

Introductory Information and Communication Technology (ICT) Learning Experiences

Summary

The Information and Communication Technology (ICT) Learning Experiences in this interdisciplinary unit introduce students to ICTs as they collaborate, solve problems, and listen, speak, read, write, view, and represent in the context of the Grade 6 curriculum in which they are currently working. These learning experiences (LEs) begin in at the start of a school year and allow students to develop skills they will use throughout the unit, as well as the rest of the school year.

The order in which teachers introduce the 12 ICTs in this section is flexible; however, since ICT.1: Toolbox Binder and ICT.2: Write This Down lay the groundwork for the rest of the section, they should be done first. Take the following into consideration when planning for the remaining ICTs:

- Assess the results of BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills to determine students' strengths, and start there. Using students' prior skills while making connections to new ICTs helps them as they acquire new skills.
- Evaluate curricular needs and use authentic opportunities that may arise daily to introduce an ICT. An offer to participate in an email exchange, for example, may be the incentive to teach ICT.3: Riddle This ahead of the planned schedule.
- Plan to introduce an ICT at a time when it can be practised often and regularly. Word processing should be used daily. Menus tend to be similar in most software, and once students are proficient at word processing, they will learn other ICTs faster and make useful connections about uses and functions.
- Introduce a new ICT only after students are familiar and comfortable with the ICT previously learned and have had several opportunities to practise it.
- Consider that some ICTs suggest that prior knowledge of a skill may be helpful in learning the new ICTs.
 - Conduct ICT.4: Looks Like This concurrently with ICT.1: Toolbox Binder.
 - Teach ICT.7: Caught in Action before students learn to insert photographs in ICT.8: Make Your Point.
 - Teach the Internet-related ICTs in the suggested order (ICT.9: Look for It: Learning to Search the Internet, ICT.10: Find It: Internet Scavenger Hunt, and ICT.11: Make It: Creating an Effective Web Page).

How can information and communication technology-based learning outcomes be assessed in the classroom?

Performance-based assessments that require students to use information technology to gather, organize, analyze, and communicate information can be used to assess information technology-based learning outcomes. A combination of self-assessment and peer and teacher assessment can be used (Manitoba Education and Training, *Technology As a Foundation Skill 13*).

Descriptions of the 12 ICT learning experiences follow.

(continued)

ICT Title	Estimated Time	ICT Overview
ICT.1: Toolbox Binder	40 minutes	Students assemble a single Toolbox Binder for their collaborative group. It contains all the information and communication technology (ICT) resources they need for ongoing support in their learning. Students apply the skills they acquired in OLE.1: Personal Binder Reminder to manage their group's Toolbox Binder. They also complete BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills to self-assess the level of their ICT skills.
ICT.2: Write This Down (Word Processing)	120 minutes	Students review word-processing skills they have previously acquired at school or at home, and become familiar with technical vocabulary and word-processing techniques they will use throughout the school year. Students learn to use the Help function of word-processing software and learn to write technical tips in a step-by-step manner similar to that of Help files.
ICT.3: Riddle This (Email)	240 minutes	Using anonymous email accounts, students are introduced to the email software application or web-based email used by the school, while participating in a riddle activity to learn about each other. Students practise creating and sending email messages, checking email, and reading and replying to messages.
ICT.4: Looks Like This (Graphics: Paint/Draw)	90 minutes	Students use a graphics program (such as a Draw or Paint program) to create and print title/cover pages for their group's Toolbox Binder (see ICT.1: Toolbox Binder). Throughout the school year, students continue to create images and graphics to illustrate their work, as well as creating electronic illustrations they can insert in multimedia presentations and on web pages.
ICT.5: Roam Your ROM (CD-ROMs)	150 minutes	Students become familiar with the use of the CD-ROM resources available in the class. They practise being mentors to one another while explaining the use of a specific CD-ROM resource.
ICT.6: Inspired (Concept Mapping)	150 minutes	Students use concept-mapping software to create a title page for their Personal OLE Binder or to organize information for a personal biography or a biography of a key pal.
ICT.7: Caught in Action (Digital Camera/ Video)	90 minutes	Students use a digital camera and/or still shots from a digital video camera to take a picture of themselves and to create an identity card.
ICT.8: Make Your Point (Multimedia)	150 minutes	Students create a short multimedia presentation about themselves (which becomes their Inventor's Profile), or they create a presentation about a research topic in any unit of study.

(continued)

ICT Title	Estimated Time	ICT Overview
ICT.9: Look for It: Learning to Search the Internet (Internet #1)	150 minutes	In this introductory Internet learning experience, students develop their understanding of the Internet, learn what they can expect to find on the World Wide Web, and learn how to search online effectively for pertinent, valid, and reliable information. Throughout the school year, they search and locate appropriate websites for their inquiries in science or social studies, as well as websites that support their investigations within this interdisciplinary unit. In the process of using primary and secondary sources, students develop information literacy skills.
ICT.10: Find It: Internet Scavenger Hunt (Internet #2)	90 minutes	In this learning experience (designed to follow ICT.9: Look for It: Learning to Search the Internet), students practise their searching skills as they find appropriate websites to support their investigations in science or social studies, or in this interdisciplinary unit. Each student selects a favourite website and creates a question to be used in an online scavenger hunt.
ICT.11: Make It: Creating an Effective Web Page (Internet #3)	120 minutes	In this learning experience (designed to follow ICT.9: Look for It: Learning to Search the Internet and ICT.10: Find It: Internet Scavenger Hunt), each collaborative group of students creates its own online scavenger hunt. They then create a class website on which they post their scavenger hunts, as well as other school work throughout the year.
ICT.12: Chart This (Spreadsheet)	90 minutes	Students use a spreadsheet to record and graph information about common characteristics, traits, and/or tastes of their classmates. This learning experience can be adapted to record and graph data from any current unit of study.

Toolbox Binder

ICT.1

TIME

40 minutes

OVERVIEW

Students assemble a single Toolbox Binder for their collaborative group. It contains all the information and communication technology (ICT) resources they need for ongoing support in their learning. Students apply the skills they acquired in OLE.1: Personal Binder Reminder to manage their group's Toolbox Binder. They also complete BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills to self-assess the level of their ICT skills.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 1.2.3 *Combine Ideas* — Search for ways to reorganize ideas and information to extend understanding.
- 3.1.4 *Create and Follow a Plan* — Create and follow a plan to collect and record information within a pre-established time frame.
- 3.3.1 *Organize Information* — Organize information and ideas using a variety of strategies and techniques [such as comparing and contrasting, classifying and sorting according to subtopics, sequences, order of priority or importance...].

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- concept mapping
- ethical use of technologies
- word processing

SUGGESTED LEARNING RESOURCES

Software

- word processing
- concept mapping
- spreadsheet

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM ICT.1#1: Overview of Introductory Information and Communication Technology (ICT) Learning Experiences

- BLM ICT.1#2: Toolbox Binder Checklist
- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills
- BLM ICT.1#4: How Was Our Group Work?
- BLM ICT.1#5: Group Work Reflection

Materials

- three-ring binder
- dividers
- lined loose-leaf paper and white paper

SUGGESTIONS FOR INSTRUCTION

- **Note:**
 - The Toolbox Binder that students will assemble is similar to the Personal OLE Binder they have already set up (see OLE.1: Personal Binder Reminder); however, each collaborative group prepares only one Toolbox Binder.
 - Teach this ICT at the same time as ICT.4: Looks Like This so that students can use graphics skills to enhance their Toolbox Binder.

Preparation and Set-up

- Ask students to complete BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills to assess the level of ICT skills of students in the classroom. This information will be helpful in planning which ICT learning experiences students will need to complete.

Activating Strategies

- Students complete BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills. This helps them to think about the ICT skills they already have and to set goals for improving those skills. It also helps them in their brainstorming of ICT categories.
- Explain that the purpose of the Toolbox Binder is to create one binder for each collaborative group so that students can refer to it for assistance as they use ICTs in class.
- Students brainstorm categories of ICT tools and support material to be included in the Toolbox Binder (e.g., email, spreadsheet, Internet). Add other categories that should be included. Give each group a copy of BLM ICT.1#1: Overview of Introductory Information and Communication Technology (ICT) Learning Experiences. Students read the BLM and ask pertinent questions.

Acquiring Strategies

- In collaborative groups, students assign various responsibilities for creating the Toolbox Binder. For example, individual students
 - jot down ideas for the titles of divider pages for each section
(These pages will be created on the computer with graphics software in ICT.4: Looks Like This.)
 - create a table of contents
(The list of contents can be created electronically using word-processing software or the Outline tool of concept-mapping software.)
 - assemble the binder
 Depending on the size of the group, some students may have more than one section to look after.
- Throughout the school year, the student responsible for an ICT section takes notes pertaining to that section and updates the Toolbox Binder accordingly, filling out BLM

ICT.1#2: Toolbox Binder Checklist in the process. Team members are responsible for bringing up points of interest that need to be included in each section of the binder. Some of these tips may come from other teams in the form of email through established distribution lists (see ICT.3: Riddle This).

Applying Strategies

- Students update their group's Toolbox Binder as they discover pertinent information on ICTs or as they complete a related task.

Variation/Extension

- When students have completed ICT.12: Chart This, they may use spreadsheet software to create a list of topics included in each section of the Toolbox Binder. The spreadsheet will allow them to alphabetize their list, thus creating an index. This skill will be helpful when creating an Electronic Collection (see OLE.10: Electronic Collection).

SUGGESTIONS FOR ASSESSMENT

- Observe students' interactions in their collaborative groups.
- Periodically review students' BLM ICT.1#2: Toolbox Binder Checklist and write comments in the space provided.
- Students use BLM ICT.1#4: How Was Our Group Work? to assess their work as a group.
- Students self-assess their work within the group, using BLM ICT.1#5: Group Work Reflection.

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- Students use the Toolbox Binder as a reference tool throughout the *Inventions, Innovations, and Discoveries* interdisciplinary unit and the whole school year.

BLM ICT.1#1: Overview of Introductory Information and Communication Technology (ICT) Learning Experiences

ICT Learning Experience	Overview
ICT.1: Toolbox Binder	Collaborate with your group to assemble a single Toolbox Binder that contains all the ICT resources you need for ongoing support in your learning.
ICT.2: Write This Down (Word Processing)	Review word-processing skills you have previously acquired at school or at home, and become familiar with technical vocabulary and word-processing techniques you will use throughout the school year. Learn to use the Help function of word-processing software and learn to write technical tips in a step-by-step manner similar to that of Help files.
ICT.3: Riddle This (Email)	Using anonymous email accounts, learn to use the email software application or web-based email used by your school, while participating in a riddle activity to learn about each other.
ICT.4: Looks Like This (Graphics: Paint/Draw)	Use a graphics program (such as a Draw or Paint program) to create and print title/cover pages for your group's Toolbox Binder (see ICT.1: Toolbox Binder). Throughout the school year, continue to create images and graphics to illustrate your work. Also create electronic illustrations for insertion in multimedia presentations and on web pages.
ICT.5: Roam Your ROM (CD-ROMs)	Become familiar with the use of the CD-ROM resources available in the class. Practise being mentors to your classmates while explaining the use of a specific CD-ROM resource.
ICT.6: Inspired (Concept Mapping)	Use concept-mapping software to create a title page for your Personal OLE Binder or to organize information for a personal biography or a biography of a key pal.
ICT.7: Caught in Action (Digital Camera/ Video)	Use a digital camera and/or still shots from a digital video camera to take a picture of yourself and to create an identity card.
ICT.8: Make Your Point (Multimedia)	Create a short multimedia presentation about yourself or about a research topic in any unit of study.
ICT.9: Look for It: Learning to Search the Internet (Internet #1)	In this introductory Internet learning experience, you learn what you can expect to find on the World Wide Web, and learn how to search online effectively for pertinent, valid, and reliable information. Throughout the school year, search and locate appropriate websites for your inquiries in science or social studies, as well as websites that support your investigations within this interdisciplinary unit.
ICT.10: Find It: Internet Scavenger Hunt (Internet #2)	In this learning experience (designed to follow ICT.9: Look for It: Learning to Search the Internet), practise your searching skills as you find appropriate websites to support your investigations in science or social studies, or in this interdisciplinary unit. Select a favourite website and create a question to be used in an online scavenger hunt.
ICT.11: Make It: Creating an Effective Web Page (Internet #3)	In this learning experience (designed to follow ICT.9: Look for It: Learning to Search the Internet and ICT.10: Find It: Internet Scavenger Hunt), create an online scavenger hunt with your collaborative group. Then create a class website on which you post your group's scavenger hunt, as well as other school work throughout the year.
ICT.12: Chart This (Spreadsheet)	Use a spreadsheet to record and graph information about common characteristics, traits, and/or tastes of your classmates.

BLM ICT.1#2: Toolbox Binder Checklist

Collaborative Group Members _____

Section Title (e.g., Illustrate This) _____

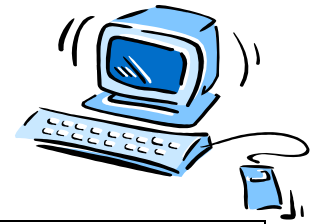
Additions to Toolbox Binder Section	Date Added	Page Number	Added to Section's Table of Contents
<i>Example:</i> Insert a web picture.	Sept. 28	3	✓

Each time you make an addition to a section of the Toolbox Binder, ask for teacher comments.

Teacher Comments	Date

BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills

Name _____ Date _____



Computer and Internet Access	Yes	No
• I have a computer at home.		
• I have Internet access on my computer.		

Self-Assessment of ICT Skills	
Circle the letter that best describes your skill level in each of the following ICT areas. If the level does not describe your skill exactly, then circle the one closest to it.	Write down one skill you are good at and can help others with.
1. Basic Computer Operation a. I do not use a computer. b. I use a computer to play games or to look up songs or movies on the Internet. c. I can set up my computer, load software, print, and use most of the operating system tools. I can run two programs at the same time.	
2. File Management a. I do not save any files I create using the computer. b. I save files I have created but I cannot always find them. I do not know how to copy files to a floppy disk. c. I have a filing system for organizing my files and can locate files quickly and reliably. I back up my files regularly.	
3. Word Processing a. I do not use a word processor. b. I occasionally use a word processor for simple documents. I am not sure how to make the documents look attractive. c. I use a word processor to present projects. I can edit, spell-check, and change the format of a document.	
4. Email a. I do not use electronic mail. b. I occasionally send email to family or key pals. c. I use email to request information and I check and use my email account regularly.	
5. Graphics a. I do not use graphics in my word processing or presentations. b. I can open and create simple graphics with Paint and Draw programs or with the Draw tool of my word processor. c. I use both clip art and simple original graphics in my word-processed documents. I can use most Draw tools.	

