ILLUSTRATIVE EXAMPLES TO ACCOMPANY INFORMATION AND COMMUNICATION TECHNOLOGY

INTERIM PROGRAM OF STUDIES

GRADE 7 TO GRADE 9

SEPTEMBER 1998

Alberta Education

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The primary intended audience for this interim program of studies is:

Administrators	✓
Counsellors	
General Audience	✓
Parents	✓
Students	
Teachers	✓

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INTRODUCTION

PURPOSE

The Illustrative Examples are a companion resource to the *Information and Communication Technology, Interim Program of Studies,* 1998. The purpose of these examples is to:

- clarify the intent of the general and specific outcomes of the program of studies
- suggest ways to integrate the general and specific outcomes with programs of study in the core areas across all grade levels
- suggest tasks and activities that may help students achieve the outcomes within core subject areas.

The illustrative examples provide sample tasks students can perform to demonstrate what they know and can do in relation to the technology and core subject outcomes. These illustrative examples also provide ways in which to view the technology outcomes, as many of them may be broadly interpreted. For example, students are expected to communicate through multimedia. There are a variety of ways to accomplish this, from incorporating visuals, such as posters or a slide show with an oral presentation, to creating an electronic multimedia presentation with a software program. The concept of communicating through multimedia is the critical outcome; how students demonstrate their understanding and skill with this can vary.

The illustrative examples demonstrate how the technology outcomes can be integrated within the context of the core curricular areas. Each example is cross-referenced to one or more curricular outcomes. There are also examples of cross-curricular integration (two or more curricula along with the technology outcomes). A list of the **current programs of study** that the curriculum outcomes were drawn from can be found in the references section of this document. As these programs of study change, the illustrated examples will need to be reviewed for their currency.

LOOKING AT TECHNOLOGY DIFFERENTLY

The goal of the program of studies is to enable our students to become:

- capable information and communication technology users
- information seekers, analyzers and evaluators
- problem solvers and decision makers
- communicators and collaborators
- informed, responsible and contributing citizens.

Technology has been defined as the processes, tools and techniques that alter human activity. While often much attention is paid to such tools as computers, productivity software and peripheral devices, when we speak of technology, there is a need to focus on the processes that provide us with the conceptual tools with which to live our lives and to do our work more efficiently and effectively. One approach is to distinguish between hard and soft technologies. **Hard technologies** refer to such tools as computer hardware and software, calculators, fax machines, television and radio, VCRs and other electronic devices. **Soft technologies** refer to such processes as information management, needs assessment, task analysis, data analysis, mind mapping, instructional design, time management and collaboration with others.

As well as knowing how to use and apply the hard technologies—the tools—students also need to understand and apply the soft technologies—the processes. Many of the illustrative examples require students to demonstrate their ability to apply tools and processes within a specific context or problem. Transferring these skills to new contexts or problems is also a very critical outcome to achieve. The illustrative examples provide a starting place. Teachers will want to create other tasks and activities that present different problems and contexts.

FORMAT FOR ILLUSTRATIVE EXAMPLES

Each illustrative example has three parts to it:

- a background, or context
- the task or activity
- a scoring guide, or rubric.

Backgound The background provides important information to help students understand the nature of the problem to be solved or the conditions guiding the task. Sometimes the background or context is written for the students and sometimes it is written for the teacher. When the background is written for the teacher it provides an overview of the general purpose for the task and/or the subject setting.

Task The task or activity may be as simple as answering a question or following a single step process. It may be complex and involve a series of steps or interrelated processes. It may be completed in a single lesson, or it may require many class periods to complete. The task may incorporate several technology and subject outcomes, and some tasks cross over several subjects. Most of the tasks require students to have learned specific skills already. The task then becomes a demonstration of what the students can do on their own. Students should be provided with the opportunity and time to learn the required skills prior to the introduction of the task, or the teacher

should use the task to help students learn what is expected. Many of the tasks are group activities that require students to work and collaborate with others.

> **Note:** Task activities are suggestions only. Teachers are encouraged to modify the tasks to meet the needs and circumstances of their students. The availability of resources, such as software, computers and Internet connections, will determine which tasks are most appropriate. Student interest and readiness should also be taken into consideration.

Scoring guide The scoring guide or rubric, further clarifies what is expected of students by describing task assessment criteria. As tasks are designed to emphasize the technology learner outcomes, scoring guides generally provide only those criteria that match the specific outcomes listed. This type of scoring guide is called an **analytic rubric** and is most useful for instructional purposes. Teachers may want to develop scoring guides that also incorporate criteria matching the course subject area learner outcomes. This type of rubric is called **holistic**.

ONLINE DATABASE

The illustrative examples presented in this document also may be found in a searchable database on the Alberta Education web site at <http://ednet.edc.gov.ab.ca/technology>. Many of the illustrative examples include links to other web pages. As well, the 2Learn Alliance site provides a gateway to additional information and ideas. It can be found at <http://www.2Learn.ca>.

INFORMATION AND COMMUNICATION TECHNOLOGY

GENERAL OUTCOMES

FOUNDATIONAL OPERATIONS, KNOWLEDGE AND CONCEPTS

F1 Students will demonstrate an understanding of the nature of technology.

F2 Students will understand the role of technology as it applies to self, work and society.

F3 Students will demonstrate a moral and ethical approach to the use of technology.

F4 Students will become discerning consumers of mass media and electronic information.

F5 Students will practice the concepts of ergonomics and safety when using technology.

F6 Students will demonstrate a basic understanding of the operating skills required in a variety of technologies.

PROCESSES FOR PRODUCTIVITY

P1 Students will compose, revise and edit text.

P2 Students will organize and manipulate data.

P3 Students will communicate through multimedia.

P4 Students will integrate various applications.

P5 Students will navigate and create hyperlinked resources.

P6 Students will use communication technology to interact with others.

COMMUNICATING, INQUIRING, DECISION MAKING AND PROBLEM SOLVING

C1 Students will access, use and communicate information from a variety of technologies.

C2 Students will seek alternative viewpoints, using information technologies.

C3 Students will critically assess information accessed through the use of a variety of technologies.

C4 Students will use organizational processes and tools to manage inquiry.

C5 Students will use technology to aid collaboration during inquiry.

C6 Students will use technology to investigate and/or solve problems.

C7 Students will use electronic research techniques to construct personal knowledge and meaning.

