR) product in the market. LaVoice is light-weight and smaller than an A4 sheet of paper and folds into a laptop bag. This tool can scan and listen to any printed material in a natural sounding voice.
Cost is $1,231.67CAD.

https://www.specialneedscomputers.ca/index.php?1=product_detail&p=2875

Selected Resources

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Adaptech Research Network

The Adaptech Research Network has developed a number of resources over the years, including an extensive database of free and inexpensive adaptive technology and a set of demonstration videos highlighting the capabilities of some of these tools. Includes information on accessibility features of a variety of computers and mobile devices.

http://www.adaptech.org/en/downloads

Canadian National Institute for the Blind (CNIB)

The CNIB Foundation is a non-profit organization driven to change what it is to be blind today. They deliver innovative programs and powerful advocacy that empower people impacted by blindness to live their dreams and tear down barriers to inclusion. Their work is powered by a network of volunteers, donors and partners from coast to coast to coast. The CNIB Foundation, Vision Loss Rehabilitation Canada and CNIB Deafblind Community Services make up the CNIB Group.

https://cnib.ca/en?region=on   1-800-563-2642

Canadian Hearing Society

the Canadian Hearing Society (CHS) is a non-profit organization and the leading provider of services, products, and information that remove barriers to communication, advance hearing health, and promote equity for people who are Deaf or hard of hearing. Unique in North America, CHS offers a complete roster of essential services, including sign language interpreting; one-on-one language development for deaf and hard of hearing children using play as the medium of

learning; employment consulting; sign language instruction; speechreading training; hearing testing; hearing aids; counselling; and, the most complete range of communication devices that assist and augment communication including text telephones (TTYs), visual smoke detectors, baby monitors, signalling devices and alarm clocks.

http://www.chs.ca/   1-866-518-0000

Deaf Literacy Initiative (DLI)

Deaf Literacy Initiative is Ontario's umbrella organization for literacy in the Deaf and Deaf-Blind community. Their services are accessible and culturally appropriate and include: training, research, networking, and resources.

https://www.deafliteracy.ca/

Project Coordinator: Anselmo DeSousa   (647)479-1981

Deaf Access Simcoe Muskoka

Deaf Access Simcoe Muskoka is a charitable, non-profit organization that works alongside culturally deaf, oral deaf, deafened and hard of hearing people of all ages, their families, and the community throughout the region. They work to increase access to local recreational, educational, employment, developmental, habilitational and social opportunities through direct service provision, advocacy, support and sharing of information.

https://www.deafaccess.ca/   (705) 728-3577

Learning Disabilities Association of Ontario: www.ldao.ca

LDAO currently offers several on-line workshops and courses. Workshops are self-paced on-line learning environments, similar to their courses, but without direct access to a moderator. Though workshops are not facilitated, LDAO would continue

to be available to participants to answer questions and concerns in a timely manner. All of their on-line workshops and courses are delivered via LDAO's On-line Learning Forum at www.access.learning.ldao.ca and workshops.ldao.ca Contact: e-mail: courses@ldao.ca; to order by phone, call 416.929.4311 ext. 29. Other informational workshops and conferences offered by their Chapters and other organizations are always listed in the Ontario LD Events section.

Literacy Link South Central

Practitioner training manuals originally designed for adult upgrading instructors and tutors who work with adults who have learning disabilities. Free downloads.

Learning Disabilities Training: Phase One - A New Approach, 2003

Learning Disabilities Training: Phase Two - Screening Tools, Strategies and Employment

March of Dimes

March of Dimes is a community-based rehabilitation and advocacy charity for people with physical disabilities. Their goal is to enhance the independence and community participation of people with physical disabilities every day through a wide range of programs and services across the country.

https://www.marchofdimes.ca/EN/Pages/default.aspx   1-800-263-3463

Ontario Brain Injury Association (OBIA)

OBIA provides information about brain injury, as well as many supports and services for people who have brain injury. They also offer training for care givers and the general public.

http://obia.ca/   1-800-263-5404

Ontario Community Colleges

Community Colleges in Ontario have Centres of Access for students who need accessibility accommodation. The Centres offer training in the various software and hardware available to users with learning disabilities and other challenges. Specific documentation from a health care professional and other paperwork may be required.