(continued)

Self-Assessment of ICT Skills (continued)	
<p>6. Concept Mapping</p> <p>a. I have never created an electronic concept map.</p> <p>b. I have created an electronic concept map using various symbols and links. I can work with the Outline View of my concept map.</p> <p>c. I have used an electronic concept map to present ideas. I can “adopt” other concept maps into my own. I can insert Internet links into my concept map.</p>	
<p>7. Digital Camera or Video Camera</p> <p>a. I have never used a digital camera or a digital video camera.</p> <p>b. I am able to connect a digital camera to a VCR and television to transfer a video clip. I can connect a digital camera to a computer and download digital images and video.</p> <p>c. I have used video-editing software to clip and sequence video. I am able to paste stills and capture video into multimedia presentations and/or web pages.</p>	
<p>8. Multimedia</p> <p>a. I have not created my own multimedia presentation.</p> <p>b. I have created a simple multimedia presentation using text and graphics.</p> <p>c. I have authored multimedia presentations that include actions, animations, audio, and video.</p>	
<p>9. Web Browser Operation and Internet Research</p> <p>a. I do not use the Internet.</p> <p>b. I can use the Internet to access songs, movie trailers, or information about a favourite celebrity.</p> <p>c. I can use the Internet to find information for research projects.</p>	
<p>10. Web Page Creation</p> <p>a. I have never created a web page.</p> <p>b. I have created simple web pages using a web editor.</p> <p>c. I have designed and created web pages using HTML and uploaded them to the Internet.</p>	
<p>11. Spreadsheet</p> <p>a. I do not use a spreadsheet.</p> <p>b. I understand the use of a spreadsheet and can navigate within one. I can create a simple spreadsheet that adds a column of numbers.</p> <p>c. I have used a spreadsheet for several purposes, including simple database applications. I can add labels, formulas, and cell references, and can change column widths and text style. I can make a simple graph or chart.</p>	

BLM ICT.1#4: How Was Our Group Work?

Name _____ Date _____

Group Members _____

Assessment of Group Work	Yes	No
• We contributed ideas.		
• We listened to others.		
• We asked questions.		
• We encouraged others.		
• We disagreed politely.		
• We stayed on task.		
• We paraphrased others' ideas.		
• We elaborated on others' ideas.		
• We summarized our ideas.		
• We reflected on our progress in group work.		

Reflection on Group Work
<p>In our group, we did very well in:</p> <ul style="list-style-type: none"> • • • • <p>Our goals for the next time are:</p> <ul style="list-style-type: none"> • • • • <p>The steps we need to take to reach our goals are:</p> <ul style="list-style-type: none"> • • • • <p>The resources (whom and what) we need to achieve our goals are:</p> <ul style="list-style-type: none"> • • • •

How Was Our Group Work? Adapted from *Grades 5 to 8 English Language Arts: A Foundation for Implementation* (Manitoba Education and Training BLM-39).

BLM ICT.1#5: Group Work Reflection

Name _____ Date _____

1. Give two examples from your work showing that you and your group were on task.

2. If your group was off task, tell what happened.

If your group was always on task, skip questions 2 and 3.

3. What did you or your group do to get back on task? Did it work?

4. How would you rate your group's work today?

↑	↑	↑	↑	↑
Great! Right on task.		On task most of the time.		Off task most of the time.
↓	↓	↓	↓	↓

Group Work Reflection: Adapted from *Grades 5 to 8 English Language Arts: A Foundation for Implementation* (Manitoba Education and Training BLM-40).

Write This Down (Word Processing)

ICT.2

TIME

120 minutes

OVERVIEW

Students review word-processing skills they have previously acquired at school or at home, and become familiar with technical vocabulary and word-processing techniques they will use throughout the school year. Students learn to use the Help function of word-processing software and learn to write technical tips in a step-by-step manner similar to that of Help files.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 2.3.3 *Vocabulary* — Experiment with ambiguity in language [such as puns, jokes based on multiple meanings, poetry...] in a variety of contexts.
- 2.3.4 *Experiment with Language* — Alter words, forms, and sentence patterns to create new versions of texts for a variety of purposes [such as humour...]; explain ways in which figures of speech [such as similes, metaphors...] clarify and enhance meaning.
- 2.3.5 *Create Original Texts* — Create original texts [such as letters, short stories, media broadcasts, plays, poems, video presentations, Readers Theatre...] to communicate and demonstrate understanding of forms and techniques.
- 4.2.1 *Appraise Own and Others' Work* — Share own stories and creations at appropriate times during revision and use criteria to provide feedback for others and to revise and assess own work and presentations.
- 4.2.2 *Revise Content* — Revise to eliminate unnecessary information.
- 4.3.1 *Grammar and Usage* — Edit for subject-verb agreement, appropriate verb tense, and correct pronoun references.
- 4.3.2 *Spelling* — Know and apply spelling conventions using appropriate strategies. [including structural analysis, syllabication, and visual memory] and spelling patterns when editing and proofreading; use a variety of resources to determine the spelling of common exceptions to conventional spelling patterns.
- 4.3.3 *Punctuation and Capitalization* — Know and apply capitalization and punctuation conventions in compound sentences, titles, headings, salutations, and addresses when editing and proofreading.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- ethical use of technologies
- word processing

SUGGESTED LEARNING RESOURCES**Software**

- word processing

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools
- Manitoba Education and Training. *Grades 5 to 8 English Language Arts: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 1998. (See Grade 6-338.)

BLMs

- BLM OLE.4#6: Reading Circle Response Log
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?
- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills

TBLM

- TBLM ICT.2#1: Skill Know-How Checklist

Materials

- Read-Me files or online Help available for the software application
- chart paper

SUGGESTIONS FOR INSTRUCTION**Preparation and Set-up**

- Become familiar with the word-processing software available in the class. If the class computers are linked to the Intranet, determine how students will save their files throughout the school year.
- Become familiar with the Help function of the word-processing software.

Activating Strategies

- **Note:**
 - The purpose of this LE is to review word-processing skills that students have likely acquired in previous years at school, or at home on their own. Students need to become familiar with a common vocabulary and technical terms to facilitate their work at the computer and enable better communication within the class. It is also helpful when all students perform certain computer-related tasks in a similar manner.
 - Students should have as many opportunities as possible to compose at the computer to take full advantage of features of a word processor, such as Cut, Copy, Paste, Delete, Tabs, and Indents. Consider setting up rotation schedules at the computer indicating the times when students are expected to produce a written product, thereby allowing all students opportunities to practise word-processing skills in a meaningful context.
- Ask students to share how-to information with the class, such as how to use word-processing functions and tools (e.g., Tabs, Indents, Copy and Paste, Bullets). Students describe the skill using the class computer and projection system. Using TBLM ICT.2#1: Skill Know-How Checklist, take note of the students who are experts and those who are not familiar with the skill being reviewed.
- Review appropriate vocabulary during the presentations, and make a list of technical terms on chart paper. Post the list in the classroom and add to it periodically. Tell students that using appropriate terms is essential when looking up information about a program in Help files, in technical manuals, or on websites.

- Review the database of students' ICT skills, as expressed on BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills, to identify possible student helpers for ICT.2: Write This Down.
- Customize TBLM ICT.2#1: Skill Know-How Checklist for this ICT to make ongoing observations of students' skills.

Acquiring Strategies

- Pull up the Help file from the main menu. Ask students to comment on what they see. They should be able to
 - note the organizational structure such as a table of contents and an index, as in a book
 - note the use of precise and concise language
 - identify bulleted lists
- Use one of the skills described by students as a search term to introduce the Help function of the word-processing software. Describe the step-by-step approach. Ask students to identify technical terms used and have them add the terms to chart paper.
- Use BLM OLE.4#6 Reading Circle Response Log to review a few signal and transition words. For a more elaborate list, categorized by function, consult *Grades 5 to 8 English Language Arts: A Foundation for Implementation* (Manitoba Education and Training, Grade 6-338).
- Based on observations made with TBLM ICT.2#1: Skill Know-How Checklist, identify students who can act as mentors for classmates who have no prior word-processing experience.

Applying Strategies

- Students create a section in their group's Toolbox Binder where the group member responsible for each software application files Help tips for that application.
- Students compose a Help tip for a word-processing skill with which they are familiar. Using the Think-Pair-Share strategy, students exchange tips with a partner and try each other's tips by following the written directions. Students improve on their text, print it, and place it in the group's Toolbox Binder.

Variations/Extensions

- Students use the word processor to write Help tips for word-processing software or any other application. They file these tip-sheets in the appropriate sections of the Toolbox Binder.
- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home the journals each week.

SUGGESTIONS FOR ASSESSMENT

- Review the text of each student's Help tip for appropriate use of signal and transition words.
- Assess the applications of this ICT in this interdisciplinary unit through performance assessment; that is, assess how well students can use the word processor in each LE.
- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- Students write step-by-step instructions in Mod.2.3: Rube Goldberg. Students use word-processing skills to set up lists, tables, or invitations, as well as to compose and write reports on the computer.

TBLM ICT.2#1: Skill Know-How Checklist

Key 4 = Expert 3 = Able 2 = Hesitant 1 = Doesn't Know	Student Name														
Word-Processing Skill															
• Create tabs															
• Copy and paste															
• Use bulleted lists															
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•															
Comments															

This page is best printed landscape style on legal-size paper. More columns may be added as needed.

Riddle This (Email)

ICT.3

TIME

240 minutes

OVERVIEW

Using anonymous email accounts, students are introduced to the email software application or web-based email used by the school, while participating in a riddle activity to learn about each other. Students practise creating and sending email messages, checking email, and reading and replying to messages.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 3.1.2 *Ask Questions* — Formulate relevant questions to focus information needs for an inquiry.
- 3.2.5 *Make Sense of Information* — Use organizational patterns of oral, visual, and written texts [including main ideas and supporting details, explanation, comparison and contrast, cause and effect, and sequence] to construct meaning; skim, scan, and read closely to gather information.
- 3.3.1 *Organize Information* — Organize information and ideas using a variety of strategies and techniques [such as comparing and contrasting, classifying and sorting according to subtopics, sequences, order of priority or importance...].
- 4.2.1 *Appraise Own and Others' Work* — Share own stories and creations at appropriate times during revision and use criteria to provide feedback for others and to revise and assess own work and presentations.
- 4.4.1 *Share Ideas and Information* — Share information on a topic with class members in a planned and focused group session using a variety of strategies [such as interactive dialogues, demonstrations, dramatizations, audiovisual and artistic representations...].

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- communicating electronically
- ethical use of technologies

SUGGESTED LEARNING RESOURCES

Software

- email

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

Internet

- IMYM Links Database: <<http://www.edu.gov.mb.ca/ks4/tech/imym/resources/links.html>>
- Searching the Internet using the terms “free email for students” will return useful hits.

BLMs

- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills
- BLM ICT.3#1: Planning Identity Clues
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?

TBLM

- TBLM ICT.2#1: Skill Know-How Checklist

Materials

- Read-Me files or online help available for the software application

SUGGESTIONS FOR INSTRUCTION**Preparation and Set-up**

- Become familiar with the email software installed on the class computers, or with a web-based email provider such as GaggleNet (designed for student use), MSN Hotmail, or Yahoo! Mail.
- Ask a technical support person to set up anonymous email accounts.
Suggestion: Set up a student username that includes the following: school initials, room number, and teacher-assigned student number. For example, Sir John A. Macdonald Middle School, Room 13, Student 21 could be set up as “SJM13-21.”
- If no email software is available, free email accounts can be set up for students using web-based providers. To protect their privacy, students should use a code name, their student number, or an alias such as “SJM13-21.”
- Review the database of students’ ICT skills, as expressed on BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills, to identify possible student helpers for ICT.3: Riddle This.
- Customize TBLM ICT.2#1: Skill Know-How Checklist for this ICT to make ongoing observations of students’ skills.

Activating Strategies

- Discuss students’ previous experiences with electronic mail. Students may not have had a personal experience but may have knowledge of email through parents or friends, or through the media.
- Demonstrate how the email program works, or ask a student who is familiar with it to demonstrate it. Point out similarities with word processing and other programs students are already using.
- Distribute papers randomly with anonymous email usernames. Keep a master list.
- Brainstorm examples of effective clues for riddle messages. Students each make up a hard clue, a medium-hard clue, and an easy clue about themselves or about a character whose identity they are assuming and with whom all students are familiar (e.g., a character from a fairy tale, novel, television show).

Acquiring Strategies

- **Note:** Each student is both a student-sender and a student-receiver, thus gaining experience in sending and receiving email messages.
- Each student-sender emails a hard clue to the anonymous student-receiver whose email username is on the paper provided. The purpose is for the receiver to guess the identity (real or fictitious) of the sender. Students fill out BLM ICT.3#1: Planning Identity Clues and give a copy to the teacher for safekeeping. (If a student is away at the time set for email exchange, the teacher could assume that student's identity based on BLM ICT.3#1: Planning Identity Clues).
- Receivers reply to their respective senders, specifying their guess as to who sent the clue.
- Senders reply in the affirmative if their identity was guessed correctly, or forward the medium-hard clue if the guess was incorrect. This exchange continues, with senders forwarding the easy clue if needed.
- When senders confirm their identity by responding with an email, they send a copy to the teacher. The teacher keeps a list as all students' identities are found.
- Senders use a signature with their last message confirming their identity. Teach students what a student-appropriate signature should contain. As a safety issue, students should use first name and initial of last name only, room number, and school name and address. (No information identifying an individual should be included.)

Applying Strategies

- Students participate in email exchanges with each other, their teacher, and students in other classes in their own school or elsewhere in the world.
- Students email an "expert" to obtain feedback about their work or to get specific information needed to complete an assignment on a topic they are currently studying in class.
- Students set up distribution lists with all students in the class and ICT distribution lists with the name of the student from each collaborative group responsible for updating ICTs in their group's Toolbox Binder (see ICT.1: Toolbox Binder).

Variations/Extensions

- Students write the biography of a classmate, collecting information by email.
- Using the email attachment feature, students send a personal text to a classmate for comments.
- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home their journals each week.