ILLUSTRATIVE EXAMPLES

ENGLISH LANGUAGE ARTS, GRADE 7

General Outcomes: F3

SPECIFIC OUTCOMES

The student will be able to:

F3 3.3 understand the need for copyright legislation

RELATED CURRICULUM OUTCOMES

English Language Arts, Grade 7
GO 3.1, Plan and Focus, Bullet 3; GO 3.2, Select and Process, Bullet 2; GO 3.3, Organize, Record, and Evaluate, Bullet 1

- discuss the types and sources of information appropriate for topic, audience, form, purpose and point of view
- obtain information from a variety of sources, such as adults, peers, advertisements, magazines, lyrics, formal interviews, almanacs, broadcasts and videos, to explore research questions
- organize ideas and infomation by selecting or developing categories appropriate to a particular topic and purpose

STUDENT TASK

Background

The Internet provides students with access to a virtually unlimited source of information. In addition to teaching students how to use this technology, Alberta educators also face the challenge of assisting students in developing an ethic grounded in the responsible use of electronic material.

Task

During this school year, you will be involved in research on a variety of topics. In addition to using books, magazines, videos and encyclopedias for this work, you will likely also use the computer.

Visit one favourite web site on the Internet. This choice should fit with your school's acceptable user policy. What kind of information do you find there?

If you were to write a report on a topic related to this site, would it be alright for you to simply copy what you have found on the Internet? Why or why not? How would it be similar to or different from copying a library book or encyclopedia? Should the same rules for using a bibliography and quotes apply to Internet information? Why or why not?

Write out your ideas in point form. Combine your thoughts with those of your classmates to develop a class policy on these issues.

SCORING GUIDE

The student:

4 – demonstrates astute insights into the need for copyright legislation
  – perceives, accurately, the connection between responsible and ethical use of computers and the need to quote sources; approaches the issue of acknowledging sources of information with maturity beyond grade level expectations

3 – demonstrates insights into the need for copyright legislation
  – perceives, accurately, the connection between responsible and ethical use of computers and the need to quote sources; approaches the issue of acknowledging sources of information with maturity

2	– demonstrates a fundamental understanding of the need for copyright legislation – perceives some connection between responsible and ethical use of computers and the need to quote sources; approaches the issue of acknowledging sources of information with an adequate level of maturity
1	– is approaching a fundamental understanding of the need for copyright legislation – demonstrates limited perceptions regarding the connection between responsible and ethical use of computers and the need to quote sources; approaches the issue of acknowledging sources of information with a limited level of maturity

ILLUSTRATIVE EXAMPLES

MATHEMATICS, GRADE 7

General Outcomes: P2, C6

SPECIFIC OUTCOMES

The student will be able to:

P2	3.2	design, create and modify a spreadsheet for a specific purpose, using functions such as SUM, PRODUCT, QUOTIENT, and AVERAGE
C6	3.1	articulate clearly a plan of action to use technology to solve a problem
	3.4	pose and test solutions to problems by using computer applications such as computer-assisted design or simulation/modelling software
	3.5	create a simulation or a model by using technology that permits the making of inferences

RELATED CURRICULUM OUTCOMES

Mathematics, Grade 7
Chance and Uncertainty, SP 7.11
- use the Monte Carlo simulation method to solve probability problems

STUDENT TASK

Task

A local department store is offering a scratch and win card. With each purchase, each scratch and win card randomly entitles you to one of four prizes. How many scratch and win cards do you need to collect to receive all four prizes? Use the random number function on a spreadsheet to generate random numbers between one and four, representing the four prizes. In order to use the Monte Carlo method to answer this question, use the random number generator on the computer and complete a chart to document the number of trials required to get at least one of each of one, two, three or four, which represent each prize.

Example:

In trial one, below, you make nine purchases before you receive all four prizes. What are the results for additional trials? Based on 10 trials, what is the average number of purchases required to receive all four prizes?

Random Numbers
1 2 1 3 2 3 1 1 4

SCORING GUIDE

The student:

4 – designs, creates and modifies a spreadsheet to articulate clearly a plan of action to solve the problem
  – correctly uses functions, such as random number, sum and average
  – demonstrates clearly a random number simulation

3 – designs, creates and modifies a spreadsheet but does not present information clearly
  – uses, correctly some functions, such as random number, sum and average
  – demonstrates a random number simulation with assistance,

2 – designs a partially complete spreadsheet but does not present information clearly
  – lacks evidence of using functions correctly and creating a simulation

1 – designs an incomplete spreadsheet and is unable to solve the problem

ILLUSTRATIVE EXAMPLES

MATHEMATICS, GRADE 7

General Outcomes: F3, P1, P2, P4, P6, C1, C3, C5

SPECIFIC OUTCOMES

The student will be able to:

F3	3.6	model and assume personal responsibility for ethical behaviour and attitudes and acceptable use of information technologies and sources in local and global contexts
P1	3.4	use appropriate communication technology to elicit feedback from others
P2	3.3	use a variety of technological graphing tools to draw graphs for data involving one or two variables
P4	3.3	emphasize information, using placement and colour
P6	3.1	communicate with a targeted audience, within a controlled environment, by using communication technologies such as e-mail and web browsers
C1	3.5	analyze and synthesize information to create a product
C3	3.1	evaluate the authority and reliability of electronic sources
C5	3.2	use networks to brainstorm, plan and share ideas with group members

STUDENT TASK

Background

Note: The teacher should search for sites in advance that allow for e-mail exchange among students. Make some contacts with teachers who are interested in participating in the following project, and exchange e-mail addresses. Determine the number and location of the collaborating classes, and establish a timeline for participants to submit their responses. You can use your own e-mail account, school/class account or have students create personal e-mail accounts for the survey.

Task

Work in small groups of two or three, and design a survey with a minimum of five questions to solicit information about teens from other communities in the world. Use other schools' web sites to collect and record information. First, distribute the survey to a class in your school. Then, write an e-mail letter, with the list of questions and information about the survey, to collect data from other classes in the world. Send the e-mail to participating schools.

Design, create and modify a spreadsheet or simple database to collect and organize the survey results. Use the graphing tools on your computer to display the data with pie charts. Use the word processor to answer the following questions: What conclusion can you draw from the data collected from your school? What conclusions can you draw from the data collected from other schools? Are there any similarities, differences or patterns in the data collected? Can you make any predictions about future trends or changes based on the data collected? How can you check your data for accuracy or your sources for reliability? If you were given the chance to repeat your survey, what modifications would you make? What other means could be used to collect data for the survey? Describe issues to be considered when collecting data, such as appropriate language, ethics, privacy and cultural sensitivity.

