



## Board/Authority Authorized Course Framework Template

<b>School District/Independent School Authority Name:</b>	<b>School District/Independent School Authority Number (e.g. SD43, Authority #432):</b>
<b>Developed by:</b> PRCVI	<b>Date Developed:</b> July 2022
<b>School Name:</b>	<b>Principal's Name:</b>
<b>Superintendent Approval Date (for School Districts only):</b>	<b>Superintendent Signature (for School Districts only):</b>
<b>Board/Authority Approval Date:</b>	<b>Board/Authority Chair Signature:</b>
<b>Course Name:</b>	<b>Grade Level of Course:</b>
<b>Number of Course Credits:</b>	<b>Number of Hours of Instruction:</b>

**Board/Authority Prerequisite(s):**

None.

**Special Training, Facilities or Equipment Required:**

This course requires a qualified teacher of students with visual impairments (TSVI) who is proficient in braille and access technologies. The student is taught using direct instruction on an individual basis (one-on-one) as there is often only one student with visual impairment in each school. Access Technology for Students with Visual Impairments (AT-VI) is scheduled as one of the electives and the teacher of students with visual impairments meets with the student during the selected instructional block.

The specific access technology taught in the course will depend on individual learner profiles. The AT-VI course template is designed to be used with a wide variety of access technology teaching activities including access software (such as screen readers and screen magnification), braille technologies, and high-tech low vision devices.

Course Synopsis:

The AT-VI course is intended to provide students with visual impairments the opportunity to build skills needed to independently access learning resources and facilitate academic and personal goals using access technologies. The template provide learning outcomes, curriculum organizers, suggested resources, and assessment for qualified teachers of students with visual impairments to teach access technology to students will be able to access the curriculum, complete educational tasks, and communicate their access needs about using screen reading and/or screen magnification software, video magnification devices, optical character recognition software, refreshable braille displays and/or braille notetaking devices, and mainstream mobile devices, depending on individual access profiles.

### **Goals and Rationale:**

Access technology is a tool to access curriculum, accomplish educational goals, and to access authentic everyday activities. Students taking AT-VI 10 may be new to access technology or may be experienced access technology users whose access needs have changed or who are needing to expand their skills. The focus for technology instruction should be maximum student independence. Instructors should ensure that students can demonstrate all technology skills without assistance and that they can obtain appropriate assistance as needed. Students will be introduced to skills including independent technology use, problem-solving, life-long learning, and community networking.

The responsible and ethical use of technology, including digital citizenship, respecting copyright, data security, and registering and updating software, are important components of instruction. Students with visual impairments who use technology need to learn proper care and maintenance of their equipment.

This course compliments aspects of the regular BC secondary curriculum by addressing the specific additional information students with visual impairments need to learn to be effectively user of technology. These AT-specific skills are not covered in core technology courses, such as computer science. Students with visual impairments require specialized instruction in the use of access technology to facilitate access to instructional software or platforms and educational materials that are used in core curriculum courses. The acquisition of these skills requires direct, sequential instruction by trained teachers of students with visual impairments.

### **Indigenous Worldviews and Perspectives:**

While Access Technology 11 is primarily designed to provide a meaningful framework within which access technology instruction at the secondary level can unfold, the course also touches upon deeper issues and understandings that align with several First Peoples Principles of Learning.

1. Learning involves patience and time.

The process of learning to use access technology takes patience and time. Technology is complex. It takes much practice and perseverance to develop skills and become a proficient user. Technology also changes over time, so continuous learning and updating of knowledge is required.

2. Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).

Access technology is wide in scope, and many different technologies are used in tandem to fully access the curriculum and environment. Every individual uses the unique combination of technologies that fit their individual access requirements, which may change of time and environment. To use access technology most effectively, students must learn about their needs and preference as well as the most suitable tool for each task. Through experience and discussion, students will develop the skills to determine when and where an access technology solution would be most effective. Students will also learn how to advocate for accessible materials with their teachers, peers, and members of the community.

3. Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations.

Users of access technology often use input and output devices that differ from those used by sighted individuals, and may use unique approaches to overcome accessibility barriers. Access technology often interfaces with mainstream technology in ways that require distinct knowledge. This knowledge is shared from teacher to student, or among the community of access technology users, who often develop networks and gatherings to share information, resources, and suggestions. By learning competent use of technology, students enter into these communities to gain and share knowledge.

**Name: Access Technology for Students with Visual Impairment (AT-VI)**

**BIG IDEAS**

Access technology is vital to people's ability to access and create a wide variety of content in the home, school, and community, and workplace.