SUGGESTIONS FOR ASSESSMENT

- Check whether each student was able to guess the identity of his or her unknown classmate.
- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Assess the applications of this ICT through the LEs in this interdisciplinary unit.

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- Students use email to research, share, and request information and feedback. For example, students participate in an email exchange with another class, collect biographical information from a key pal, and write a biography of the key pal, in preparation for Mod.2.2: Biography of an Inventor or a Scientist.
- Students contact experts who may be able to help with their invention.

BLM ICT.3#1: Planning Identity Clues

Name _____ Date _____

Use the chart below to plan clues for the email exchange.

Character	Hard Clue	Medium-Hard Clue	Easy Clue
<i>Example:</i> <ul style="list-style-type: none"> Jack and the Beanstalk 	<ul style="list-style-type: none"> I am a thief. 	<ul style="list-style-type: none"> I am not afraid of heights or giants. 	<ul style="list-style-type: none"> I like to climb beanstalks.
<ul style="list-style-type: none"> Tim Smith 	<ul style="list-style-type: none"> My mom calls me "Honey" at home. 	<ul style="list-style-type: none"> I don't like hot dogs. 	<ul style="list-style-type: none"> I have red hair.

Looks Like This (Graphics: Paint/Draw)

ICT.4

TIME

90 minutes

OVERVIEW

Students use a graphics program (such as a Draw or Paint program) to create and print title/cover pages for their group's Toolbox Binder (see ICT.1: Toolbox Binder). Throughout the school year, students continue to create images and graphics to illustrate their work, as well as creating electronic illustrations they can insert in multimedia presentations and on web pages.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 2.3.5 *Create Original Texts* — Create original texts [such as letters, short stories, media broadcasts, plays, poems, video presentations, Readers Theatre...] to communicate and demonstrate understanding of forms and techniques.
- 4.2.3 *Enhance Legibility* — Write legibly and at a pace appropriate to context and purpose when composing and revising; select and use a variety of formatting options [such as spacing, graphics, titles and headings, variety of font sizes and styles...] when appropriate.
- 4.2.5 *Enhance Presentation* — Prepare detailed and organized compositions, presentations, reports, and inquiry or research projects using templates or pre-established organizers.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- educational software
- graphics creation

SUGGESTED LEARNING RESOURCES

Software

- graphics

Internet

- IMYM Links Database: <<http://www.edu.gov.mb.ca/ks4/tech/imym/resources/links.html>>

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills

- BLM ICT.4#1: Title/Cover Page Checklist
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?

TBLM

- TBLM ICT.2#1: Skill Know-How Checklist

Materials

- variety of informational texts
- plastic sleeves for cover pages

SUGGESTIONS FOR INSTRUCTION

- **Note:**
 - Conduct ICT.4: Looks Like This concurrently with ICT.1: Toolbox Binder.
 - Students should use a Draw or Paint program to create their own graphics, or confine themselves to using clip art that is part of their graphics program already installed on their computers. However, if students choose to use clip art from the Internet, they should use only websites that give explicit permission to copy images. Review with students TBLM ICT.9#2: Acceptable Use of Copyrighted Electronic Resources.

Preparation and Set-up

- Become familiar with the functions of the graphics program installed on the class computers.
- On the class computers, set up Bookmarks or Favourites of websites that give explicit permission to copy images, or place them as links on the class or school website.
- Create a sample illustration to use in demonstrating the graphics program.
- Review the database of students' ICT skills, as expressed on BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills, to identify possible student helpers for ICT.4: Looks Like This.
- Customize TBLM ICT.2#1: Skill Know-How Checklist for this ICT to make ongoing observations of students' skills.
- For a few days, set up the class computers as Graphics Learning Centres, where students can practise the skills they will acquire in this LE.

Activating Strategies

- In collaborative groups, students examine the covers of informational texts assembled for this interdisciplinary unit or other books used in a current unit of study. Students note
 - the proportion between size of print and size of illustration
 - the relationship between the illustration and the title (i.e., the illustration should be representative of the content)
 - the type of information provided on the title page or cover (i.e., title of book, name of author, illustration, publisher, year of publication)
- Using a computer and a projection system, demonstrate some of the features of the Draw or Paint program, pointing out similarities with other software with which students are familiar (e.g., selecting, formatting, cutting and pasting).

Acquiring Strategies

- In collaborative groups, students review the features of the graphics program previously introduced and practise using them by taking turns at the Graphics Learning Centres.

- As students discover how to use other features of the graphics program, invite them to use the class computer and projection system to share their learning with the class (see OLE.5: Share the Learning). Students can then practise at their learning centres.

Applying Strategies

- Using the ideas for title/cover pages they jotted down in ICT.1: Toolbox Binder, each collaborative group of students creates a computer-generated version of their design. The title/cover page should include
 - the title or name of a given section of the Toolbox Binder
 - the names of the collaborative group members
 - the name of the student in charge of the section
 - the date on which the section is created
 - a clip art image representative of the section (see TBLM ICT.9#2: Acceptable Use of Copyrighted Electronic Resources)
 - an original image made by the group member in charge of the section using the graphics software

The reporting student uses BLM ICT.4#1: Title/Cover Page Checklist to ensure all required elements are present and hands it to the teacher. That title/cover page is printed and inserted in the group's Toolbox Binder.

- Provide students with clear plastic sleeves and have them insert their cover pages. Students post the pages around the classroom and go on a Gallery Walk.
- In a class discussion, the artist who created a title/cover page shows it to the class. Students ask questions related to the text and graphics used for each title/cover page, such as how a certain effect was achieved. Each group member in charge of the ICT.4: Looks Like This section of the Toolbox Binder takes notes about the graphics software to include in the binder.

Variations/Extensions

- Discuss the ongoing use of graphics to enhance multimedia presentations and web pages. Students consider the benefits of self-generated images versus clip art images (e.g., artistic value, one-of-a-kind value, copyright permission—see TBLM ICT.9#2: Acceptable Use of Copyrighted Electronic Resources).
- Groups of students work collaboratively to create a group logo and motto.
- Create a class logo and a mission statement. After the class has agreed on selection criteria, each student contributes a design. Students go on a Gallery Walk to view all the designs and then vote for the best one, based on the pre-established selection criteria. They post the chosen design on the class website, which they will set up in ICT.11: Make It: Creating an Effective Web Page.
- Each student designs a bookmark that includes an appropriate illustration and an invention-related quote they found on the Internet (e.g., "Accident is the name of the greatest of all inventors," by Mark Twain). (See ICT.9: Look for It: Learning to Search the Internet.)
- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries skills. They use their journals to prepare for sharing sessions and bring home the journals each week.

SUGGESTIONS FOR ASSESSMENT

- Look for students' creative use of the Draw tools, appropriate page set-up, presence of all required elements, scale and colour, and degree of imagination shown in the contents selection. Check each group's BLM ICT.4#1: Title/Cover Page Checklist and provide written comments in the appropriate space.

- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Assess the application of this ICT when students illustrate their work in this interdisciplinary unit.

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- Students illustrate their invention and create invitations, posters, logos, advertisements, pamphlets, and more.
- Assess the application of this ICT when students illustrate their invention in this interdisciplinary unit.

BLM ICT.4#1: Title/Cover Page Checklist

Names of Group Members _____

Section of Toolbox Binder _____ Date _____

Check whether all the elements listed below are present.

Title/Cover Page for Section of Toolbox Binder	Student ✓	Teacher ✓
Contents of the Title/Cover Page		
• title (name of the section of the Toolbox Binder)		
• names of group members		
• name of student in charge of the section		
• date created		
• clip art image representative of the section		
• original image made by team member in charge of the section (using graphics software)		
Required Elements		
• scale		
• colour		
• use of drawing tools		
• page set-up		
Student Comments		
Teacher Comments		

Roam Your ROM (CD-ROMs)

ICT.5

TIME

150 minutes

OVERVIEW

Students become familiar with the use of the CD-ROM resources available in the class. They practise being mentors to one another while explaining the use of a specific CD-ROM resource.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 1.1.2 *Consider Others' Ideas* — Select from others' ideas and observations to develop thinking and understanding.
- 1.2.3 *Combine Ideas* — Search for ways to reorganize ideas and information to extend understanding.
- 2.1.2 *Comprehension Strategies* — Use comprehension strategies [such as asking questions, making notes, adjusting reading rate...] appropriate to the type of text and purpose [including summarizing, outlining, remembering ideas, and responding personally].
- 3.1.3 *Contribute to Group Inquiry* — Contribute to group knowledge of topics to help identify and focus information needs, sources, and purposes for group inquiry or research.
- 5.2.1 *Cooperate with Others* — Assist group members to maintain focus and complete tasks; identify and solve group process issues.
- 5.2.4 *Evaluate Group Process* — Assess own contributions to group process, set personal goals for enhancing work with others, monitor group process using checklists, and set group goals.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- educational software
- ethical use of technologies
- graphics creation
- word processing

SUGGESTED LEARNING RESOURCES

Software

- at least five different CD-ROMs appropriate for reference (including an electronic encyclopedia) or to support this interdisciplinary unit or any other unit of study
- graphics

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills
- BLM ICT.5#1: Group Assessment of CD-ROM Poster
- BLM ICT.5#2: Assessing the Technical Features of a CD-ROM
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?

TBLM

- TBLM ICT.2#1: Skill Know-How Checklist

Materials

- poster or chart paper
- glue
- pencils, markers, rulers, crayons

SUGGESTIONS FOR INSTRUCTION**Preparation and Set-up**

- Review the database of students' ICT skills, as expressed on BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills, to identify possible student helpers for ICT 5: Roam Your ROM.
- Customize TBLM ICT.2#1: Skill Know-How Checklist for this ICT to make ongoing observations of students' skills.
- Set up an area or a corner of the classroom as a Resources Learning Centre for resources that will be used through the year. The class CD-ROMs and accompanying "how-to" posters can be stored there.

Activating Strategies

- Brainstorm sources that students use regularly to find information (e.g., books, magazines, newspapers, encyclopedias, television programs, Internet sites). Ensure that CD-ROMs are added to the list.
- Ask students what they know about the contents of CD-ROMs (e.g., some contain music, computer programs, encyclopedias, games).
- Students identify various categories into which CD-ROMs can be organized (e.g., entertainment—such as music and games; learning—such as encyclopedias and educational programs). List the common attributes of learning CD-ROMs (e.g., search menus, navigation buttons).

Acquiring Strategies

- In collaborative groups (or in groups created to match the number of different CD-ROMs available), students browse a CD-ROM assigned to their group. They decide on the roles of each group member for a given task.
- Students investigate the features of their CD-ROM by
 - opening each icon
 - following the paths
 - navigating using the arrows, buttons, or hyperlinks
 - finding shortcuts
 - discovering the purpose of each section of the CD-ROM

- They note their findings on BLM ICT.5#2: Assessing the Technical Features of a CD-ROM.
- Students also discover how to collect information, if applicable, by
 - copying and saving text in a word-processing file
 - saving work done on the CD-ROM
 - copying and saving images (see BLM ICT.9#2: Acceptable Use of Copyrighted Electronic Resources)
- Each time students collect information from a different CD-ROM, they record a bibliographical note in the appropriate section of BLM Mod.1.3a#4: Recording Bibliographical Notes. Show students how to record their bibliography (see TBLM Mod.1.3a#2: Making a Bibliography).
- Each group drafts a poster to assist future users of their assigned CD-ROM. Students take notes of their assessment of the CD-ROM, decide what information and directions the poster will contain, and determine how it will be organized. They assign roles for writing, illustrating, and poster layout or set-up.
- Students place their posters with the applicable CD-ROMs in a Resources Learning Centre.

Applying Strategies

- Form new groups that include one member from each of the previous groups.
- Students rotate through the learning centres, sampling each CD-ROM while following the directions on the accompanying poster. The group member who previously used and assessed the CD-ROM becomes a mentor or answers questions at the corresponding learning centre, as needed.
- Each group fills out BLM ICT.5#1: Group Assessment of CD-ROM Poster. When all forms have been handed in, fill out the Teacher Comments and Suggestions box and cut off the evaluators' names at the top of the form.
- Students return to their original groups and finalize their CD-ROM posters, taking into consideration the comments and suggestions made by classmates. Students use graphics software to create the final copy of their CD-ROM posters (see ICT.4: Looks Like This).

Variations/Extensions

- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home their journals each week.

SUGGESTIONS FOR ASSESSMENT

- Students use BLM ICT.5#1: Group Assessment of CD-ROM Poster to give feedback on the CD-ROM posters.
- Review students' redesigned posters to assess the effectiveness of incorporating comments and suggestions from peers into the final posters.
- Observe interrelations and group work as students rotate through the Resources Learning Centres.
- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Assess student performance in this interdisciplinary unit as students demonstrate their ability to collect the information they need from the CD-ROM sources in the class.

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- As students create their CD-ROM posters, they experience planning for an oversize format and working in collaborative groups. This provides practice in preparation for the advertising posters they will create in the *Inventions, Innovations, and Discoveries* interdisciplinary unit.
- The effectiveness of ICT.5: Roam Your ROM is measured in students' use of CD-ROMs to find information throughout the school year.

BLM ICT.5#1: Group Assessment of CD-ROM Poster

Evaluation Group Members _____

Name of CD-ROM _____ Date _____

Assess the effectiveness of the CD-ROM poster elements. Make comments describing something done well or suggest how the poster could be improved to make it a more helpful user tool.

Rating Scale: 3 = Excellent 2 = Good 1 = Needs Work

CD-ROM Poster Criteria	Rating			Comments and Suggestions
	3	2	1	
Content				
• All necessary information is present.				
• The purpose of sections is explained.				
• Directions for use of CD-ROM are clear and accurate.				
Illustrations				
• Illustrations are clear and accurate.				
• Artwork supports the text.				
Organization				
• Information is presented in appropriate groupings.				
• Proportions of text and illustrations are appropriate.				
• Flow chart is used to illustrate information-accessing procedures.				
Teacher Comments and Suggestions				

BLM ICT.5#2: Assessing the Technical Features of a CD-ROM

Evaluation Group Members _____

Name of CD-ROM _____ Date _____

Feature	Yes	No	Comments
• Launch time is acceptable.			
• Launch can be speeded up or bypassed.			
• Contents of the CD-ROM are listed in Table of Contents.			
• User options appear as pictograms — in list form — scattered on the screen			
• Operating system menu bar is available on screen.			
• Allows user to switch back and forth to another application to write notes.			
• Quitting instructions are clear.			
• Allows user to quit any time, without first having to finish a section.			
• Help file is readily available.			
• Navigation bar is included within the program (i.e., back/forward buttons, menu).			
• Content includes — mainly text — sound clips — video clips — images — maps — timelines			
• Other support — glossary — hyperlinks to Internet			
Identify the best feature of this CD-ROM. Explain.			
Identify a useless or annoying feature of this CD-ROM (if applicable). Explain.			
Identify a feature that could make this CD-ROM more user-friendly. Explain.			