RELATED CURRICULUM OUTCOMES

Mathematics, Grade 7
Data Analysis, SP 7.1 to 7.5, 7.8

- formulate questions for investigation, from a real-world context
- select, defend and use appropriate methods of collecting data: designing and using questionnaires, interviews, experiments, research
- describe issues to be considered when collecting data; e.g., appropriate language, ethics, cost, privacy, cultural sensitivity
- display data by hand or by computer in a variety of ways, including circle graphs
- read and interpret graphs
- interpolate from data to make predictions

SCORING GUIDE

The student:

4 – writes an appropriate electronic survey to solicit responses from other communities
– uses graphing tools independently to draw pie charts for the data collected from the survey, and emphasizes information, using effective placement and colour
– analyzes and synthesizes information, by thoughtfully responding to the follow-up questions, and demonstrates understanding of results and patterns
– evaluates clearly the authority and reliability of electronic sources

3 – writes an electronic survey to solicit responses from other communities
– uses graphing tools, with assistance, to draw pie charts for the data collected from the survey, and emphasizes information, using somewhat effective placement and colour
– analyzes and synthesizes information, by responding to most of the follow-up questions
– evaluates the authority and reliability of electronic sources

2 – writes, with direct assistance, an electronic survey to solicit responses from other communities
– uses graphing tools, inadequately, to draw pie charts for the data collected from the survey, and emphasizes information, using placement and colour
– analyzes and synthesizes some of the information, by responding to a few of the follow-up questions
– evaluates, with direction, the authority and reliability of electronic sources

1 – is unable to write an electronic survey to solicit responses from other communities
– has difficulty drawing pie charts

ILLUSTRATIVE EXAMPLES

SCIENCE, GRADE 7

General Outcomes: F1, C6

SPECIFIC OUTCOMES

The student will be able to:

F1	3.7	demonstrate the ability to troubleshoot technical problems
C6	3.2	identify the appropriate materials and tools to use in order to accomplish a plan of action
	3.4	pose and test solutions to problems by using computer applications such as computer-assisted design or simulation/modelling software
	3.5	create a simulation or a model by using technology that permits the making of inferences

RELATED CURRICULUM OUTCOMES

Science, Grade 7
Unit 2, Concept 2

- structures are designed in response to human needs, purposes and aspirations

STUDENT TASK

Background

Many mice have infested your family's cottage and are rapidly consuming your food. Since there is not a hardware store within reasonable distance, you must construct your own model mousetrap. It is a matter of survival!

Task

Using an appropriate computer application, design your mousetrap. Consider the dimensions of the mousetrap and materials and tools needed to construct it. Check with your teacher to find out which materials will be supplied and which you will need to bring from home. You may have to draft the plan more than once. Once you have finalized your plan, build and test your model mousetrap. Evaluate the effectiveness of the design, noting what works well and what needs improving.

SCORING GUIDE

The student:

4 – demonstrates, through the revision of drafts, the ability to anticipate potential technical problems with the model design
– identifies, effectively, appropriate materials and tools to use in order to successfully accomplish an innovative plan of action
– creates and tests solutions to the problem critically, by using computer applications such as computer-assisted design or simulation/modelling software

3 – demonstrates, through the revision of drafts, the ability to anticipate some potential technical problems with the model design
– identifies, competently, appropriate materials and tools to use in order to successfully accomplish an innovative plan of action
– creates and tests solutions to the problem, by using such computer applications as computer-assisted design or simulation/modelling software

2	– demonstrates, through the revision of drafts, limited ability to anticipate potential technical problems with the model design – identifies, satisfactorily, materials and tools to use in order to accomplish a plan of action – creates, but has difficulty testing, solutions to the problem, by using such computer applications as computer-assisted design or simulation/modelling software
1	– requires assistance in the revision of drafts and demonstrates limited ability to anticipate potential technical problems with the model design – experiences difficulty in independently identifying appropriate materials and tools to use in order to accomplish a plan of action – exhibits frustration in creating and testing solutions to the problem by using such computer applications as computer-assisted design or simulation/modelling software

ILLUSTRATIVE EXAMPLES

SOCIAL STUDIES, GRADE 7

General Outcomes: C1, C6

SPECIFIC OUTCOMES

The student will be able to:

C1	3.4	access and retrieve information through the electronic network
	3.5	analyze and synthesize information to create a product
C6	3.3	evaluate choices and the progress in problem solving, then redefine the plan of action as appropriate

RELATED CURRICULUM OUTCOMES

Social Studies, Grade 7
Topic A, Culture, Skills 3 and 4

- culture is a learned way of life shared by a group of people
- write, from a single point of view, a clear and effective short report, or explanation to defend a decision
- converse with others in a variety of settings, including informal, small-group and whole-class discussions
- selection of material and a design is based on many considerations
- designs may need to accommodate specialized needs or environmental conditions

STUDENT TASK

Backgound

Culture provides us with guidelines for what is acceptable and what is not within an organization. It helps us to know what is valued. Clues to a group's culture, including school culture, can be found in its symbols, traditions, artifacts and language. Many schools now have web sites that give us insights into their school cultures.

Task

Your task is to visit a number of school homepages of other countries to research school culture, as it is evident from their homepages at least.

As a first step, describe your school's culture. You may wish to make a list of as many aspects of the culture as you can, and then provide examples. For example, your school rules or "expected student behaviour" is one aspect of your school culture. The way students dress is another aspect of culture. Any aspect of communication, socialization, beliefs and values, roles or combination of these is sufficient. Make a list of these aspects to compare/contrast with the other schools you choose. If your school has a homepage your may wish to use it as a source of information for your list.

Access several school web sites to learn about their cultures. Take note of how they convey this information to you. Construct a chart to organize your data. At this point you may need to review or show the steps involved in using a search engine effectively.

Using the data collected, compare each of the school web sites with your own, if you have one, then draw conclusions about the effectiveness of the web sites as sources of information about their culture. Based on your survey of sites, which school would you select as most informative? The least informative? How does the culture of each school compare with your own?

Using the list of information you collected, create a web page that shows your school's culture as compared to the other chosen schools. You may complete this in paragraph format, using list items as subheadings, or in a chart format.

Link from your web page to the web sites of other schools you have chosen.