The community of access technology users is a rich resource for the learner, as well as a means of giving back to the community.

Learning is an ever-evolving process that requires continual pursuit of knowledge and skills as technologies change.

A variety of tools and technologies are needed for different tasks, and multiple technologies may be used simultaneously to be effective and efficient.

Digital accessible content is essential for meaningful, equitable access to learning.

**Learning Standards**

Curricular Competencies	Content
<p><i>Students are expected to do the following:</i></p> <p><b>Problem Solving and Critical Thinking</b></p> <ul style="list-style-type: none"> <li>• Evaluate a variety of technology options.</li> <li>• Use access technology to efficiently complete a variety of tasks.</li> <li>• Communicate about accessibility requirements in learning materials.</li> <li>• Advocate for timely provision of accessible learning materials and digital resources.</li> </ul> <p><b>Comprehend and Connect (Reading, Writing, Drawing)</b></p> <ul style="list-style-type: none"> <li>• Intermediate features and commands of selected access technology solutions.</li> <li>• Use access technology at home and in the community.</li> <li>• Strategies for accessing print and digital formats with access technologies.</li> </ul> <p><b>Reflect and Project</b></p> <ul style="list-style-type: none"> <li>• Reflect on access technology learning process, preferences, strengths, and growth areas.</li> <li>• Identify areas of intermediate-future access (e.g., a course next term) and strategies for developing new skills as needed.</li> <li>• Use resources to address knowledge, accessibility, and technical barriers.</li> </ul>	<p><i>Students are expected to know the following:</i></p> <p><b>Technology Features and Functions</b></p> <ul style="list-style-type: none"> <li>• Computer hardware and software concepts.</li> <li>• Concepts and terminology specific to access requirements.</li> <li>• Help features and problem-solving strategies.</li> <li>• Resources for help and lifelong learning and skill development.</li> </ul> <p><b>Accessibility</b></p> <ul style="list-style-type: none"> <li>• Implications of accessible and inaccessible documents</li> <li>• Strategies for engaging in advocacy for accessible educational, digital, and online materials</li> <li>• Local, provincial, and national accessibility legislation.</li> </ul> <p><b>Community Resources</b></p> <ul style="list-style-type: none"> <li>• Community resources for access technology users.</li> <li>• Contacts and resources for increasing accessibility.</li> <li>• Strategies for building skills in using new applications and technologies.</li> </ul>

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| <ul style="list-style-type: none"><li>• Access a variety of print, digital, and alternate format material (such as electronic braille files) using a variety of assistive technology.</li></ul> |  |
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## Big Ideas – Elaborations

Access technology is vital to people's ability to access and create a wide variety of content in the home, school, and community, and workplace.

- Explore the role access technology can play in completing a variety of tasks effectively at home, school, the community, and the workplace.
- Learn the effective use of technology on a variety of platforms (desktop, laptop, mobile, specialized devices) and through a variety of input and output modalities corresponding to format needs (e.g., speech, braille, large print, keyboard, mouse, touchscreen).

The community of access technology users is a rich resource for the learner, as well as a means of giving back to the community.

- Explore the benefits of and contribute to the community of assistive technology users.
- Learn about a variety of avenues for connecting with other users such as online presentations, in-person group meetings, telephone meetings, and one-on-one mentoring.

Learning is an ever-evolving process that requires continual pursuit of knowledge and skills as technologies change.

- Explore strategies for advancing one's own learning through online tutorials, help documentation, technical support, peers, and mentors.
- Track one's own skill development to determine potential areas for future learning and skill refinement.
- Explore avenues for keeping on top of developments in technology and explore resources that may be of use in one's own learning process.

A variety of tools and technologies are needed for different tasks, and multiple technologies may be used simultaneously to be effective and efficient.

- Use a variety of technologies to determine what best meets one's needs and preferences for a given task.
- Reflect on learning, preferences, and efficiency to determine technology needs.

Digital accessible content is essential for meaningful, equitable access to learning.

- Explore strategies for accessing, using, and creating accessible digital content.
- Learn about policies and legislation that protect equal access to digital accessible content.
- Develop knowledge and practices for keeping content and software secure.

