



# **Information and Communication Technology Skill Checkpoints**

**Saskatchewan Learning  
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## **Rationale**

This document was established to guide educators in the integration and application of technology skills and tools in Saskatchewan classrooms. Its goal is the inclusion of the prescribed technological skills in all subjects and grades where they will enhance the teaching/learning process. Within the Core Curriculum context, students will acquire and use the knowledge, skills and attitudes to incorporate computers and other technological tools in their work appropriately. Through this use students will develop an understanding of the usefulness and limitations of these tools.

The guideline identifies groups of experiences that contribute to the development of fundamental skills. All students should experience these within each level of their education. Because of different situations among schools and varying student experiences the guidelines will be applied differently. It is important for teachers to consider the skill level of students when introducing new skills and tools and to develop basic skills before progressing. It is understood that differences in programs will necessitate that tools or skills will be introduced in different areas of study in different locations. The guidelines do not require technological skills to be included in all classes. They suggest that all students should experience each of them at least once by the end of each level. The subject, grade and context of the skill development is best determined locally.

This guideline is not meant to limit the use of any technology to a particular grade or discipline. Use of a tool, development of a skill or the introduction of a concept, at a level earlier than indicated in this document, is acceptable when pedagogically sound.

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## Elementary Level

At the end of the Elementary Level (grades 1-5), students will be expected to have the following knowledge and capabilities:

### 1. Information Management

- Access, retrieve and process information from electronic sources.
- Collaborate with others using technology:
  - ◆ to plan an inquiry or project
  - ◆ to request advice or information from others, either peers or experts
  - ◆ to share, organize and select information
  - ◆ to present results and conclusions
  - ◆ to take part in an online experience such as an expedition, tour, presentation, writing workshop, scientific or historic investigation.

### 2. Hardware use and care.

- Use all equipment in a manner that is not harmful to the student or the machinery.
- Know and practise proper procedures for beginning and ending programs and processes using computers and other devices within the school environment. When applicable, understand and practise proper use of a local network.
- Input information into a computer or other device and be able to manipulate that information in an appropriate manner. Understand the basics of using a keyboard, mouse, diskette, CD ROM and scanner as a way to send information to a computer program.
- Interpret information that is output from devices through various output mechanisms such as monitor, printer, projector or audio speakers.
- Understand the difference between data and program files. Be able to perform basic file management tasks. Be aware of the importance of frequent saving and backup.
- Recognize that a system is not working properly and notify the proper person when problems arise. The student should be able to assist the problem solver by describing the malfunction.
- Understand that there are health hazards in incorrect use of many devices and practise ergonomically correct use of all hardware.

### 3. Software use and care.

- Use a word processor to create documents utilizing the features of the program, being able to:
  - ◆ enter text
  - ◆ delete text
  - ◆ insert text
  - ◆ move around within a document
  - ◆ load a document
  - ◆ save a document
  - ◆ format layout and text within a simple document
  - ◆ use a spelling checker and recognize its limitations.
- Be able to navigate within and extract information from a body of data, locally and on the Internet.

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- Use graphics software to:
    - ◆ create images
    - ◆ modify images
    - ◆ import images from a digital camera, scanner, image collection or other source.
  - Use presentation software to represent and share ideas.
  - Create a simple web page with text and image. Understand that web pages are stored on and accessed from Internet servers.
  - Use educational multimedia resources in an effective manner. Utilize the data navigation facilities of software and recognize that there are similarities and differences among products.

#### 4. Social and Ethical Issues

- Understand the school's **Acceptable Use Policy** and use Information Communication Technology in an appropriate manner.
- Be aware of dangers for children on the Internet and understand ways to be safe online.
- Use the technology in a respectful and caring way, practise "netiquette" when online.
- Understand that the accuracy and value of information will vary. Compare and consider information from different sources.

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## Middle Level

At the end of the Middle Level (grades 6-9), students will be expected to have the following knowledge and capabilities:

### 1. Information Management

- Participate in a range of online activities involving communication and virtual experiences. Extend the scope of a project beyond the classroom collaboration by using communication technologies.
- Plan and perform searches on the Internet or within a database as part of a project:
  - ◆ revise the inquiry plan as necessary throughout the quest for information
  - ◆ identify and assess the authority and reliability of electronic sources
  - ◆ access alternative viewpoints on particular topics
  - ◆ produce a document, following these steps:
    - select and record data
    - organize, compare and contrast information
    - create product.
- Solve problems requiring the sorting, organizing, classifying and extending of data using information technology tools.
- Use and understand terminology appropriate to all tasks performed.