SCORING GUIDE

The student:

4 – organizes information on the web page well, effectively shows completes cultural comparisons among the schools and links to other schools
  – makes conclusions that are consistent with the data collected
  – responds demonstrate an insightful understanding of how information can be transmitted through a variety of media

3 – organizes information on the web page, shows cultural comparisons among schools and completes links to other schools
  – makes conclusions that are generally consistent with the data collected
  – responds in ways that demonstrate a thoughtful understanding of how information can be transmitted through a variety of media

2 – does not organize information on the web page well, compares data in a sparse manner and does not complete all links to other schools
  – makes conclusions that are limited or somewhat inconsistent with the data collected
  – responds in ways that demonstrate a general or a common understanding of how information can be transmitted through a variety of media

1 – does not organize information on the web page well, or does not develop a web page, makes little or no comparison among schools, and creates few or not workable links
  – makes conclusions that are illogical or inconsistent with the data collected
  – responds in ways that demonstrate a limited understanding of how information is transmitted through a variety of media

ILLUSTRATIVE EXAMPLES

SOCIAL STUDIES, GRADE 7

General Outcomes: F1, F3, P5, C6

SPECIFIC OUTCOMES

The student will be able to:

F1	3.1	demonstrate an understanding that information can be transmitted through a variety of media
	3.8	demonstrate an understanding that technology is a process, technique or tool used to alter human activity
F3	3.1	use time and resources on the network wisely
P5	3.2	demonstrate proficient use of various information retrieval technologies
C6	3.3	evaluate choices and the progress in problem solving, then redefine the plan of action as appropriate
	3.5	create a simulation or a model by using technology that permits the making of inferences

RELATED CURRICULUM OUTCOMES

Social Studies, Grade 7
Topic A, Culture and Communication, Unit 2, Concept 5 and 6

- culture is a learned way of life shared by a group of people
- write, from a single point of view, a clear and effective short report, or explanation to defend a decision
- converse with others in a variety of settings, including informal, small-group and whole-class discussions
- selection of material and a design is based on many considerations
- designs may need to accommodate specialized needs or environmental conditions

STUDENT TASK

Background

On July 4, 1997, human beings from around the world were treated to live images of our neighbouring planet, Mars. This was a major technological achievement. However, the arrival of the "Pathfinder" craft and its companion robot, "Sojourner", also created much debate about our plans to visit Mars in person early in the 21st century.

Task

For more than a decade, a group of space agencies from many countries has been working on the goal to send people to Mars. It is possible that you may be involved in this future event.

One of the key questions scientists are trying to solve is; How will we live on Mars. Mars is a waterless world with nighttime low temperatures of -126°C. Radiation, windstorms that blow up to 300 kilometres per hour, lower gravity and unbreathable air are also factors that we must consider in our plans to colonize Mars.

Meeting our basic needs will be critical to our survival on Mars. How we choose to meet these needs will also form the basis for the first human culture on Mars.

You have been assigned to a team that has the task of designing the living quarters for the first human colonists. Before you can design this home, you will need to know more about Mars. Conduct an Internet search that will give you this background information.

In small groups, use this data as you plan the living quarters. Using technology, e.g., computer-assisted drafting, draw programs and/or graphics software, design a two-dimensional or three-dimensional model that can be used as a guide for housing humans on Mars.

Once you have completed your first draft, explain your design to another group. Listen carefully to their feedback, and be prepared to share ideas with them about their own design. Consider their suggestions for improving your work, and revise your design to make it stronger.

As a follow-up activity, respond to this question: How does technology help us to meet our basic needs in our daily lives?

SCORING GUIDE

The student:

4 – demonstrates insight into the role of technology as a tool to assist in carrying out human activity, including meeting basic human needs
  – uses technology in effective and creative ways to design a model
  – revises and refines the approach and plans, as necessary, as the project unfolds
  – transfers knowledge gained from an Internet search to model designs; makes insightful and relevant inferences and connections between the context—Mars environment—and applications of technology—model design
  – uses the Internet, effectively and efficiently as a source of information

3 – demonstrates an understanding that technology can act as a tool to assist in carrying out human activity, including meeting basic human needs
  – uses technology in effective ways to design a model
  – revises and refines the approach and plans, as necessary, as the project unfolds
  – transfers knowledge gained from an Internet search to model designs; is beginning to make insightful and relevant inferences and connections between the context—Mars environment—and applications of technology—model design
  – uses the Internet, effectively and efficiently, as a source of information

2 – demonstrates an awareness that technology can act as a tool to assist in carrying out human activity, including meeting basic human needs
  – uses technology to design a model
  – makes minor changes to the approach or plan as the project unfolds
  – is beginning to transfer knowledge gained from an Internet search to model design; makes basic connections between the context—Mars environment—and applications of technology—model design
  – uses the Internet as a source of information

1 – demonstrates a superficial awareness that technology can act as a tool to assist in carrying out human activity, including meeting basic human needs
  – uses technology, with assistance, to design a model
  – does not revise or refine the approach during the project
  – requires assistance to transfer knowledge gained from an Internet search to model design; does not independently make basic connections between the context—Mars environment—and applications of technology—model design
  – uses the Internet, with some difficulty, as a source of information; may require assistance

ILLUSTRATIVE EXAMPLES

CROSS-CURRICULAR, GRADE 7

General Outcomes: F6, P2, P4, C3, C6

SPECIFIC OUTCOMES

The student will be able to:

F6	3.2	perform routine data maintenance and management of personal files
P2	3.2	design, create and modify a spreadsheet for a specific purpose, using functions such as SUM, PRODUCT, QUOTIENT, and AVERAGE
	3.3	use a variety of technological graphing tools to draw graphs for data involving one or two variables
P4	3.1	integrate information from a database into a text document
C3	3.2	evaluate the relevance of electronically accessed information to a particular topic
C6	3.1	articulate clearly a plan of action to use technology to solve a problem

RELATED CURRICULUM OUTCOMES

Mathematics, Grade 7
SO 4, Statistics and Probability
- Display data by hand or by computer in a variety of ways, including circle graphs.

English Language Arts, Grade 7
Topic C, Process Skills, Locating/Interpreting/ Organizing, Bullets 2, 3, 6 and 7; Process Skills, Analyzing/Synthesizing/Evaluating, Bullets 1 and 4; Communication Skills, Bullet 1.
- identify possible sources and location of information (print, non print, interviews, surveys)
- acquire information to find answers to questions through listening, observing, reading, using community resources and using newspapers
- identify relationships among variables within charts, graphs and tables
- identify the purposes, message and intended audience of visual communications.

STUDENT TASK

Background

In your study of the multicultural nature of Canadian society, you learn about the diversity of the ethnic backgrounds represented in our country's population.

This task will help you to:

- compare relative percentages of several ethnic groups
- select and construct appropriate graphs to represent the data
- analyze the data in order to make general observations.

Task

Access a statistical database, such as Statistics Canada at <http://www.statcan.ca/start.html>, and locate information regarding selected ethnic origins for Canada, the provinces and territories. Identify the list of ethnic groups under which statistics were collected for Canada and for the province of Alberta. Enter the data for Canada and for Alberta into a simple spreadsheet.

Develop a survey document that you can use to collect information about the ethnic heritages of the students in your school. You should use a list of ethnic groups similar to that found in the statistical database. Conduct the survey, by class, and add the data to your spreadsheet.