Inspired (Concept Mapping)

ICT.6

TIME

150 minutes

OVERVIEW

Students use concept-mapping software to create a title page for their Personal OLE Binder or to organize information for a personal biography or a biography of a key pal.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 3.3.1 *Organize Information* — Organize information and ideas using a variety of strategies and techniques [such as comparing and contrasting, classifying and sorting according to subtopics, sequences, order of priority or importance...].
- 3.3.2 *Record Information* — Make notes on a topic, combining information from more than one source; reference sources appropriately.
- 4.1.2 *Choose Forms* — Select specific forms [such as diaries, narratives, speeches, letters, poetry, mime...] that serve particular audiences and purposes.
- 4.1.3 *Organize Ideas* — Adapt models from listening, reading, and viewing experiences to enhance own oral, written, and visual texts using organizational patterns [such as stanzas, chronological order, paragraphs...].

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- communicating electronically
- concept mapping

SUGGESTED LEARNING RESOURCES

Software

- concept mapping

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills
- BLM ICT.6#1: Sample Title Page for Personal OLE Binder
- BLM ICT.6#2: Sample Biography Web
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?

TBLMs

- TBLM ICT.2#1: Skill Know-How Checklist
- TBLM ICT.6#1: Concept-Mapping Skills Checklist

SUGGESTIONS FOR INSTRUCTION**Preparation and Set-up**

- Become familiar with the concept-mapping software installed on the class computers.
- Create a sample concept map to show students when beginning the Activating Strategies (or use BLM ICT.6#1: Sample Title Page for Personal OLE Binder or BLM ICT.6#2: Sample Biography Web).
- Choose either of the following learning experiences (discussed below):
 - Title Page Concept Map
 - Biography Concept Map
- Review the database of students' ICT skills, as expressed on BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills, to identify possible student helpers for ICT.6: Inspired.
- Customize TBLM ICT.2#1: Skill Know-How Checklist for this ICT to make ongoing observations of students' skills.

TITLE PAGE CONCEPT MAP**Activating Strategies**

- Discuss the need to organize information and to display it in a manner that makes sense. Brainstorm examples of organized information (e.g., lists, tables of contents, indexes, dictionaries, telephone directories, encyclopedias).
- Examine title pages from various informational resources. List common items found on all title pages. Note the page set-up, such as the location of the name(s) of author(s) or editor(s), the title of the publication, and the publisher, and note the size of lettering for each item of information provided.
- Using a computer and a projection system, introduce the concept-mapping software. Show the sample concept map previously created (see Preparation and Set-up). Model how the concept-mapping software works by remaking the sample concept map step-by-step. Point out similarities with word processing and other programs students are already using.

Acquiring Strategies

- In collaborative groups, students decide what their concept map should look like. They discuss possible images to represent each category in their concept map.
- Students agree on a rotation of roles in their collaborative group so that all group members have an opportunity to practise using the concept-mapping software.

Applying Strategies

- Students create their concept map. They print a copy for each group member, ensuring that the name on the page is customized for each member.

BIOGRAPHY CONCEPT MAP**Activating Strategies**

- Discuss the need to organize information and to display it in a manner that makes sense. Brainstorm examples of organized information (e.g., lists, tables of contents, indexes, dictionaries, telephone directories, encyclopedias).

- Examine tables of contents from biographies. List recurring themes that could apply to the lives of students (e.g., childhood, school, activities).
- Using a computer and a projection system, introduce the concept-mapping software. Show the sample concept map previously created (see Preparation and Set-up). Model how the concept-mapping software works by remaking the sample concept map step-by-step. Point out similarities with word processing and other programs students are already using.

Acquiring Strategies

- Students list important events in their lives. They identify two or three that occur at different stages of life (e.g., infancy, pre-school, Early Years, Middle Years).
- Students think of at least three categories in which the events can be organized.
- Students brainstorm more events, if needed, so that each category contains at least three events.

Applying Strategies

- Students create a concept map using concept-mapping software, and organize their biographical information in previously created categories.
- Students export their biographical concept map and include it on the title page of their Electronic Collection (see OLE.10: Electronic Collection).

Variations/Extensions

- Students use biographical information noted from email exchanges with a classmate or a key pal (see ICT.3: Riddle This) to create a concept map. They continue their correspondence, seeking more information, as needed, to complete a concept map.
- Students use a digital camera (see ICT.7: Caught in Action) to take photographs of themselves and include these in their biographical concept map.
- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home their journals each week.

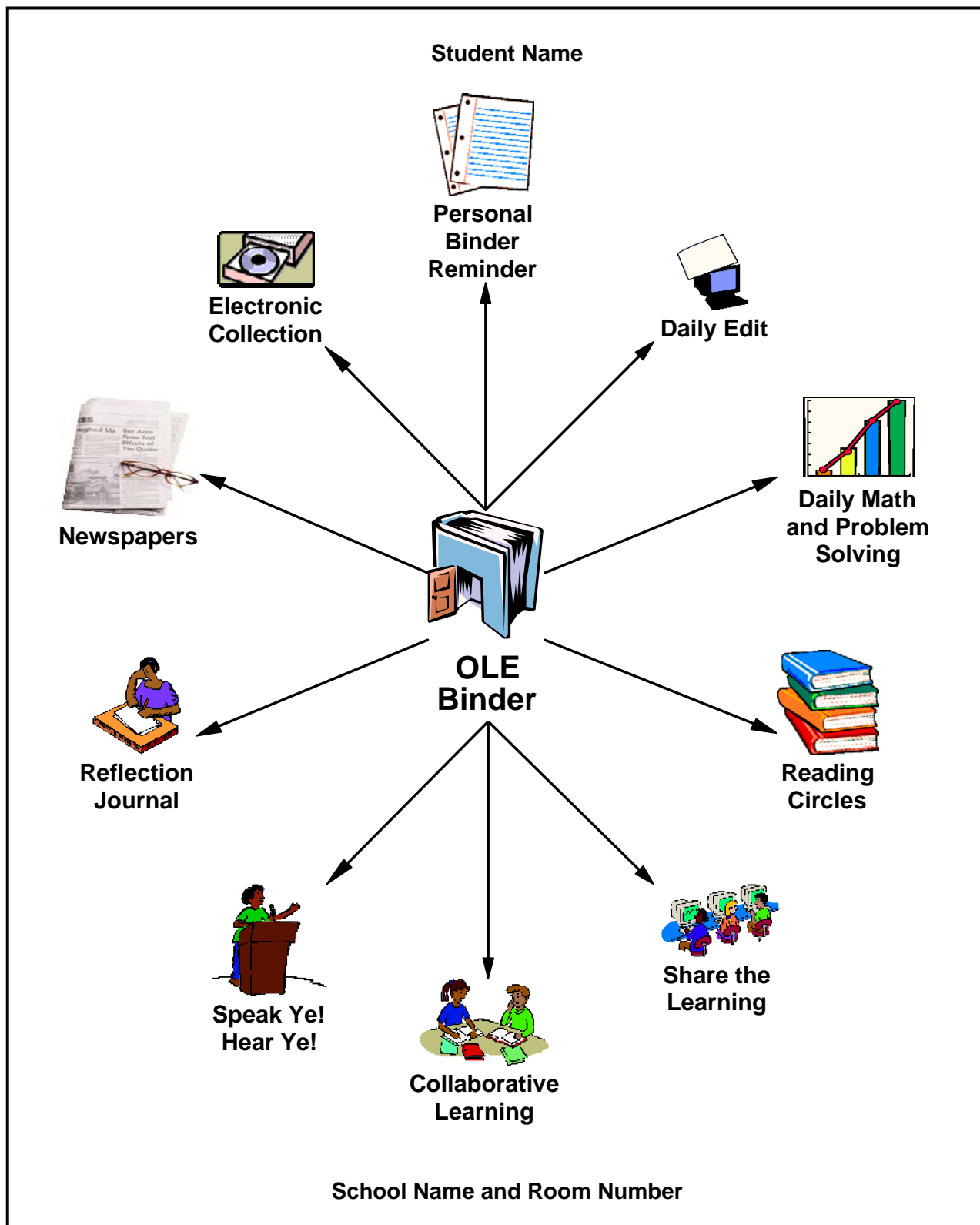
SUGGESTIONS FOR ASSESSMENT

- Assess the student-created concept maps using TBLM ICT.6#1: Concept-Mapping Skills Checklist.
- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Assess the applications of this ICT through the LEs in this interdisciplinary unit.

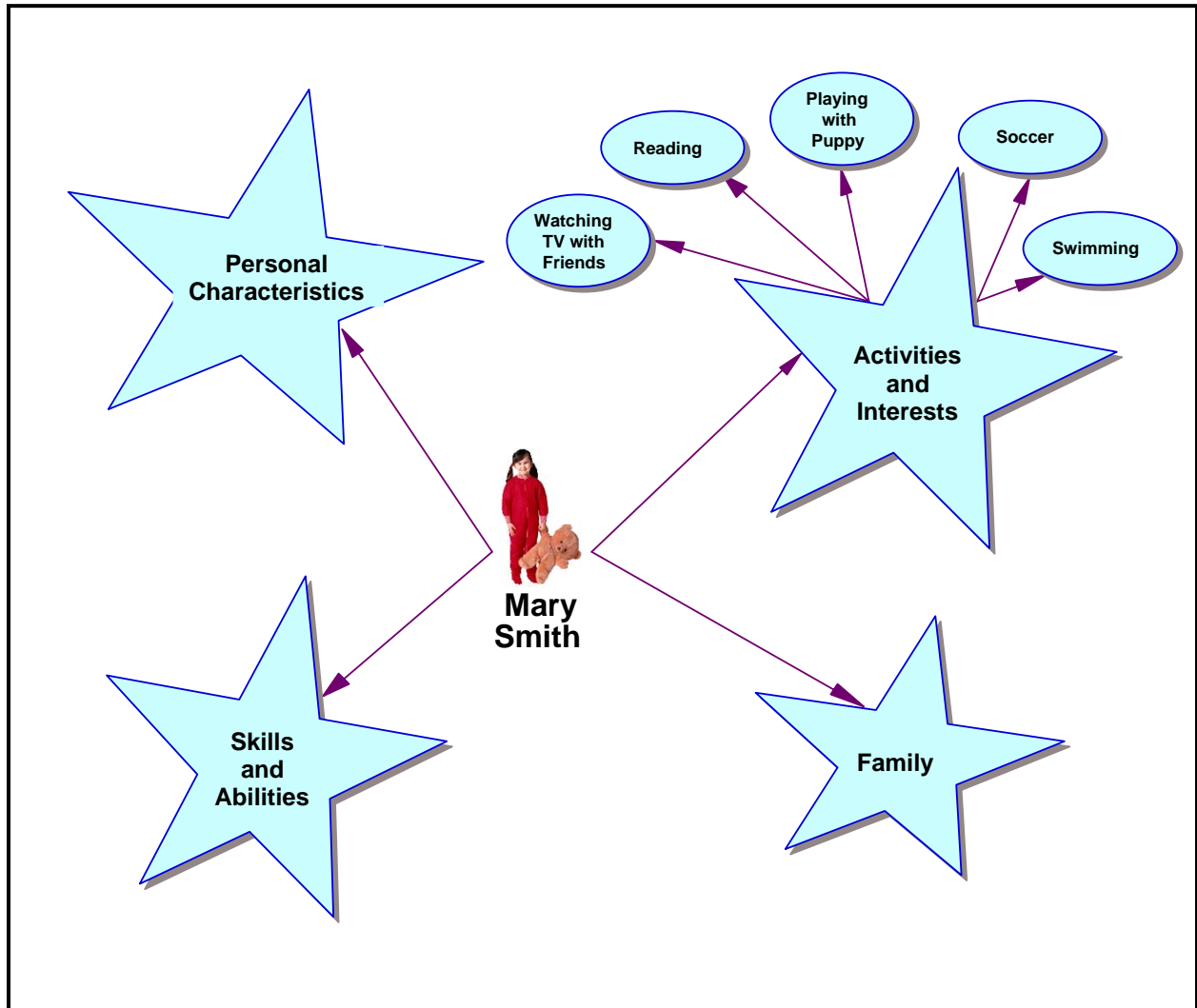
CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- Webbing is used throughout the *Inventions, Innovations, and Discoveries* interdisciplinary unit to organize ideas and record information.

BLM ICT.6#1: Sample Title Page for Personal OLE Binder



BLM ICT.6#2: Sample Biography Web



TBLM ICT.6#1: Concept-Mapping Skills Checklist

Rating Scale 4 = Always 3 = Usually 2 = Sometimes 1 = Rarely	Student Name														
Concept-Mapping Skill															
The concept map shows															
• appropriate use of categories															
• accurate hierarchy															
• correct categorization of information															
• representative use of symbols															
• accurate linkages, including direction															
• accurate labels															
•															
•															
Comments															

This page is best printed landscape style on legal-size paper. More columns may be added as needed.

Caught in Action (Digital Camera/Video)

ICT.7

TIME

90 minutes

OVERVIEW

Students use a digital camera and/or still shots from a digital video camera to take a picture of themselves and to create an identity card.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 4.2.3 *Enhance Legibility* — Write legibly and at a pace appropriate to context and purpose when composing and revising; select and use a variety of formatting options [such as spacing, graphics, titles and headings, variety of font sizes and styles...] when appropriate.
- 4.2.4 *Enhance Artistry* — Choose language, sounds, and images [including transitional devices] to enhance meaning and emphasis.
- 5.2.1 *Cooperate with Others* — Assist group members to maintain focus and complete tasks; identify and solve group process issues.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- communicating electronically
- concept mapping

SUGGESTED LEARNING RESOURCES

Software

- video editing
- photo editing
- graphics

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?