### 2. Hardware use and care

- Use various types of input devices independently and understand the capabilities and limitations of each.
- Use various types of output devices independently and understand the capabilities, limitations and costs of use for each.
- Be aware of new developments in input and output device technology.
- Be aware of the proper uses of all hardware and understand ways to enhance its efficiency and reliability.
- Understand the causes of “repeated use syndrome” and practise ergonomically correct use of all hardware.
- Be able to rectify simple hardware problems and be able to identify and describe more complex problems.

### 3. Software use and care

- File management:
  - ◆ organize files into directories/folders
  - ◆ understand that different applications store files in different ways
  - ◆ understand the nature of viruses and other destructive files and be able to check files for danger
  - ◆ share files among different applications
  - ◆ download files and open attachments in a safe manner, understanding the virus danger
- Operating systems
  - ◆ understand the functions and use of a computer operating system and that there are several different ones

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- ◆ understand that there are many settings involved in an operating system and the ramifications of changes to them
  - ◆ run multiple applications and transfer data among them using functions of the operating system such as cut, copy and paste.
  
  - ◆ Use productivity tools to enter, edit, manipulate and distribute information. Use advanced features of these programs such as thesaurus in word processor or graph generator in spreadsheet.
  
  - ◆ Create a set of web pages including:
    - links between pages
    - links to outside sites
    - a variety of graphics
    - friendly navigation
  
  - Social and Ethical Issues
    - ◆ Understand that messages and audiences can be influenced by the medium and be alert to hidden persuasions.
    - ◆ Responsible use of Information and Communication Technology:
      - demonstrate the ethical and legal use of digital resources
      - comply with current school or school division acceptable use policy
      - respect intellectual property rights
      - employ effective strategies to maintain personal safety in a digital environment.
  
  - Social, Human and Environmental Issues:
    - ◆ explore and recognize the impact of Information Communication Technology on self, society, and the environment, including these topics:
      - privacy
      - communication styles
      - information accuracy
      - equity and access
      - consumer education about e-commerce
      - copyright obligations
      - technology related illness and addiction.
    - ◆ consider how ICT affects the personal environment and the global community.

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## Senior Level

At the end of the Senior Level (grades 10-12), students will be expected to have the following knowledge and capabilities:

### 1. Information Management

- Participate in a range of activities that involve online communication, choosing the communication tool appropriate to the task. Understand the limitations of the medium and be aware of possible hazards within the online environment.
- Be an efficient user of the Internet:
  - ◆ be familiar with the nature of the World Wide Web and the role of search engines
  - ◆ assess and evaluate the features of different search engines and understand the extent and limitations of each
  - ◆ perform advanced search functions including use of Boolean operators
  - ◆ explain the advantages and disadvantages of various search strategies.
- Assemble and organize different viewpoints in order to assess their validity. Use information technology to find facts that support or refute diverse viewpoints.
- Evaluate the authority, reliability and validity of electronically accessed information.
- Use communication technology to share ideas, gather opinions, locate information, evaluate data critically and gain consensus with others.

### 2. Hardware use and care

- Use available input and output devices independently and competently to produce work at an appropriate level.
- Be aware of new developments in input and output device technology.
- Be aware of the proper uses of all hardware and understand ways to enhance its efficiency and reliability.
- Understand the causes of “repeated use syndrome” and practise ergonomically correct use of all hardware. Know and practise exercises and procedures to prevent injury.
- Be able to solve hardware problems at a level appropriate to the situation.

### 3. Software use and care

- Understand and practise all aspects of safe, efficient file management.
- Use and adapt an operating system at a level appropriate to the school situation.
- Use productivity tools to enter, edit, manipulate and distribute information.
- Investigate, predict and test inferences by manipulating data through the use of appropriate software.
- Locate appropriate software on the World Wide Web and be able to download, install and test it in a manner that is appropriate to the school situation.
- Create a set of web pages incorporating sophisticated web page design techniques.

### 4. Social and Ethical Issues

- Understand mass media techniques and be able to make informed decisions based on critical awareness of media environment.
- Practise responsible use
  - ◆ demonstrate the ethical and legal use of digital resources

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- ◆ comply with current school or school division acceptable use policy and be able to analyze it and suggest improvements to it
  - ◆ respect intellectual property rights and provide proper referencing of all sources used in work
  - ◆ employ effective strategies to maintain personal safety in a digital environment, consider proactive measures to make the Internet a safer place.
- Social, Human and Environmental Issues:
    - ◆ assess and evaluate the impact of Information Communication Technology (ICT) on self, society, and the environment, including these topics:
      - privacy
      - communication styles
      - information accuracy
      - equity and access
      - consumer education about e-commerce
      - copyright obligations
      - technology related illness and addiction.
    - ◆ assess and evaluate the affect of ICT in the personal environment and the global community and consider ways to ameliorate the negative impacts of it.