With a partner, use the data to construct three graphs: one illustrating the ethnic origins in Canada, one for Alberta and one for a class in the school. Experiment with a variety of graphical forms, e.g., bar graph, pie chart, to determine the most appropriate and effective way to visually display the data that you have collected. Remember that the intent of the assignment is to compare the relative percentages of each ethnic group in Canada, Alberta and the school.

Integrate the three graphs into a text document, and in paragraph form discuss your observations regarding your findings. Respond to the following questions: What are the similarities and differences between the three graphs? What interpretations do you have regarding the results? How well does your choice of graph illustrate and support your interpretations?

Within your network folder, hard drive or disk, organize your information into appropriate folders. Remember to label your folder(s) in ways such as the following; by subject area;

- compare information about a topic drawn from two or more sources to see if they are identical, similar, parallel or inconsistent, unrelated or contradictory
- categorize information to develop concepts—cultural heritage, cultural groups, bilingualism, multiculturalism
- create a graph to show the cultural and ethnic origins of the present Canadian population

e.g., social studies/mathematics; by content area, e.g., multiculturalism. Inside each folder, appropriately label all documents.

SCORING GUIDE

The student:

4 – articulates clearly a plan of action, by organizing data in a spreadsheet and selecting appropriate graphs to illustrate the data
– experiments with a variety of graphical styles and selects an appropriate graphical display that is clearly labelled and effectively placed within the text document
– designs, creates and modifies a spreadsheet to accurately, completely and clearly organize statistics from a database
– organizes files and folder(s) and appropriately labels them

3 – articulates, sufficiently, a plan of action, by organizing data in a spreadsheet and selecting appropriate graphs to illustrate the data
– experiments with a variety of graphical styles and selects an appropriate graphical display that is labelled and placed within the text document
– designs, creates and modifies a spreadsheet to completely and clearly organize statistics from a database
– organizes files and folder(s)

2 – articulates, satisfactorily, a plan of action, by organizing data in a spreadsheet and selecting appropriate graphs to illustrate the data
– uses graphical styles and selects a graphical display that is labelled and placed within the text document
– designs, creates and modifies a spreadsheet to organize statistics from a database
– has files and folder(s) that are inappropriately labelled or disorganized

1 – articulates, with assistance, a plan of action, by organizing data in a spreadsheet and selecting graphs to illustrate the data
– experiences difficulty using graphical styles and selecting a graphical display that is labelled and placed within the text document
– exhibits frustration in designing, creating and modifying a spreadsheet to organize statistics from a database
– has files and folder(s) that are not labelled or are missing

ILLUSTRATIVE EXAMPLES

ENGLISH LANGUAGE ARTS, GRADE 8

General Outcomes: F6, P5, P6

SPECIFIC OUTCOMES

The student will be able to:

F6	3.3	demonstrate proficiency in uploading and downloading text, image, audio and video files
	3.6	identify and apply safety procedures, including anti-virus scans and virus checks, to maintain data integrity
P5	3.2	demonstrate proficient use of various information retrieval technologies
P6	3.2	demonstrate proficiency in accessing local area network, wide area network and Internet services, including uploading and downloading text, image, audio and video files

RELATED CURRICULUM OUTCOMES

English Language Arts, Grade 8
GO 1.1, Bullets 1, 2 and 3; GO 1.2, Bullet 2; GO 2.3, Bullet 5; GO 3.1, Bullet 4; GO 3.2, Bullet 2; GO 3.3, Bullet 2; GO 4.2, Bullet 3

- explore diverse ideas to develop conclusions, opinions and understanding
- integrate new understanding with previous viewpoints and interpretations
- experiment with memorable language to convey personal perceptions, feelings, experiences, thoughts and ideas in various forms
- articulate, represent and explain personal viewpoints clearly
- create original texts [such as description, panel discussions, impersonations, collages, timelines, documentary videos, journals or diaries] to communicate and demonstrate understanding of forms and techniques
- prepare and use a plan to access, gather and record in own words relevant information
- distinguish between fact and opinion when inquiring or researching using a variety of information sources [such as artifacts, debates, forums, biographies, autobiographies]

STUDENT TASK

Background

Through the ages, art and music have been important tools for human beings to express their understandings of their world, their ideas and their feelings. How have some of our most famous and/or popular artists and musicians communicated with us through their work?

Task

Choose an artist or musician. Use the Internet to research biographical information about your chosen subject. Record at least ten important facts in point form. Keep an ongoing list of uniform resource locations (URLs) for web sites that you have visited.

As you review sites, look for examples of the artist's or musician's work. Copy, import and/or download at least three pictures of art or one sound file that you believe are good examples of the kinds of messages the artist or musician is trying to communicate with us.

Run an appropriate virus scan on the items you copy/download. Although this is most likely an automated feature, you should still be aware of the necessity to check for and/or perform anti-virus scans and checks.

Compose a short summary, in paragraph form, of what you think the artist or musician has tried to express. Provide a critique of the art or music and how well you believe the artist or musician has communicated with us. Comment on how you believe the viewing of the artwork or listening to the music may be changed by using the Internet as opposed to seeing the work in person.

SCORING GUIDE

The student:

4 – accesses and retrieves relevant information, successfully, through the electronic network and demonstrates awareness of the need for anti-virus checks
– copies, imports and/or downloads, effectively, graphics or sound files appropriate to the task; uses a variety of sources, e.g., web sites, for visual information
– analyzes available information critically and then selects the most relevant facts; synthesizes information effectively and creatively
– shows substantial insight in the interpretation of the artist's/musician's message, as viewed through the electronic network

• make notes in point form, summarizing major ideas and supporting details; reference sources • format for legibility and emphasis when composing and revising; enhance the coherence and impact of documents using electronic editing functions [such as cut, paste, copy, insert]	– demonstrates an astute awareness of how media may affect communication; can easily relate this concept to the task – conducts a search in a highly efficient, refined manner; exceeds requirements exhibits exceptional effort
	3 – accesses and retrieves relevant information, competently, through the electronic network and demonstrates awareness of the need for anti-virus checks – copies, imports and/or downloads, adeptly and efficiently, graphics or sound files appropriate to the task – analyzes available information carefully and then selects relevant facts; synthesizes information – shows some insight in the interpretation of the artist's/musician's message, as viewed through the electronic network – demonstrates an awareness of how media may affect communication; relates this concept to the task – conducts an effective search and, in many respects, exceeds requirements
	2 – accesses and retrieves some relevant information through the electronic network and may not demonstrate awareness of the need for anti-virus checks – copies, imports and/or downloads, satisfactorily, graphics or sound files that are, for the most part, appropriate to the task – gives cursory attention to analyzing available information – provides a superficial interpretation of the artist's/musician's message, as viewed through the electronic network; shows the beginnings of insight – demonstrates a limited awareness of how media may affect communication – conducts an acceptable search; may experience some difficulties with efficiency and time management; meets basic requirements
	1 – has difficulty accessing, retrieving and selecting relevant information through the electronic network and does not demonstrate awareness of the need for anti-virus checks – has difficulty independently copying, importing and/or downloading graphics appropriate to the task – does not analyze available information; appears to use random means for selecting information – shows a limited level of insight in the interpretation of the artist's message, as viewed through the electronic network – does not demonstrate an awareness of how media may affect communication – conducts a search with assistance; does not yet meet basic requirements