TBLMs

- TBLM ICT.2#1: Skill Know-How Checklist

- TBLM ICT.7#1: Resizing Images Using Adobe Photoshop
- TBLM ICT.7#2: Introductory Digital Camera Skills: Observation Checklist

Materials

- digital camera
- digital video camera
- identification (ID) card holders (with pins or strings)
- photo-quality printer paper

SUGGESTIONS FOR INSTRUCTION

Preparation and Set-up

- Become familiar with the functions of the digital camera and/or digital video camera available in the school.
- Create a sample ID card that students can use as a model.
- Ask students to bring to class ID cards with pictures. They may bring cards they have at home, or prepare hand-drawn facsimiles.
- Review the database of students' ICT skills, as expressed on BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills, to identify possible student helpers for ICT.7: Caught in Action.
- Customize TBLM ICT.2#1: Skill Know-How Checklist for this ICT to make ongoing observations of students' skills.

Activating Strategies

- In collaborative groups, students examine the ID cards they brought to class. As students note the purpose of the cards, they make lists of the contents. Are there items that are on all cards (e.g., name, complete address, telephone number, title of card) regardless of their purpose?
- Demonstrate to the class the function of the digital camera, including the
 - LCD panel (LCD—liquid crystal display)
 - “on” and “play” buttons
 - shutter button
 - location of the batteries
- Connect the camera to the television and demonstrate some of the features while taking a picture of the class. Show how the pictures can be viewed using the “play” mode.
- Invite an employee from a photography company that makes school pictures and student ID cards to talk to the class about the card-production process, set-up of information on the cards, and use of appropriate font size and style for ease of reading.
- Invite a photographer to talk to students about lighting and composition.

Acquiring Strategies

- Inform students that they will need an Inventor ID card when they survey school students and school personnel, when they greet guests at the Invention Convention (see Module 4: Invention Convention: The Student As Inventor), or for any other invention-related event during the school year. Students keep this purpose in mind when they design an Inventor ID card.
- In collaborative groups, students decide on the content of their Inventor ID card. One designated group member uses the computer and graphics software (see ICT.4: Looks Like This) to draft the group's model.
- While collaborative groups create their cards, work with one group at a time to allow students to practise using the digital camera.

- Demonstrate to each group in turn how to download a picture, a still video frame (most digital video cameras have a function allowing the user to make a still photo), or a video clip to the computer.
- Demonstrate how still images can be cropped, resized, and exported or saved as a **jpeg**, in order to be used on a web page (see TBLM ICT.7#1: Resizing Images Using Adobe Photoshop and ICT.11: Make It: Creating an Effective Web Page) or for a multimedia presentation (see ICT.8: Make Your Point).
- As students develop their digital camera skills, observe and note their progress, using TBLM ICT.7#2: Introductory Digital Camera Skills: Observation Checklist.
- Groups leave their drafted ID cards on the computer monitor for a Gallery Walk. Students examine each other's designs and make helpful suggestions.

Applying Strategies

- Each student creates his or her personal ID card. Students import pictures of themselves into the appropriate location on the card and resize it if needed. They print their card and insert it into a cardholder. Photo-quality printer paper is suitable for this purpose.

Variations/Extensions

- Students capture photographs and/or video clips of their learning in action. They edit and insert these into multimedia presentations or web pages.
- Students film a school event and present it to the class during a session of OLE.7: Speak Ye! Hear Ye!
- Students write up and film a news report (see OLE.9: Newspapers).
- Students include a photograph of themselves on the title page of their Personal OLE Binder (see OLE.1: Personal Binder Reminder).
- Students include video clips in a multimedia presentation (see ICT.8: Make Your Point) or on a web page (see ICT.11: Make It: Creating an Effective Web Page).
- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home their journals each week.

SUGGESTIONS FOR ASSESSMENT

- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Assess the applications of this ICT in this interdisciplinary unit through performance assessment; that is, assess how well students can use the digital camera in the LEs (as appropriate).

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- Students film an advertisement of their invention to show in Module 4: Invention Convention: The Student As Inventor.
- Students use their ID cards throughout this *Inventions, Innovations, and Discoveries* interdisciplinary unit as they survey teachers, peers, and parents, as well as during the Invention Convention.

TBLM ICT.7#1: Resizing Images Using Adobe Photoshop

Overview

- In this task you will resize a digital image and export it as a **jpeg**. The image will then be ready to use on a web page or for another multimedia project.

Learning Resources and Materials Required

- Adobe Photoshop
- digital images downloaded from the camera
- electronic folder in which to store the images

Steps to Follow

- Start the Adobe Photoshop program.
- Go to File, and then to Open File. A dialog box will open.
- Locate the folder where the downloaded images are stored. Select the image you wish to resize.

Resize the Entire Image

- Go to Image, and then to Image Size. A dialog box will open.
- Under Document Size, set the size desired for the image height. The width will adjust in proportion to the height.
Note: Select the format for the image from the drop-down menu in the box next to the size boxes. This involves a choice of inches, centimetres, pixels, and so on.
- Do a Save As and rename the image, especially if you have edited it. Using the drop-down Format menu, select a format for the image. The best formats for use in multimedia presentations or web pages are **jpeg** and **gif**. The file extension will be added automatically.

Resize the Image by Cropping

- Click on the Cropping tool. It is the third tool down on the left in the toolbox. If you are unsure, slide the mouse over the tools to bring up their names.
- Click on the upper left of the area to be cropped, hold and drag down and to the right until you have selected an area. The selected area can be moved by clicking in its centre and sliding it in the desired direction.
- Click Enter to view the selected area as a new window.
Note: A new window will replace the previous one. If you want to keep the original image, make a copy of it by doing a Save As of the image and work with that copy.
- Follow the directions above for saving the image in the appropriate format.

The resized image is ready for your multimedia presentation.

This document can be stored in the Toolbox Binder (see ICT.1: Toolbox Binder).

Make Your Point (Multimedia)

ICT.8

TIME

150 minutes

OVERVIEW

Students create a short multimedia presentation about themselves (which becomes their Inventor's Profile), or they create a presentation about a research topic in any unit of study.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 2.3.5 *Create Original Texts* — Create original texts [such as letters, short stories, media broadcasts, plays, poems, video presentations, Readers Theatre...] to communicate and demonstrate understanding of forms and techniques.
- 4.2.3 *Enhance Legibility* — Write legibly and at a pace appropriate to context and purpose when composing and revising; select and use a variety of formatting options [such as spacing, graphics, titles and headings, variety of font sizes and styles...] when appropriate.
- 4.2.5 *Enhance Presentation* — Prepare detailed and organized compositions, presentations, reports, and inquiry or research projects using templates or pre-established organizers.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- publishing electronically

SUGGESTED LEARNING RESOURCES

Software

- multimedia presentation

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills
- BLM ICT.8#1: Planning My Inventor's Profile: Multimedia Presentation
- BLM ICT.8#2: Presentation Storyboard
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?
- BLM Mod.2.2#1: Venn Diagram

TBLMs

- TBLM ICT.2#1: Skill Know-How Checklist
- TBLM OLE.10#1: Suggestions for Organizing and Displaying Electronic Collections

SUGGESTIONS FOR INSTRUCTION**Preparation and Set-up**

- Become familiar with the functions of the multimedia-presentation software installed on the class computers.
OR
Access the multimedia presentation used to introduce the *Inventions, Innovations, and Discoveries* interdisciplinary unit to the class. Review it to ensure familiarity and ease with all features that need to be demonstrated to students.
- Review the database of students' ICT skills, as expressed on BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills, to identify possible student helpers for ICT.8: Make Your Point.
- Customize TBLM ICT.2#1: Skill Know-How Checklist for this ICT to make ongoing observations of students' skills.

Activating Strategies

- Show the multimedia presentation that was used to introduce the *Inventions, Innovations, and Discoveries* interdisciplinary unit to the class. Ask students to note features of the presentation that make it enjoyable to watch, and a useful tool for "marketing" the unit (e.g., background design, addition of clip art, animation of bulleted lists).
- In collaborative groups, students brainstorm some features of multimedia-presentation software they expect to use when creating a presentation.
- In a whole class discussion, groups share their ideas about what they want to learn. Demonstrate some of the main features students identify. Point out similarities with word-processing software and other programs students are already using.
- If ICT.11: Make It: Creating an Effective Web Page has already been taught, discuss similarities between web pages and PowerPoint (see TBLM OLE.10#1: Suggestions for Organizing and Displaying Electronic Collections). Record similarities and differences, using a Venn Diagram (see BLM Mod.2.2#1: Venn Diagram), concept-mapping software (see ICT.6: Inspired), or a wall chart.

Acquiring Strategies

- Over a few days, students in collaborative groups acquaint themselves with the multimedia-presentation software available on the class computers. Students reproduce the features they identified and that were demonstrated to them, and use transactional writing to compose Multimedia Tips, which they place in their group's Toolbox Binder.
- Using a previously established class distribution list (see ICT.3: Riddle This), or creating a list with contact names of the students responsible for each ICT in each collaborative group (see ICT.1: Toolbox Binder), students email tips on newly acquired skills.

Applying Strategies

- Students make a storyboard to prepare for their presentations, including content for each slide as well as features of the multimedia-presentation software that is available in the class. They use BLM ICT.8#2: Presentation Storyboard.
- Students prepare four-slide multimedia presentations about themselves (which becomes their Inventor's Profile) or about a research topic in a unit of study. Students use BLM

ICT.8#1: Planning My Inventor's Profile: Multimedia Presentation to verify that their Inventor's Profile is complete.

Variations/Extensions

- Throughout the year, as they learn new ICT skills, students update their personal presentations by adding new slides, photographs (see ICT.7: Caught in Action), and hyperlinks to their class website (see ICT.11: Make It: Creating an Effective Web Page).
- Students work in pairs with Early Years students and create for them a multimedia presentation based on stories the younger students have written.
- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home their journals each week.

SUGGESTED ASSESSMENT STRATEGIES

- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Assess the applications of this ICT in this interdisciplinary unit when students create a multimedia presentation as a framework for their Electronic Collection or Electronic Portfolio (see OLE.10: Electronic Collection).

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- This Inventor's Profile multimedia presentation becomes a part of each student's presentation in Module 4: Invention Convention: The Student As Inventor).
- During the Invention Convention, students run their Invention presentation in "kiosk" mode to act as a "marketing" device.

BLM ICT.8#1: Planning My Inventor’s Profile: Multimedia Presentation

Name _____ Date _____

Check the list below to ensure that the content for each slide is present.

Content of Multimedia Presentation	Present	
	Yes	No
Title of Slide		
• Name		
• Date		
Personal Information		
• Age		
• Birthday		
• Family Members		
• Pets		
• Other:		
Tastes, Likes, Pastimes		
• Sports		
• Leisure Activity		
• Favourite:		
• Other:		

As an inventor, I look forward to...

BLM ICT.8#2: Presentation Storyboard

Name _____ Date _____

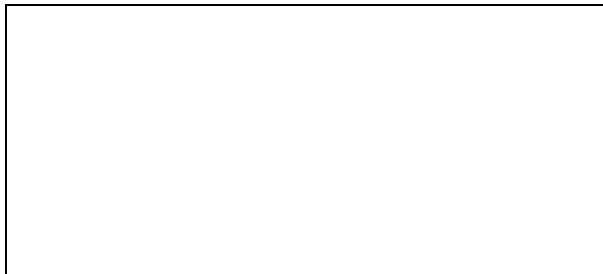
Instructions

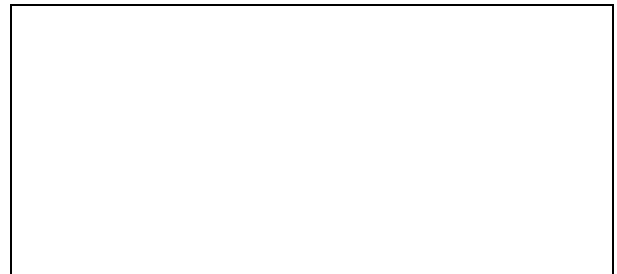
- Using a pencil, write the required information where it will appear in each slide.
- On the lines below each slide, write notes about the background, colours, font, and style of text.
- Include animation actions such as “enter from left” on one of the lines.
- Sketch where clip art or a photograph might be inserted in each slide.

Storyboard









Look for It: Learning to Search the Internet (Internet #1)

ICT.9

TIME

150 minutes

OVERVIEW

In this introductory Internet learning experience, students develop their understanding of the Internet, learn what they can expect to find on the World Wide Web, and learn how to search online effectively for pertinent, valid, and reliable information. Throughout the school year, they search and locate appropriate websites for their inquiries in science or social studies, as well as websites that support their investigations within this interdisciplinary unit. In the process of using primary and secondary sources, students develop information literacy skills.

Note: The Internet-related ICTs are intended to be taught in the suggested order:

- ICT.9: Look for It: Learning to Search the Internet
- ICT.10: Find It: Internet Scavenger Hunt
- ICT.11: Make It: Creating an Effective Web Page

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 1.2.3 *Combine Ideas* — Search for ways to reorganize ideas and information to extend understanding.
- 3.2.2 *Identify Sources* — Answer inquiry and research questions using a variety of information sources [such as bulletin boards, art, music, skilled community people, CD-ROMs, Internet...].
- 3.2.3 *Assess Sources* — Recognize that information serves different purposes and determine its usefulness for inquiry or research focus using pre-established criteria.
- 3.3.2 *Record Information* — Make notes on a topic, combining information from more than one source; reference sources appropriately.
- 3.3.3 *Evaluate Information* — Evaluate the appropriateness of information for a particular form, audience, and purpose; identify gaps in information collected and gather additional information.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- ethical use of technologies
- inquiry using electronic sources
- spreadsheet analysis

SUGGESTED LEARNING RESOURCES**Software**

- spreadsheet

Internet:

- IMYM Links Database: <<http://www.edu.gov.mb.ca/ks4/tech/imym/resources/links.html>>
- Search the Internet using the terms “evaluating websites” for suggested criteria and rubrics.

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills
- BLM ICT.9#1: Internet FAQs for Students
- BLM ICT.9#2: Web Search Record
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?