## Curricular Competencies – Elaborations

### Problem Solving and Critical Thinking

- Evaluate a variety of technology options.
  - Investigate devices and their features (e.g., smartphones, tablets, notetakers, laptops) in various contexts (e.g., for research, writing a paper, taking quick notes).
  - Explain individual access requirements and the tools needed to facilitate access.
  - Compare a variety of input and output options (e.g., speech, braille, magnification, QWERTY/braille keyboard, touchscreen) and determine preferences and efficiencies.
  - Experience use of alternate options for access software (e.g., third party and built-in screen reader and mainstream software (e.g., different web browsers) and explain why having more than one access solution is beneficial.
- Use access technology to efficiently complete a variety of tasks.
  - Determine the most effective technology(ies) to use for a given task based on access requirements.
  - Explore solutions for independently gaining immediate access to inaccessible material (e.g., OCR, troubleshooting, requesting sighted assistance).

- Communicate about accessibility requirements in learning materials.
  - Use accessibility features (e.g., headings, alt text) that enable independent access to learning materials.
  - Explain important accessibility features to teachers and peers.
- Advocate for timely provision of accessible learning materials and digital resources.
  - Discuss how the basic technologies, processes, and timelines involved in creating digital or hardcopy alternate format materials and implications for post-secondary education or employment (e.g., requesting materials early).
  - Use apps and technologies for accessing digital learning materials.

#### Comprehend and Connect (Reading, Writing, Drawing)

- Intermediate features and commands of selected access technology solutions.
  - Use access technology to efficiently access the core and expanded core curriculum.
  - Use intermediate features of access software (e.g., internet options, reading tools) to determine which are most useful for access and productivity.
  - Use different methods of accessing features (e.g., through menus, keyboard shortcuts).
  - Use built-in features (e.g., within Windows) to discover new keyboard shortcuts for frequently used features.
  - Learn accessible strategies for online safety/security.
- Use access technology at home and in the community.
  - Connect with mentors and peers with visual impairments to discover access technology learning opportunities (e.g., learning a new feature) together.
  - Identify areas with access requirements at home and in the community (e.g., board games, watching sporting events) and what low- or high-tech devices may help.
- Strategies for accessing print and digital formats with access technologies.
  - Use OCR options (e.g., apps, camera/scanners) for creating immediate digital copies of print materials.
  - Explore features that can help provide immediate access to content (e.g., image descriptions, control labels, sonification).
  - Navigate efficiently through websites, documents, emails, and other commonly needed content types.

#### Reflect and Project

- Reflect on access technology learning process, preferences, strengths, and growth areas.
  - Continue to refine the most effective combination of high-tech, low-tech, and no-tech devices for completing a variety of tasks.
  - Articulate to a variety of people (those familiar with and unfamiliar with access technology) the technologies and formats that work and do not work for completing various tasks.
  - Develop strategies for keeping track of and refreshing knowledge of concepts being learned (e.g., keyboard commands).
  - Determine gaps in knowledge or skills and strategies to seek out additional learning strategies/resources.
  - Determine areas where one may be able to provide knowledge or experience to peers and the community of access technology users.
- Identify areas of intermediate-future access (e.g., a course next term) and strategies for developing new skills as needed.
  - Research or experiment to learn new sites, applications, or platforms that are needed or wanted in future.
  - Develop a strategy with multiple options for approaching accessibility barriers.
  - Distinguish between barriers created by lack of knowledge, lack of accessibility, or technical issues.
- Use resources to address knowledge, accessibility, and technical barriers.
  - Expand the types of resources tried (searching the internet, watching a video, using built-in help resources, contacting technical support) as problems are encountered.
  - Reflect on how different strategies worked and any changes that could be made in future.
- Access a variety of print, digital, and alternate format material (such as electronic braille files) using a variety of assistive technology.

- Identify differences between format and file types and the features which meet individual access requirements.
- Convert files between formats for use in different contexts (e.g., convert a PowerPoint file to plain text or a BRF file to Word).

## Content – Elaborations

### Technology Features and Functions

- Computer hardware and software concepts.
  - Understand the difference between hardware and software.
  - Understand hardware ports (e.g., USB, USB-C, HDMI, AC).
  - Understand software concepts (e.g., files, folders, applications, online).
  - Understand operating systems and software/hardware compatibility (e.g., an iOS app cannot be installed on a Windows computer, a braille embosser may have a certain software/hardware requirement).
  - Understand how to keep software/hardware updated and the importance of staying up to date.
  - Basic networking concepts (e.g., Bluetooth, wifi, cloud storage).
- Concepts and terminology specific to access requirements.
  - Understand the different categories of access technologies used (e.g., braille displays, notetakers, screen readers) and how they differ and interact (e.g., a screen reader is needed to drive a braille display).
  - Software companies and whether their software is mainstream (e.g., Microsoft) or access technology (e.g., HumanWare).
  - Concepts related to the access technology industry (e.g., manufacturers, vendors, funding, open source).
- Help features and problem-solving strategies.
  - Knowledge of the various built-in help features in mainstream and access software.
  - Awareness of online help resources (e.g., videos, articles, forums) and how to find and use them.
  - Increased knowledge of options for contacting mainstream and AT-specific technical support (e.g., online chat systems, remote access).