ILLUSTRATIVE EXAMPLES

ENGLISH LANGUAGE ARTS, GRADE 8

General Outcomes: F6, P4, C5

SPECIFIC OUTCOMES

The student will be able to:

F6	3.3	demonstrate proficiency in uploading and downloading text, image, audio and video files
P4	3.3	emphasize information, using placement and colour
C5	3.1	access, retrieve and share information from electronic sources such as common files

RELATED CURRICULUM OUTCOMES

English Language Arts, Grade 8
GO 2.3, Bullet 4; GO 3.2, Bullet 3; GO 4.2, Bullet 3

- identify and explain characters' qualities and motivations, by considering their words and actions, their interactions with other characters and the author's or narrator's perspective
- record key ideas and information from oral, print and other media texts, avoiding overuse of direct quotations
- use correct pronoun-antecedent agreement in own writing

STUDENT TASK

Background

Teacher Note: Posting a project to a school's web site requires student knowledge of web page construction. Access to the school server for uploads likely requires assistance from your school server administrator.

Task

As a class project, create an online student literature anthology. Select one piece of writing from your English language arts work to submit for your class anthology. Access suitable sites on your school's intranet or the Internet to locate and download audio, image or video files to enhance the effectiveness of your writing. Consider the use of colour and layout to emphasize the information. Upload the finished product to the network, and post your presentation for shared access.

SCORING GUIDE

The student:

4 – uploads and downloads text, image, audio and video files
– presents an online submission that includes effective use of text, images, and audio or video files
– posts the finished product for shared access
– makes use of placement and colour to emphasize information
– accesses local area network, wide area network or Internet services independently

3 – is proficient with the use of placement and colour to emphasize information
– accesses, with some assistance, local area network, wide area network or Internet services
– is experiencing some difficulties with uploading and/or downloading text, image, audio or video files
– presents an online submission that includes use of text, images and audio or video files
– has minor difficulty in posting the submission

2	–	is experiencing great difficulty in posting the submission
	–	experiences great difficulty uploading and downloading text, image, audio and/or video files
	–	presents an online submission that makes limited use of text, images, and audio or video files
	–	uses placement and colour in a basic manner to emphasize information
	–	demonstrates limited ability to access local area network, wide area network or Internet services
1	–	is unable to access local area network, wide area network or Internet services
	–	is unable to upload or download text, image, audio or video files
	–	presents an online submission that includes only text and images
	–	is unable to post a submission for shared access
	–	is unable to use effectual placement and colour to emphasize information

ILLUSTRATIVE EXAMPLES

MATHEMATICS, GRADE 8

General Outcomes: P2, C1, C3

SPECIFIC OUTCOMES

The student will be able to:

P2	3.2	design, create and modify a spreadsheet for a specific purpose, using functions such as SUM, PRODUCT, QUOTIENT, and AVERAGE
	3.4	use a scientific calculator or a computer to solve problems involving rational numbers
C1	3.4	access and retrieve information through the electronic network
	3.5	analyze and synthesize information to create a product
C3	3.1	evaluate the authority and reliability of electronic sources

RELATED CURRICULUM OUTCOMES

Mathematics, Grade 8
Number Operations, SP 8.12

- use the concepts of rate, ratio, percentage and proportion to solve problems in meaningful contexts [E, PS, T]

STUDENT TASK

Background

Use the Internet to search for foreign currency rates. Demonstrate how to check the accuracy or reliability of the source of information.

Task

Imagine you are going on a world tour and you want to know what you will receive in the local currency in exchange for 100 Canadian dollars. Create a spreadsheet to calculate foreign currencies to Canadian dollars, and Canadian dollars to foreign currencies. Calculate the exchange for several countries. Using the spreadsheet, demonstrate the calculation change if the exchange rate increases by 5%.

Extension: Check the currency rates over ten days, and create a graph to illustrate the increase or decrease in exchange rate. The following Internet source for currency rates can be used: <http://quote.yahoo.com>.

SCORING GUIDE

The student:

4 – uses the Internet independently to access and retrieve information about exchange rates in the world
– analyzes and synthesizes the information, by creating a clearly labelled spreadsheet with correct formulas to calculate Canadian and foreign currencies using various exchange rates
– includes, for the solution, a verification of the data collected from the Internet

3 – uses the Internet, with guidance, to access and retrieve information about exchange rates in the world
– can label and include correct formulas in a spreadsheet to calculate Canadian and foreign currencies using various exchange rates
– includes verification of some of the collected data

2 – uses the Internet, with direct guidance, to access and retrieve information about exchange rates in the world
– includes some calculations with errors in the spreadsheet
– attempts to verify data that has been collected

1 – has difficulty accessing information about exchange rates, using the Internet
– does not solve the problem and some calculations are incorrect
– does not attempt to verify any data

ILLUSTRATIVE EXAMPLES

MATHEMATICS, GRADE 8

General Outcomes: F3, F6, P1, C1

SPECIFIC OUTCOMES

The student will be able to:

F3	3.4	cite sources when using copyright and/or public domain material
F6	3.4	demonstrate the ability to electronically control devices
P1	3.2	use advanced menu features within a word processor to accomplish a task; for example, insert a table, graph or text from another document
	3.3	revise text documents based on feedback from others
C1	3.5	analyze and synthesize information to create a product

RELATED CURRICULUM OUTCOMES

Mathematics, Grade 8
3-D Objects and 2-D Shapes, SS 8.8
- identify, investigate and classify quadrilaterals, regular polygons and circles, according to their properties

STUDENT TASK

Task

Write a journal entry to demonstrate your understanding of quadrilaterals. Identify and classify quadrilaterals, regular polygons and circles, according to their properties. Use draw tools or geometry software to reproduce the shapes. If a scanner is available, you may scan illustrations as well. Cite sources when using copyright and/or public domain material. Share your entry with one other person in the class. In return, provide critical and constructive analysis of their work. Revise your journal entry based on the feedback received, and submit to your teacher.