TBLMs

- TBLM ICT.2#1: Skill Know-How Checklist
- TBLM ICT.9#1: “Internet 101” for Teachers
- TBLM ICT.9#2: Acceptable Use of Copyrighted Electronic Resources
- TBLM ICT.9#3: Sample URL Database

Materials

- three-ring binder
- dividers
- loose-leaf paper (white and lined)

SUGGESTIONS FOR INSTRUCTION**Preparation and Set-up**

- Pre-select websites for students to evaluate.
- Create a database template using spreadsheet software (see ICT.12: Chart This). This template will serve as a model for students as they set up a similar spreadsheet to record information about interesting and useful websites that support this interdisciplinary unit or any other unit of study.
- Review TBLM ICT.9#1: “Internet 101” for Teachers and become familiar with basic Internet facts and tips.
- Review BLM ICT.9#1: Internet FAQs for Students. To demonstrate the points made on the BLM, search the Internet to select and note specific examples related to the current unit of study.
- Look up a checklist that explains issues to consider related to website suitability and appropriateness. Search the Internet for specific websites, relevant to a current unit of study or to the *Inventions, Innovations, and Discoveries* interdisciplinary unit, that demonstrate the characteristics of website suitability and appropriateness.
- Review the database of students’ ICT skills, as expressed on BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills, to identify possible student helpers for ICT.9: Look for It: Learning to Search the Internet.

- Customize TBLM ICT.2#1: Skill Know-How Checklist for this ICT to make ongoing observations of students' skills.

LEARNING ABOUT INTERNET SEARCHING

Activating Strategies

- Brainstorm about how students find information correctly and locate it on the shelves of the school or public library. Review the use of appropriate keywords for searching the library card catalogue or the online public access catalogue (OPAC).
- Compare ways of looking up information on the Internet and in a library and discuss similarities and differences.
- Students who have previous experience in using the Internet predict the results of a search on "inventions," "innovations," or "discoveries."

Note: Any other topic currently being studied in class can be substituted and adapted for this purpose.

- Remind the class that while many students already use the Internet at home, everyone in the class needs to learn the same techniques and become familiar with the wording or the instructions that will be used in class. Remind them also that working on networked computers for multiple users requires different skills and attitudes than working on a stand-alone computer. Finally, emphasize that looking up information for a research project involves different skills than looking up a movie, a rock star, racing cars, and so on.
- Students brainstorm a list of search engines they have used (e.g., Yahoo!, Yahoo!igans!, Infoseek, Google, Dogpile, Ask Jeeves, AltaVista, Raging Search).
- Students use the search engine they contributed to the brainstormed list and take turns searching "inventions" (or any other topic being studied). Display each search list on the class computer and projection system. Record students' findings for each search engine on a class chart or table, noting the search term(s), its spelling, the number of hits obtained, the organization of hits (regrouped by search engines, rated in percentages, and so on).
- As a class, discuss the following questions:
 - Do the results obtained by each student match the original predictions?
 - How do the results compare for different search engines?
 Students discuss the possible reasons for the differences between their predictions and the actual results, and between the different search engines. They hypothesize which search engine is easier to use and more reliable in finding information to support their learning needs.

Acquiring Strategies

- Select a student-friendly basic search engine (such as Google) and demonstrate how best to use it. Place a link to this search engine on the class website.

Note: Using the same basic search engine for all Internet searches ensures that students become savvy users and that they can help one another.
- Give each student a copy of BLM ICT.9#1: Internet FAQs for Students. Using a computer and a projection system, guide students through the BLM, showing specific examples to explain a point, clarifying steps along the way, and answering their questions.

LOOKING UP AND CRITICALLY EVALUATING WEBSITES

Activating Strategies

- Review with students the issues to consider related to website suitability and appropriateness.
- Student brainstorm criteria they think are important in establishing the worthiness of a website for their use.

Acquiring Strategies

- Students use the brainstormed criteria to create a rubric for evaluating websites they will use during the school year while working on current units of study or on the *Inventions, Innovations, and Discoveries* interdisciplinary unit.
- Give students a list of pre-selected websites to evaluate. In collaborative groups, students discuss and rate the value of each website based on the criteria identified on the rubric they created. They defend their website choices in a class discussion.
- After the class discussion, students review the rubric contents to determine whether the selected criteria accurately reflected their opinions of the websites they evaluated. They edit the rubric accordingly. They post the class-generated rubric on the class website.

Applying Strategies

- In collaborative groups, students brainstorm a list of keywords to search for topics related to the *Inventions, Innovations, and Discoveries* interdisciplinary unit or to any other current unit of study. They practise their search skills while identifying possible websites on “inventions,” “inventors,” “discoveries,” “scientists,” or any other related topic. In pairs, students search the Internet using the keywords on their brainstormed list.
- Students record their information using a spreadsheet-created template (see TBLM ICT.9#3: Sample URL Database), and briefly describe highlights of each website that will support the interdisciplinary unit or any other topic of study.

Variations/Extensions

- Students search the Internet to find references and help sites that will support their learning with the ICT tool for which they are responsible (see ICT.1: Toolbox Binder). They place a Bookmark or Favourite of the best website they find on the class computers and share it with their counterparts in the other collaborative groups at Share the Learning times (see OLE.5: Share the Learning).
- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home their journals each week.

SUGGESTIONS FOR ASSESSMENT

- Review the student-completed rubrics to assess students’ understanding and application of the criteria for evaluating websites.
- Listen to the discussion of each collaborative group. Note misunderstandings and address them later in class discussion.
- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Assess the applications of this ICT in this interdisciplinary unit as students become increasingly successful in identifying and evaluating websites.

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- The Internet is a resource that students need to learn to use effectively for the duration of the *Inventions, Innovations, and Discoveries* interdisciplinary unit, as well as throughout the school year. This is a life skill that will be required of all students as knowledgeable consumers and citizens.

BLM ICT.9#1: Internet FAQs for Students

The following are frequently asked questions (FAQs) about the Internet.

Q: What is a website?

A: A website is a collection of web pages that have a common purpose. Examples of websites are those with information about schools, mammals, historical events, rock groups, countries, and so on. The collection of web pages are all linked together with hyperlinks.

Q: What is a web page?

A: Each page of a website is a web page. Web pages contain text and illustrations. Many also have hyperlinks to other relevant web pages.

Q: What is a home page?

A: The first page or main page of a website is called the home page. From that page, all the other pages of the website can be accessed through hyperlinked buttons or text.

Q: What might you see on a home page?

A: Some or all of the following may be found on a home page:

- A **navigation bar**, which allows users to go to various pages or sections of the website, may appear in a horizontal format at the top of the page or in a vertical format on the left.
- The **name of the website** can appear at the top of the page, at the bottom, or sometimes in the background.
- A **logo** representing the owner of the website may be featured. It may consist of the mascot for a school or a well-recognized symbol for a company or an organization.
- The home page will be **organized** in some way. It might have many separate parts, or the information might be found in box-like areas, each of which will probably have different functions and work independently from one another. If there is a text area, it will likely have a **scroll bar** on the right to allow users to keep reading text that extends beyond the monitor.
- A reliable home page will identify the **name of the author**, and possibly the credentials of the author.
- A reliable home page will have an **email address** to write to for more information or to ask permission to use materials listed on the page.
- Some **illustrations, designs, or photographs** are usually found on a home page. These should be considered copyrighted, even if no mention of this is made. Unless there is a statement explicitly stating that all illustrations, designs, and photographs can be used, and for what purpose, assume that they are copyright protected.
- The name of the **sponsor** of the page may be included, sometimes with information about the sponsor. Such a sponsor can be a commercial enterprise using the website to advertise its products.

Q: What is the best way to search for information on the Internet?

A: There are two main ways to find information online:

- **Do a keyword search** using a basic search engine (e.g., Google) or a metasearch engine (e.g., MetaCrawler). This is the fastest way to find information when looking for a specific topic. When doing a keyword search, the spelling has to be exact.
- **Use a subject guide**, also called a directory or gateway. It lets you click through categories of information that become more and more specific, and finally gives a small number of hits that may be accurate. This search can take longer than a keyword search and will not be rewarding if you do not know in what category something could be found, if you do not know what the names of the categories mean, or if you select the wrong category.

(continued)

Q: Are there other ways to find information on the Internet?

A: Some search engines (e.g., Ask Jeeves) allow users to ask questions. These types of engines recognize keywords in a question and use those keywords to find information and return a list of websites that may be suitable.

Q: What is a hit?

A: When an engine searches through its huge databases for websites matching the search terms requested, it provides search results, listing all the websites found. The matches are called “hits,” and they are usually listed in groups of 10 on a web page. There is usually a short paragraph describing a website, which may help you decide if it meets your needs. **Hits are not necessarily listed in order of importance or relevance.** Scan the first list of 10 hits before deciding which ones seem most promising.

Q: I found a hit with a perfect description for what I wanted, and when I went to it, it said “Error.” What does this mean?

A: Unfortunately, some promising websites can disappear. This problem is called “link rot,” which means that the website can no longer be accessed because the web pages have moved to a new location or have been removed from the Internet. Sometimes a website leaves a forwarding address (the new URL) that can be clicked on to access the page in its new location.

Q: How do you know when a web page is finished loading?

A: Several clues can help you determine when a web page is finished loading:

- The icon for the web browser is flashing, oscillating, or moving.
- A text bar at the bottom of the screen is displaying messages indicating some action.
- The right scroll bar has not yet appeared.
- You can hear the computer working.

Q: What can you do when a web page is slow at downloading or appears to have stopped loading?

A: You can use the **Stop** button on the browser navigation bar. When you have limited time to use the Internet, make the best use of it by stopping slow sites and going to others. Use the **Back** button on the navigation bar to return to the search results page, and try the website later if you have time. If you must access the page, click the **Refresh** button on the navigation bar.

Q: Why are there advertisements on web pages?

A: Businesses or enterprises often sponsor a website. They pay the fees incurred in setting up the website, in paying salaries for the people who run the website, in maintaining the website, or in providing access to the website. In exchange for this financial support, websites will display their sponsors’ advertisements. Some websites are set up for the sole purpose of providing a place for posting personal websites. Such commercial providers also display advertisements.

Q: What should you do about advertisements that appear on screen when you access some web pages?

A: Some advertisements come up as a new smaller window on a screen. You should close that window. Others entice you by using animation such as flashing icons, invitations to “Click here!” or “Vote here,” or offers of free materials. Ignore these windows and close them when possible. Moving on to another part of the website can also remove those advertisements.

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Q: How can I find the same web page next time I use the Internet?

A: Make a Bookmark or Favourite by going to the main menu of the web browser, selecting that option, and scrolling down to “add.” Next time you use the browser, instead of typing that URL, return to the Bookmark or Favourite option and scroll down to the name of the website you are looking for. The browser will find it for you.

Note: Before you add a Bookmark or Favourite, ask the teacher if it is suitable to do so.

Q: I found a really helpful picture on a website that I would like to use in my project. How do I do that?

A: Right click (in Windows) or click and hold (in Macintosh) on the picture or illustration to bring down a menu that allows you to save the picture or copy and paste it directly into your electronic project. However, **remember that copyright issues relate to pictures, as well as to text.** (See TBLM ICT.9#2: Acceptable Use of Copyrighted Electronic Resources.)

Q: There is a helpful paragraph on a web page, but I don't need the whole page. Can I copy it?

A: You can copy text by clicking in front of the portion you want, and then holding and dragging across to select all the text you want. The selected portion should be highlighted. Copy it and paste it into the word processor. The text may not be formatted well and you may have to format it yourself. However, **remember that copying text to put in a report is plagiarism, and that copyright issues relate to text, as well as to pictures.** (See TBLM ICT.9#2: Acceptable Use of Copyrighted Electronic Resources.)

Q: What are some common terms I should be familiar with?

A: There are many technical terms used for the Internet. Some of the common ones are:

- **Boolean:** terms (AND, OR, NOT) or symbols (+ - “ ” []) that are sometimes needed by search engines to refine a search and make it more specific.
- **browser:** software that lets a user access the World Wide Web. The most common ones are Netscape Navigator and Internet Explorer.
- **HTML:** Hypertext Markup Language. This is the common programming language used in making web pages.
- **http:** hypertext transfer protocol. These letters are always at the beginning of a web address or URL.
- **hyperlink:** an underlined word, phrase, or symbol that, when clicked on, takes the user to another location within a website or to another website.
- **search engine:** a tool that searches huge databases of websites to find sites matching the search terms a user enters in the search box.
- **URL:** Uniform Resource Locator. This refers to a website address. It starts with <http:// >.
- **World Wide Web:** known as WWW, a network of Internet servers that can communicate with one another, using a language called “http protocol.” Although the terms WWW and Internet are often used interchangeably, they are technically not the same. Because not all Internet servers are connected to the WWW, this term should not be confused with the Internet, which is bigger and contains other ways of finding information and communicating, such as email.

BLM ICT.9#2: Web Search Record

Name _____ Date _____

Note: File this BLM in the section of your Personal OLE Binder reserved for Share the Learning.

1. What information were you looking for?

2. List the search terms you used.

3. What engine(s) did you use?

4. Comment on the search results:
 - a. Number of hits: _____
 - b. Were there too many hits or too few hits?
 - If there were too many hits, what terms did you use to refine your search?
 - If there were too few hits, what did you do to expand your search?

5. Did you find hits with appropriate information? Explain.

6. List two suitable hits you followed up that met criteria for valuable websites. Explain, in two sentences, why they were suitable.

	Website 1	Website 2
URL		
Name of Website		
Reasons for Choice		

TBLM ICT.9#1: “Internet 101” for Teachers

Browsers

A browser is software used to access and search the Internet. There are two commonly used browsers, both of which are available on the Internet and can be downloaded and updated without cost.

- **Netscape Navigator:** Although originally created for Macintosh computers, this browser can also be used on Windows-based computers.
- **Microsoft Explorer:** Although originally created for Windows-based computers, this browser can also be used on Macintosh computers.

Search Engines

A search engine is a tool used to search the Internet. It creates large and comprehensive databases of URLs (Uniform Resource Locator) and textual keywords. A search engine allows the user to enter keywords to get a list of websites related to those words. Search engines can be organized into three categories:

- **Basic search engines:** These engines search huge databases of websites. They work quickly to provide an extensive list of websites that match the search criteria. Using different engines to do a search can yield different results because each engine may have access to different databases of websites. Various search engines may specialize (for example, Yahoo!igans! returns websites designed for students). Although the user can use each search engine in the same manner, one engine may return more hits than another. Keep in mind that more does not always mean better.
- **Metasearch engines:** A metasearch engine seeks information from several basic engines at the same time. It lists the hits according to each of the basic engines searched. This can result in hits repeated from one engine to the next, making it look as though more hits were found than there are in reality.
- **Gateways or directories (subject guides):** All sites found in directories have previously been screened and selected by a team of people, and regrouped in categories (e.g., arts, science, entertainment). The user needs to know in what category to look for the desired information. This is not always easy or evident.