### Accessibility

- Implications of accessible and inaccessible documents.
  - Create more complex documents and other media (e.g., slide decks, web pages) that implement more advanced accessibility features (e.g., reading order, colour contrast, etc.).
  - Identify concepts (e.g., headings, alt text) and how these features impact accessibility of digital materials.
  - Explore a variety of strategies for addressing accessibility challenges in a variety of contexts and environments.
- Strategies for engaging in advocacy for accessible educational, digital, and online materials.
  - Understand the process, roles, and basic workflow involved in creating accessible educational materials (e.g., publisher, school district, transcriber, producer).
  - Explore strategies and potential contacts (e.g., company, developer) for advocating for greater accessibility of inaccessible websites and apps.
- Local, provincial, and national accessibility legislation.
  - Local policies regarding accessibility (e.g., organization's accessibility statement, university policies, right to workplace accommodations).
  - Provincial policies and laws regarding accessibility (e.g., Accessible BC Act).
  - Federal laws regarding accessibility (e.g., Accessible Canada Act).

### Community Resources

- Community resources for access technology users.

## Content – Elaborations

- Awareness of a variety of formal and informal resources (e.g., in-person, video conference, social media, classes or courses, books and audio resources) resources for access technology users.
- Understanding of situations in which these communities are and are not helpful (e.g., learning new AT features, an individual technical issue).
- Consideration of how one may use increasing knowledge and competence to contribute to these communities (e.g., providing information to other users).
- Become familiar with common terms, acronyms, and numeronyms within discussions of access technology (e.g., six-key entry, TTS, a11y).
- Contacts and resources for increasing accessibility.
  - Determine a network of contacts and resources that can be of use when independently increasing AT skills and knowledge.
  - Collect resources that can be pass on to others (e.g., teachers, developers) when advocating for increased accessibility (e.g., accessibility guidelines, website accessibility audit services).
- Strategies for building skills in using new applications and technologies.
  - Use websites of AT manufacturers to find answers and help/support resources to AT-related questions.
  - Explore a variety of basic and advanced strategies to navigate completely unfamiliar websites and applications.
  - Follow instructions from a variety of online help documentation (e.g., for a new feature or application).
  - Use search strategies for finding information about accessibility, features, and functionality of new software or websites.
  - Research AT solutions that may be the best fit for success in careers, study, or hobbies.

### Recommended Instructional Components:

- encourage students to think creatively and critically, communicate skillfully, and demonstrate care for self and others;
- acknowledge the social nature of learning;
- allow for both physical and virtual collaboration;
- support the personal aspect to learning;
- promote risk-taking, wonder and curiosity;
- build connections across and within areas of knowledge;
- embed formative assessment practices such as learning intentions, criteria, questions, descriptive feedback, self and peerassessment;
- inspire and stretch student thinking;
- promote student engagement;
- reflect the relationships between emotion, motivation and cognition;
- connect learning to the local and global communities;
- provide opportunities for students to share learning and reflect;
- utilize technologies and other tools in purposeful ways;
- involve explicit and intentional teaching; and
- make learning visible, open, and transparent.

### Recommended Assessment Components: Ensure alignment with the [Principles of Quality Assessment](#)

- Written or verbal examination of content knowledge
- Creation of a portfolio detailing students' acquisition of new tools encountered in the course

- Completion of assignments and other tasks using access technology
- Student self-assessment/reflection
- Direct observation
- Video recording of student using access technology skills
- Anecdotal records
- Instructor-developed checklists and rubrics

### **Learning Resources:**

Perkins School for the Blind. *Paths to technology*. <https://www.perkins.org/paths-to-technology/>

PRCVI (2023). Access Technology. Provincial Resource Centre for the Visually Impaired. <https://www.prcvi.org/resources/the-expanded-core-curriculum/access-technology-skills/>

Siu, Y.-T. & Presley, I. (2020). *Access technology for blind and low vision accessibility* (2nd Ed.). APH Press.

#### Additional Information:

Since new technologies are consistently developed and released, it is important to take note of the release date of online resources and the specific versions/builds of software or hardware to which they refer.