SCORING GUIDE

The student:

4 – analyzes and synthesizes information about quadrilaterals independently, using various resources to write an exceptional journal entry, with evidence of advanced menu features within a word processor to accomplish the task; e.g., inserting a drawing or text from another document
– demonstrates, comfortably, the ability to electronically control a scanner, if available; uses the network easily to share ideas with one other person in the class in order to solicit feedback
– revises the journal entry, appropriately, based on feedback from others
– cites sources correctly when using copyright and/or public domain material

3 – analyzes and synthesizes, with assistance, information about quadrilaterals, using various resources to write a satisfactory journal entry
– demonstrates, generally, the ability to electronically control a scanner, if available
– uses the network collaboratively to share ideas with one other person in the class in order to solicit feedback
– revises the journal entry adequately, based on feedback from others
– cites most sources correctly when using copyright and/or public domain material

2	–	analyzes and synthesizes, with direct guidance and assistance, information about quadrilaterals, using various resources to write a satisfactory journal entry
	–	uses the network with assistance to share ideas with one other person in the class in order to solicit feedback
	–	revises the journal entry adequately, based on feedback from others
	–	cites sources incorrectly when using copyright and/or public domain material
1	–	writes a journal entry about quadrilaterals that is incomplete and has major errors
	–	is unable to use the network to share ideas with one other person in the class in order to solicit feedback
	–	cites sources incorrectly when using copyright and/or public domain material

ILLUSTRATIVE EXAMPLES

SCIENCE, GRADE 8

General Outcomes: P2, P4

SPECIFIC OUTCOMES

The student will be able to:

P2	3.1	design, create and modify a database for a specific purpose
P4	3.1	integrate information from a database into a text document
	3.2	integrate database reports into a text document

RELATED CURRICULUM OUTCOMES

Science, Grade 8
Unit 4, Skills 5, Concepts 2, Bullet 3

- classify materials according to simple characteristics (e.g., classification of minerals on the basis of hardness, fracture, cleavage)
- organize and present data
- recognize and interpret examples of major rock groups (i.e., igneous, metamorphic and sedimentary)

STUDENT TASK

Background

In examining features of Earth's crust, common rocks are identified by observation and simple tests; e.g., texture, foliation, striation, crystal size. Examples of major rock groups; i.e., igneous, metamorphic and sedimentary, are recognized and interpreted based upon their characteristics.

Task

Create a database that will allow you to record characteristics of individual rock samples, based upon your observations and simple tests. When your review of the samples is complete and the characteristics have been recorded, work with and organize the information within your database in a variety of ways to help with the identification of major rock groups. Generalize characteristics of each rock group from your sampling.

Using your database, import your findings into a word processing document to summarize your findings. Compare your work with that of others in your class.

SCORING GUIDE

The student:

4 – designs, creates and modifies a highly sophisticated database appropriate to the task
  – demonstrates a high level of competence in integrating information from the database and database reports into text documents

3 – designs, creates and modifies a complex database appropriate to the task
  – demonstrates an advanced level of proficiency in integrating information from the database and database reports into text documents

2 – designs, creates and modifies an adequate database appropriate to the task
  – demonstrates a satisfactory level of proficiency in integrating information from the database and database reports into text documents

1 – experiences difficulty in independently designing, creating and modifying a database appropriate to the task
  – is approaching independence in ability to integrate information from the database and database reports into text documents

ILLUSTRATIVE EXAMPLES

SCIENCE, GRADE 8

General Outcomes: F5, P3

SPECIFIC OUTCOMES

The student will be able to:

F5	3.1	identify risks to health and safety that result from improper use of technology
P3	3.1	create multimedia presentations that take into account audiences of diverse size, age, gender, ethnicity and geographic location

RELATED CURRICULUM OUTCOMES

Science, Grade 8
Unit 3, Skills 3, Bullets 2 and 3; Skills 4, Bullets 1 and 2

- identify, examine and evaluate information about alternative products
- examine personal, social, economic and environmental perspectives on each alternative
- consider alternatives
- consider perspectives

STUDENT TASK

Background

The Consumer Product Testing Unit in Science 8 highlights the need for safe, reliable and effective products. This extension activity will focus on personal computers, a product that is commonly found in homes and businesses across North America.

Task

In a group, investigate the safety considerations associated with the use of a personal computer. Through the use of various resources, the investigation by your group should address several questions.

- What are the potential risks to personal health and/or safety posed by monitors and keyboards, and what are some ergonomic considerations related to seating, keyboard height and location, and monitor placement?
- What, if any, safety standards are imposed on the manufacturers of personal computers or individual components, such as the monitor? What recommendations for use are provided to us by the manufacturers?
- What procedures, design elements and/or modifications related to use could decrease the risks associated with the use of a personal computer?
- What personal, social, economic and environmental advantages and disadvantages can be attributed to computer use?

Organize your information into a classroom presentation that will share your findings and understanding with your class. Consider how technology could be used in your presentation.

SCORING GUIDE

The student:

4 – explains clearly, using considerable detail, the concept of ergonomics and its significance to the use of personal computers
– gives an insightful, eloquent and creative presentation regarding the potential risks involved in the use of personal computers
– transfers, easily and consistently, knowledge of the concepts of ergonomics and safety considerations to daily use of a personal computer

3	– explains clearly the concept of ergonomics and its significance to the use of personal computers – gives an articulate presentation regarding the potential risks involved in the use of personal computers – transfers, regularly, knowledge of the concepts of ergonomics and safety considerations to daily use of a personal computer
2	– explains sufficiently the concept of ergonomics and its significance to the use of personal computers – gives a suitable presentation regarding the potential risks involved in the use of personal computers – transfers, intermittently, knowledge of the concepts of ergonomics and safety considerations to daily use of a personal computer; does not consistently apply theory to practice
1	– struggles with explaining the concept of ergonomics and its significance to the use of personal computers; has misconceptions which are apparent – gives a presentation regarding the potential risks involved in the use of personal computers that has several shortcomings; delivers information that is unclear and/or inaccurate – finds transferring knowledge of the concepts of ergonomics and safety considerations to daily use of a personal computer to be particularly challenging; does not consistently apply theory to practice and does not appear to recognize the need to do so

ILLUSTRATIVE EXAMPLES

SCIENCE, GRADE 8

General Outcomes: C1, C5

SPECIFIC OUTCOMES

The student will be able to:

C1	3.1	plan and conduct a search, using a wide variety of electronic sources
	3.5	analyze and synthesize information to create a product
C5	3.1	access, retrieve and share information from electronic sources such as common files