Search Basics

- **Not all engines are equal:** A user-friendly engine to use with students is one that will find the requested information with the simplest query.
 - Such engines are usually designed to include Boolean operators implicitly when searching even though they are not used in the query. (For example, a user-friendly engine will understand that a query on “Mary Poppins” means a query on “Mary” and “Poppins” or “Mary Poppins” although the user did not include Booleans to refine the search.)
 - Google and Yahoo! are examples of such engines.
- **Start-up tips:** To increase the success rate of a search, follow these simple steps at the start of a search:
 - **Spelling:** Use correct spelling. Incorrect spelling will result in no hits or incorrect ones.
 - **Singular versus plural:** A choice of singular or plural can make a difference in the number of matches found.
 - **Capital letters:** When in doubt, use all lower case, even for the name of a person or a place.

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- **Quotation marks:** Use quotation marks to group two or more words together (e.g., “red river” instead of Red River). This increases the chances of getting appropriate hits and more matches being found.
- **Too few or no hits:** Consider the following:
 - Is the search too narrow?
 - Are too many search terms used?
 - Check for spelling.
 - Check for singular versus plural of the words.
 - Brainstorm for synonyms of search terms for the subjects being sought.
- **Too many hits:** Consider the following:
 - Refine the search.
 - Narrow the search by adding other search terms (e.g., for “bears” use “grizzly bears”).
- **Boolean search operators:** These are terms or symbols that help refine a search. When combined with keywords, they form a search string.
 - AND, OR, NOT are examples of Boolean operators.
 - Symbols such as + - “ ” [] act as Boolean operators.
 - Not all engines use the same Boolean operators.
- **In-depth search:** Every search engine offers the option to do an in-depth search. The main page of the search engine has a button called “advanced search” or a similar term. This usually includes
 - indicating the engine-specific Booleans and explaining their appropriate use
 - making the search language-specific
 - allowing the user to restrict the search, such as “titles only,” or to limit the number of matches found

What’s in a Website Address?

A URL (Uniform Resource Locator) is a system of symbols and abbreviations put together to form the Internet address of a website. The last set of digits of a URL can reveal something about the source of the website:

- **.com** identifies for-profit commercial websites (e.g., <<http://www.microsoft.com>> represents Microsoft; <<http://www.apple.com>> represents Apple).
- **.gov** identifies government websites. These letters are most often found followed by letters for the geographical location within a URL (e.g., <<http://www.gov.mb.ca>> represents the government of Manitoba).
- **.org** identifies non-profit organizations (e.g., <<http://www.pbs.org>> represents the Public Broadcasting System [PBS]).
- **.edu** identifies education websites, often universities.
- **~** identifies personal websites of individuals (e.g., </~Mary Jones> represents the personal website of Mary Jones). The ~ symbol is called a “tilde.” It is found on the top left section of most keyboards.
- **a two-letter code** at the end represents a country of origin (e.g., <.ca> is Canada, <.au> is Australia).

What Makes a Student-Friendly Website?

Before asking students to do an Internet search, preview a few websites that will be representative of the type you want them to find, or that can serve as exemplars of issues they should be aware of as they search the Internet.

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In choosing suitable websites for students, determine the following:

- **Accessibility**
 - How quickly does the website open?
 - How many levels into the website do you have to click to find the page you need?
- **Accuracy**
 - Does the website list credentials for the author or organization?
 - Is the information objective or is it opinionated? Middle Years students need help and much practice in learning to assess the objectivity of information they find on the Internet. (See discussion of Bogus Websites below.)
 - Is the subject well addressed, from all sides of an issue?
 - Recognize clues in the URL (e.g., <.edu> is likely more valid and reliable than </~Mary Jones>).
 - Does the website feature an “email us,” “contact,” or other link to the author for feedback?
- **Appropriateness**
 - Does the website come from a bibliography of student-appropriate resources?
 - Is the text written at a level that can easily be read? (Advise students to use the five-finger rule: Each time they encounter a word they cannot read or do not understand the meaning of, they lift a finger. If all five fingers of a hand are up before the end of the page, its content is likely too difficult.)
 - Look for clues in the title (e.g., Weather for elementary students).
 - Look for clues in the URL (e.g., <.edu> could be academic).
 - Is the website organized in a way that makes it easy to find information?
 - Is the information chunked by sub-topics or written in long paragraphs?
- **Appeal**
 - Do the design and layout features contribute to the effectiveness of the website? (Keep in mind that the most colourful website does not make it more valuable. A drab website, however, may not encourage a student to keep searching for information.)

Strategies for Evaluating Information

Students will need much practice at assessing good and bad websites in order to become comfortable at identifying websites that will be useful to them.

Many websites provide rubrics for assessing websites. Search the Internet using the terms “evaluating websites” to uncover useful hits, such as those found on the IMYM Links Database.

Internet Issues

As students search the Internet, they need to be aware of issues such as the following:

- **Bogus Websites:** Remind students that information has to be analyzed and questioned to help identify unreliable websites. Bogus websites are deliberately created to provide inaccurate information. (Searching the Internet using the terms “bogus sites” should provide hundreds of hits.) Teachers can use bogus websites to
 - provide examples of why students should question what they read on the Internet
 - challenge students’ thinking and ability to decide whether or not websites offer reliable information
- **Copyright:** Web browsers make it easy to “borrow” text, clip art, diagrams, and illustrations with a simple click of the mouse. However, students need to be aware of issues surrounding the use of copyrighted materials and ways of dealing with those issues in a responsible, legal, and ethical manner. See TBLM ICT.9#2: Acceptable Use of Copyrighted Internet Resources for suggestions on how to handle copyright-related issues. Keep in mind that Canadian copyright law is different than American copyright law.

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- **Plagiarism:** Students need to be taught how to analyze and synthesize information in order to avoid downloading pages of text or copying paragraphs of information.
 - Teach students note-taking and paraphrasing skills to enable them to avoid plagiarizing. See the IMYM Links Database for suggestions on helping students with note-taking.
 - Explain the concept of plagiarism to students and show them examples. For suggestions on dealing with this issue, see the IMYM Links Database. Doing an Internet search with “plagiarism” as a keyword will also provide websites with helpful suggestions.

Glossary of Internet Terms

Searching the Internet using the search terms “glossary internet terms” will provide many useful hits with definitions of Internet terminology.

TBLM ICT.9#2: Acceptable Use of Copyrighted Electronic Resources

Overview

Students and teachers alike use information, both print and electronic, from a variety of sources for a wide range of purposes. Everyone needs to be aware of issues surrounding the use of copyrighted materials and ways of dealing with those issues in a responsible, legal, and ethical manner.

To Use or Not to Use

Many electronic and Internet resources state that the information or graphics contained are copyrighted and/or list the restrictions that apply to its use.

5 Rules to Remember:

1. If you use an image/audio file from a collection on the Internet, always link back to that site as a courtesy, proof of source and acknowledgement of credit.
2. If you find a graphic you really like, read the fine print for copyright information and request permission to use it on your site.
3. Make your own original pictures and avoid any copyright infringements.
4. Give credit where credit is due by providing a bibliography on your homepages.
5. Use established formats for citing Internet resources.

5 Rules to Remember: Reproduced from Industry Canada. Canada's SchoolNet GrassRoots Communities Program. "Copyright Issues." 15 Nov. 2004 <<http://www.communities.ca/e/copyright.html>>.

Requesting Copyright Permission

Reliable websites provide addresses for contacting their creator. Contact the creator or the owner of a website to obtain written permission to use material from the website. State that it is for non-profit educational use.

The following sample permission letters, posted on Industry Canada's SchoolNet GrassRoots Communities website, can be adapted to meet your needs:

- Permission to Use Graphics: <<http://www.communities.ca/e/permgraph.html>>
- Permission to Link to Website: <<http://www.communities.ca/e/linkperm.html>>

Citing Resources

Many excellent online resources are available to assist in creating bibliographies, check the IMYM Links Database.

Safety First

When publishing students' work on the school or the class website, ensure that permission has been obtained from a parent/guardian and that school/division directives or policy regarding electronic publishing are followed.

The following sample letter, posted on Industry Canada's SchoolNet GrassRoots Communities website, may be adapted and used to obtain permission:

- Parental Permission for Participation in a Web-Based Project:
<<http://www.communities.ca/e/permform.html>>.

For More Information

For further information, access the extensive online bibliography of copyright resources on the Manitoba Education, Citizenship and Youth, Instructional Resource Unit (IRU) Library website at: <<http://www.edu.gov.mb.ca/metks4/instruct/iru/pubs/web/c/index.html>>.

TBLM ICT.9#3: Sample URL Database

Note: This URL database is best created using a spreadsheet (see ICT.12: Chart This).

Preparation and Set-up

- Brainstorm a list of possible search terms.
- Ensure that all search terms are spelled accurately, and that the spelling is consistent throughout.
- The database can be sorted by subject. If more than one subject applies, make another identical entry with the other subject.
- Favourite websites can be listed on the class website, by subject, each with the title, URL, and a short review.

Title of Website	URL	Search Terms Used	Contact Person or Webmaster	Subject of Website	Added By	Highlights
The Official Rube Goldberg Web Site	< http://www.Rube-Goldberg.com/ >	<ul style="list-style-type: none"> • rube goldberg 	Penny Boys 74513.1464@compuserve.com	Machines	Teacher	This website contains biographical information about Rube Goldberg, 10 designs of his inventions, and a machine contest to enter.
The Official Rube Goldberg Web Site	< http://www.Rube-Goldberg.com/ >	<ul style="list-style-type: none"> • inventions • rube goldberg 	Penny Boys 74513.1464@compuserve.com	Inventions	Teacher	

Find It: Internet Scavenger Hunt (Internet #2)

ICT.10

TIME

90 minutes

OVERVIEW

In this learning experience (designed to follow ICT.9: Look for It: Learning to Search the Internet), students practise their searching skills as they find appropriate websites to support their investigations in science or social studies, or in this interdisciplinary unit. Each student selects a favourite website and creates a question to be used in an online scavenger hunt.

Note: The Internet-related ICTs are intended to be taught in the suggested order:

- ICT.9: Look for It: Learning to Search the Internet
- ICT.10: Find It: Internet Scavenger Hunt
- ICT.11: Make It: Creating an Effective Web Page

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 3.2.2 *Identify Sources* — Answer inquiry and research questions using a variety of information sources [such as bulletin boards, art, music, skilled community people, CD-ROMs, Internet...].
- 3.2.3 *Assess Sources* — Recognize that information serves different purposes and determine its usefulness for inquiry or research focus using pre-established criteria.
- 3.2.4 *Access Information* — Use a variety of tools [including bibliographies, thesauri, and technology] to access information and ideas; use visual and auditory cues [such as captions, intonation, staging...] to identify relevant information.
- 3.2.5 *Make Sense of Information* — Use organizational patterns of oral, visual, and written texts [including main ideas and supporting details, explanation, comparison and contrast, cause and effect, and sequence] to construct meaning; skim, scan, and read closely to gather information.
- 3.3.1 *Organize Information* — Organize information and ideas using a variety of strategies and techniques [such as comparing and contrasting, classifying and sorting according to subtopics, sequences, order of priority or importance...].
- 3.3.2 *Record Information* — Make notes on a topic, combining information from more than one source; reference sources appropriately.
- 3.3.3 *Evaluate Information* — Evaluate the appropriateness of information for a particular form, audience, and purpose; identify gaps in information collected and gather additional information.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- ethical use of technologies
- inquiry using electronic sources

SUGGESTED LEARNING RESOURCES

Internet

- IMYM Links Database: <<http://www.edu.gov.mb.ca/ks4/tech/imym/resources/links.html>>
- Search the Internet using the terms “scavenger hunt.” Add the topic of study to the terms, (e.g., “inventions scavenger hunt”) for a more specific search.

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools
- Manitoba Education and Training. *Grades 5 to 8 English Language Arts: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 1998. (See Questioning, Strategies That Make a Difference, 30-36.)
- ---. *Success for All Learners: A Handbook on Differentiating Instruction: A Resource for Kindergarten to Senior 4 Schools*. Winnipeg, MB: Manitoba Education and Training, 1996. (See Chapter 7: Questioning and Discussion Strategies, 7.3-7.9.)

BLMs

- BLM ICT.9#1: Internet FAQs for Students
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?

TBLMs

- TBLM ICT.9#1: “Internet 101” for Teachers
- TBLM ICT.10#1: Questioning

Materials

- three-ring binder
- dividers
- loose-leaf paper (white and lined)

SUGGESTIONS FOR INSTRUCTION

Preparation and Set-up

- Create a list of Internet websites (including URLs) related to a science or social studies topic, or to the *Inventions, Innovations, and Discoveries* interdisciplinary unit. Give each student a copy of the list.
- **Note:** The IMYM Links Database contains many relevant and carefully selected websites.

Activating Strategies

- Review the concept of a scavenger hunt or treasure hunt. Have students ever participated in any type of scavenger or treasure hunt? What do they know about it? Students who have participated in one relate their experience.
- Review the skills needed to use a browser (see ICT.9: Look for It: Learning to Search the Internet).
- Students brainstorm how an Internet scavenger hunt would work. They jot down their ideas and suggestions.

- Using a computer and a projection system, show a scavenger hunt website or any other website related to the topic being studied in class. Examine the type of questions used in a scavenger hunt. Discuss how to write effective questions. (See TBLM ICT.10#1: Questioning.)

Acquiring Strategies

- Students review their ideas and suggestions for creating an online scavenger hunt, based on their observation of the website presented in class and on the ensuing class discussion.
- Inform students that they will be gathering material to create a scavenger hunt on the topic currently being studied in class, or assign each collaborative group of students a different topic related to the *Inventions, Innovations, and Discoveries* interdisciplinary unit or another current unit of study.
- Students search the Internet for a website supporting the chosen topic.
- Students select and evaluate an appropriate website, using a teacher-selected or student-generated evaluation rubric. (Refer to the IMYM Links Database for suggested website evaluation rubrics.)
- Review with students how to construct effective questions. Refer to TBLM ICT.10#1: Questioning.

Applying Strategies

- Students survey their chosen website for information they can use to create questions for their scavenger hunt.
- Using strategies for constructing effective questions, students in each collaborative group construct a few questions for the scavenger hunt. They exchange questions with another group to test their accuracy and relevance. They edit the questions based on feedback received and make a final selection of one or more to include in the scavenger hunt.
- **Note:** In the next learning experience (ICT.11: Make It: Creating an Effective Web Page), each collaborative group will engage in a scavenger hunt created by another group. Students can place these scavenger hunts on the classroom website and invite other classes to participate in them.

Variations/Extensions

- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home their journals each week.

SUGGESTIONS FOR ASSESSMENT

- Review students' scavenger hunt questions for accuracy of information, proper grammar, and appropriate construction techniques.
- Review students' criteria for choosing their selected website. Confer with them on the appropriateness of their choice and their interpretation of the criteria they applied in making the selection.
- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Assess the applications of this ICT in this interdisciplinary unit as students search for appropriate websites and/or construct appropriate questions.

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- The Internet is a resource that students need to use effectively for the duration of the *Inventions, Innovations, and Discoveries* interdisciplinary unit, as well as throughout the school year.

TBLM ICT.10#1: Questioning

Overview

Questioning is fundamental to learning. Effective questions not only trigger searches for meaning but also encourage elaborative thinking. Powerful questions have the capacity to transform students from information seekers to information users. In addition to answering questions, students should learn how to pose their own questions.

1. “Why,” “How,” and “Which” Questions

Jamie McKenzie and others identify three powerful questions:

- **“Why” questions** (e.g., “Why do things happen the way they do?”) require analytic and cause-effect thinking. “Why” questions lead to problem solving.
- **“How” questions** (e.g., “How could things be better?”) are asked in order to solve problems. Inventors and reformers ask “how” questions.
- **“Which” questions** (e.g., “Which is best?”) require decision making based on examining clearly stated criteria.

2. Guiding Questions

While different terms may be used to describe guiding questions, their purpose remains the same: to focus an inquiry.

Jamie McKenzie uses the term “essential” rather than “guiding” and offers this comment:

Essential questions reside at the top of Bloom's Taxonomy (Bloom). They require students to EVALUATE (make a thoughtful choice between options, with the choice based upon clearly stated criteria), to SYNTHESIZE (invent a new or different version) or to ANALYZE (develop a thorough and complex understanding through skilful questioning). (“Using Essential Questions As the Basis for Student Investigations”
<<http://www.fno.org/sept96/questions.html>>)

Guiding questions are prepared by the teacher and should meet specific criteria. Guiding questions should

- highlight the concepts to be learned (e.g., Learn about the characteristics of a legend.)
- be suitable for investigation (e.g., Students can investigate legends and other genres to discover the characteristics of each.)
- fulfil curricular outcomes (e.g., The English language arts curriculum outlines several specific learning outcomes that focus on understanding genre: 2.2.1, 2.3.1, 2.3.2, and 2.3.5)
- be understood by students (e.g., Questions must be stated simply so students understand what they are expected to learn.)

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3. Inquiry Questions

Inquiry questions guide an inquiry. They are sometimes also called “foundation” questions or “subsidiary” questions.

Inquiry questions are developed by students, with teacher guidance. They should be broad questions that require elaborate and comprehensive answers.

Example:

- I wonder about _____.
- I want to know what, when, where, who, and why _____.
- Why does _____?
- How is _____ like _____?
- How is _____ different from _____?
- Which _____ is preferred, and why?
- Why not _____?
- What if _____?

4. Interview Questions

Interviewing is an important method of collecting information without requiring students to read, making it especially suitable for younger students.

To begin, ask the four W questions: Who, What, When, and Where. Next, proceed with interpretive questions such as

- Why did you _____?
- How did you _____?
- Which aspects of _____ are most important to you? Explain.
- What would you change, and why would you change it?

References:

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- McKenzie, Jamieson A., and Hilarie Bryce Davis. “Filling the Tool Box: Classroom Strategies to Engender Student Questioning.” *From Now On: The Educational Technology Journal* (1999). <<http://questioning.org/toolbox.html>>. 15 Nov. 2004.

Make It: Creating an Effective Web Page (Internet #3)

ICT.11

TIME

120 minutes

OVERVIEW

In this learning experience (designed to follow ICT.9: Look for It: Learning to Search the Internet and ICT.10: Find It: Internet Scavenger Hunt), each collaborative group of students creates its own online scavenger hunt. They then create a class website on which they post their scavenger hunts, as well as other school work throughout the year.

Note: The Internet-related ICTs are intended to be taught in the suggested order:

- ICT.9: Look for It: Learning to Search the Internet
- ICT.10: Find It: Internet Scavenger Hunt
- ICT.11: Make It: Creating an Effective Web Page

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 4.1.2 *Choose Forms* — Select specific forms [such as diaries, narratives, speeches, letters, poetry, mime...] that serve particular audiences and purposes.
- 4.1.3 *Organize Ideas* — adapt models from listening, reading, and viewing experiences to enhance own oral, written, and visual texts using organizational patterns [such as stanzas, chronological order, paragraphs...].
- 4.2.3 *Enhance Legibility* — write legibly and at a pace appropriate to context and purpose when composing and revising; select and use a variety of formatting options [such as spacing, graphics, titles and headings, variety of font sizes and styles...] when appropriate.
- 4.2.4 *Enhance Artistry* — choose language, sounds, and images [including transitional devices] to enhance meaning and emphasis.
- 4.2.5 *Enhance Presentation* — prepare detailed and organized compositions, presentations, reports, and inquiry or research projects using templates or pre-established organizers.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- communicating electronically
- concept mapping
- ethical use of technologies
- web page authoring

SUGGESTED LEARNING RESOURCES**Software**

- web authoring

Internet

- IMYM Links Database: <<http://www.edu.gov.mb.ca/ks4/tech/imym/resources/links.html>>
- Search the Internet using the terms “evaluating websites” for suggested criteria and rubrics.

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM ICT.9#1: Internet FAQs for Students
- BLM ICT.11#1: Web Page Design: Observation Chart
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?
- BLM Mod.2.2#1: Venn Diagram

TBLMs

- TBLM ICT.9#1: “Internet 101” for Teachers
- TBLM OLE.10#1: Suggestions for Organizing and Displaying Electronic Collections

Materials

- three-ring binder
- dividers
- loose-leaf paper (white and lined)

SUGGESTIONS FOR INSTRUCTION**Preparation and Set-up**

- Become familiar with the functions of the web page authoring software installed on the classroom computers.
- Create a web page to host the student-created scavenger hunts, with hyperlinks. This page will later reside on the class website.

Activating Strategies

- Using a computer and projection system, open the web page authoring software that will be used in the class. Introduce its basic functions. Point out similarities with word-processing software and other applications students are already using.
- If ICT.8: Make Your Point has already been taught, discuss similarities between web pages and multimedia applications such as PowerPoint (see TBLM OLE.10#1: Suggestions for Organizing and Displaying Electronic Collections). Use a Venn Diagram (see BLM Mod.2.2#1: Venn Diagram), concept-mapping software (see ICT.6: Inspired), or a wall chart to record similarities and differences.
- In collaborative groups, students navigate the menus of the web page authoring software to familiarize themselves with its capabilities. Students share with the whole class some tips they found while navigating the software. Provide further clarifications and explanations, as needed.

Acquiring Strategies

- In collaborative groups, students review the websites they identified in ICT.9: Look for It: Learning to Search the Internet. Using BLM ICT.11#1: Web Page Design: Observation Chart, students note what they like and don't like in the presentation of the pages, including colour palette, layout, table of contents, and background. As a group, they select, discuss, and agree on components to be included in their own scavenger hunt web page.
- Each collaborative group of students plans its web page based on student observations and ratings of other web pages. The group plans colour, layout, and presentation of content. Students work on chart paper or use concept-mapping software (see ICT.6: Inspired) to visualize and represent their ideas.

Applying Strategies

- Each collaborative group of students uses the web authoring software on the class computers to create one web page to host its scavenger hunt questions.
- In collaborative groups, students try each group's scavenger hunt and email (see ICT.3: Riddle This) the answers to each hunt, as well as offering comments and suggestions regarding the web page.
- Each group reviews the emailed answers to the scavenger hunt questions. They analyze where there were difficulties, consider suggestions, and edit unclear scavenger hunt questions. They create another web page for the answers. They link their pages to the teacher-created home page.

Variations/Extensions

- Plan for a class website to contain the scavenger hunts and other student projects for the school year.
- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home their journals each week.

SUGGESTIONS FOR ASSESSMENT

- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Collaborative groups assess the accuracy of another group's answers to their scavenger hunt questions. Groups email the feedback to each other.
- Assess the applications of this ICT through the learning experiences in this interdisciplinary unit.

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- The Internet is a resource that students need to use effectively for the duration of the *Inventions, Innovations, and Discoveries* interdisciplinary unit, as well as throughout the whole school year.

BLM ICT.11#1: Web Page Design: Observation Chart

Evaluation Group Members _____

Observe the appearance of a selected website.

- Consider the bulleted items in each category listed below when noting the characteristics or features that you find helpful, that are attractive, or that make it easier to locate information at a glance or navigate the website. Record your observations and assessments.
- Rate the website characteristics on a scale of 1 (low) to 4 (high).

Website Title _____ **Date** _____

URL _____

Website Characteristics	Observations	Rating
Print <ul style="list-style-type: none"> • Title (Placement) • Letter Style • Font • Size • Colour • Other: 		
Colour <ul style="list-style-type: none"> • Main • Complementary • Shades of... • Other: 		
Layout <ul style="list-style-type: none"> • Text • Tables • Scrolling • Bulleted Items • Spacing of Content • Other: 		
Illustrations <ul style="list-style-type: none"> • Quantity • Size • Thumbnails Can Be Enlarged • Complement the Text • Appropriate for Topic • Copyright • Other: 		
Navigation Bar <ul style="list-style-type: none"> • Top Horizontal • Left Vertical • Bottom Horizontal • Bottom Vertical 		

Chart This (Spreadsheet)

ICT.12

TIME

90 minutes

OVERVIEW

Students use a spreadsheet to record and graph information about common characteristics, traits, and/or tastes of their classmates. This learning experience can be adapted to record and graph data from any current unit of study.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 3.1.2 *Ask Questions* — Formulate relevant questions to focus information needs for an inquiry.
- 3.1.4 *Create and Follow a Plan* — Create and follow a plan to collect and record information within a pre-established time frame.
- 3.3.2 *Record Information* — Make notes on a topic, combining information from more than one source; reference sources appropriately.
- 5.2.1 *Cooperate with Others* — Assist group members to maintain focus and complete tasks; identify and solve group process issues.
- 5.2.2 *Work in Groups* — Select and assume roles to assist in the achievement of group goals; engage in ongoing feedback.

Mathematics

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- SP-III.1.6 Analyze sets of data to make comparisons.
- SP-III.2.6 Display data by hand or by computer in a variety of ways, including: histograms, double-bar graphs, stem-and-leaf plots.
- SP-IV.1.6 Read and interpret graphs, which are provided.
- SP-IV.2.6 Make inferences to generate a conclusion about the data.

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- spreadsheet analysis

SUGGESTED LEARNING RESOURCES

Software

- spreadsheet

Print

- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills
- BLM OLE.5#2: Share the Learning Journal
- BLM OLE.8#2: What Have I Learned?

TBLMs

- TBLM ICT.2#1: Skill Know-How Checklist
- TBLM ICT.10#1: Questioning
- TBLM OLE.2#1: Daily Edit Concept Chart
- TBLM Mod.2.6#1: Steps for Developing a Survey

SUGGESTIONS FOR INSTRUCTION**Preparation and Set-up**

- Become familiar with the functions of the spreadsheet software installed on the class computers.
- Create a sample spreadsheet file and use it to demonstrate the software. As an example of an authentic use of a spreadsheet, make a spreadsheet of students' ICT skills, collected from BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills. Use codes or numbers rather than student names.
- Review the database of students' ICT skills, as expressed on BLM ICT.1#3: Survey of Information and Communication Technology (ICT) Skills, to identify possible student helpers for ICT.12: Chart This.
- Customize TBLM ICT.2#1: Skill Know-How Checklist for this ICT to make ongoing observations of students' skills.

Activating Strategies

- Ask a few students to state their favourite food, subject, or activity.
- Students predict what will be the most popular food, subject, or activity.
- Survey all students in the class for their favourite food, subject, or activity.
- Discuss ways of recording the survey data and displaying the results.
- Using a computer and a projection system, demonstrate the characteristics of a spreadsheet (using the previously created spreadsheet file of students' ICT skills, or any other appropriate data). Point out similarities with word processing and other software students are already using.

Acquiring Strategies

- Create a new spreadsheet file. Enter the information gathered about favourite food, subject, or activity in the new spreadsheet file, modelling the use of the software to students.
- Students discuss what kind of graph will best display the spreadsheet data.
- Use the graphing function of the spreadsheet application to display the results visually and to show students how to use the graphing function.

Applying Strategies

- In collaborative groups (see OLE.10: Electronic Collection), students decide on a topic for a survey to conduct within the class about a characteristic (e.g., number of persons in family),

trait (e.g., hair colour, height), or taste (e.g., favourite sport, TV show) of their classmates. They draft their survey questions (see TBLM ICT.10#1: Questioning and TBLM Mod.2.6#1: Steps for Developing a Survey).

- Students decide how the information will be recorded in the spreadsheet and how it will be graphed to represent the gathered data most effectively.
- Students conduct the survey and enter the data in the spreadsheet. They use their spreadsheet to graph and visualize the data, analyze the graphical representations of the data, and write conclusions based on the graphs obtained.

Variations/Extensions

- List other uses for a spreadsheet, such as recording marks, listing books read, making schedules, recording new vocabulary words, and creating a class dictionary. Discuss what makes a spreadsheet program more useful than a word processor for dealing with data. (For example, data can be sorted, edited, graphed, and represented.)
- Each student records his or her daily results from OLE.2: Daily Edit and OLE.3: Daily Math and Problem Solving using a spreadsheet. Students create a monthly graph of their results and interpret the graph for fluctuations.
- Students create journal entries using BLM OLE.5#2: Share the Learning Journal as they make learning discoveries. They use their journals to prepare for sharing sessions and bring home their journals each week.

SUGGESTIONS FOR ASSESSMENT

- Determine whether students are using the best graphing format to represent the data collected.
- Students reflect on their learning related to this ICT as they update BLM OLE.8#2: What Have I Learned? during reflection time (see OLE.8: Reflection Journal). They list newly acquired skills.
- Assess students' ability to use a spreadsheet in this interdisciplinary unit, when they create and analyze surveys.

CONNECTION TO INVENTIONS, INNOVATIONS, AND DISCOVERIES

- Students collect data about inventions and use a spreadsheet to record and analyze the information.
- Assess students' performance in using a spreadsheet when they create and analyze their invention needs survey.