RELATED CURRICULUM OUTCOMES

Science, Grade 8
Unit 4, Attitude 1-2, Skills 1, 2 and 5

- awareness and appreciation of the effects of geological change over long periods of time
- respect for the power of geological forces, questioning, proposing ideas, processing data
- recognizing patterns in changes to the earth's surface
- identifying and asking relevant questions
- hypothesizing relationships between observed characteristics of earth materials and the processes that may have caused them
- predicting based on interpretation of present changes
- classifying materials according to simple characteristics (e.g., classifications of minerals on the basis of hardness, fracture, cleavage)
- organizing and presenting data

STUDENT TASK

Background

Volcanic action, earthquakes and movements of Earth's crust are related. Using a variety of electronic sources, including the Internet:

- locate as many recent earthquakes as you can
- describe the structure and development of volcanoes in various parts of the world; e.g., United States, Indonesia, Japan, Italy, and beneath the major oceans
- identify and describe various crystal movements that are forming
- describe the relationship between earthquake locations, distribution of volcanoes and crystal movement.

Provide your findings using a variety of multimedia; e.g., multimedia software, images or simulations on videotapes, and text document.

SCORING GUIDE

The student:

4 – makes creative and insightful use of multimedia to present findings
– plans a thorough search for recent earthquakes, using the Internet (search engines), current electronic encyclopedias, science journals and other magazines online, and identifies many recent earthquakes

3 – makes effective use of multimedia to present findings
– plans a search for recent earthquakes, using the Internet (search engines) and current electronic encyclopedias, and finds a reasonable amount of appropriate information

2 – makes common use of multimedia to present findings
– plans a search for earthquakes, using the Internet or current electronic encyclopedias, and finds a little information

1 – makes little or no use of multimedia to present findings
– is unable, without assistance, to develop a plan to conduct a search

ILLUSTRATIVE EXAMPLES

SCIENCE, GRADE 8

General Outcomes: P2, C1, C7

		SPECIFIC OUTCOMES The student will be able to:
P2	3.3	use a variety of technological graphing tools to draw graphs for data involving one or two variables
C1	3.5	analyze and synthesize information to create a product
C7	3.1	identify patterns in organized information

RELATED CURRICULUM OUTCOMES

Science, Grade 8
Concepts 5, Bullets 1, 2, 3, and 4; Concept 6, Bullets 1, 2 and 3

- describe the growth of a plant, using both qualitative and quantitative observations
- compare growth patterns of two or more plants
- compare growth requirements of two or more plants
- design an investigation in which plant growth is observed in relation to variation in growth conditions. This investigation may focus on (but is not limited to) the following:
  - manipulation of light conditions: photoperiod, intensity of light, quality of light to suit needs of plants
  - addition of measured quantities of fertilizers and/or growth supplements to plants
  - growth of plants in hydroponics solution

STUDENT TASK

Background

Tools such as spreadsheets and databases can be used to enhance our research skills. By organizing, on a spreadsheet or in a database, information that is collected from experiments, we can conduct a variety of analyses. This task allows you to think, "What if I did this, or changed this? What would happen?"

Task

Grow some plants under a variety of conditions, such as temperature, fertilizer used, sunlight hours, water consumed and soil type. Use seeds all from the same source, or identify the plants by the source of the seed as one of the different conditions for this experiment.

- Record your observations, on a recording sheet, regarding such matters as the amount of growth, types of fertilizer used, average temperature for growing, hours of light the plants were exposed to and amount of water provided.
- Input this data of your observations into a spreadsheet.
- Analyze the data in a variety of ways, such as how are growth and hours of light, type of fertilizer, growing temperatures and water consumed related?
- Are there any patterns or relationships that you can see from your analysis?

Prepare graphs of the data you have analyzed. Summarize your findings in a report, describing the growth of a plant and comparing growth patterns of two or more plants to determine how growth conditions affect plant growth.

SCORING GUIDE

The student:

4 – provides an accurate and thorough analysis of the data collected, complete with graphs, with the help of a spreadsheet
  – presents, in a carefully worded report, a detailed synthesis of all the information gathered from the experiment

3 – provides a reasonable analysis of the data collected, complete with some graphs, with the help of a spreadsheet
  – presents, in a report, a synthesis of most of the information gathered from the experiment

2	–	provides an analysis of some of the data collected and has used a spreadsheet to record some of the information
	–	presents, in a clear report, a summary of some of the information gathered from the experiment
1	–	presents, in a report, some of the information gathered from the experiment
	–	does not provide an analysis of the data

ILLUSTRATIVE EXAMPLES

SOCIAL STUDIES, GRADE 8

General Outcomes: F6, C1, C7

SPECIFIC OUTCOMES

The student will be able to:

F6	3.4	demonstrate the ability to control devices electronically
C1	3.1	plan and conduct a search, using a wide variety of electronic sources
C7	3.2	make connections among related, organized data, and assemble various pieces into a unified message

RELATED CURRICULUM OUTCOMES

Social Studies, Grade 8
Topic B, Canada: History to the Twentieth Century

- the development of Canada as a country has been shaped by a number of significant events, and the contributions of individuals

STUDENT TASK

Background

Canada has a colourful past full of intriguing people and occurrences.

Task

Choose an important event or individual in Canadian history from the 20th century that significantly contributed to our country's development.

Research this significant event or person, using textbooks and other relevant print sources, related CD-ROMs, and/or the Internet. Consider the background of the individual or event and other people involved. Explain, with supporting evidence, how this individual or event contributed to Canada's development.

You may complete this project individually or in small groups.

Organize your research information. Include images, illustrations, or audio or video clips of the event or individual involved. In a multimedia format, e.g., slide show, multimedia software, hyperstudio, video or audio presentation, present the information to your class or to another class.

SCORING GUIDE

The student:

4 – plans, diligently, and conducts, systematically, a very successful search for pertinent information, images and sound, using a wide range of electronic sources
– demonstrates a keen adeptness in accessing, using and controlling a variety of electronic media to create an effective presentation
– creates a presentation that is extremely coherent, combining separate elements of information, images and sound to produce a fluent, unified demonstration of learning

3	–	plans and conducts, carefully, a successful search for pertinent information, images and sound, using a wide range of electronic sources
	–	demonstrates above-average skill in accessing, using and controlling a variety of electronic media to create an effective presentation
	–	creates a presentation that is comprehensive, combining separate elements of information, images and sound to produce a cohesive demonstration of learning
2	–	plans and conducts an adequate search for pertinent information, images and sound, using a wide range of electronic sources
	–	demonstrates average skill in accessing, using and controlling a variety of electronic media to create a presentation
	–	creates a presentation that is of an acceptable level, combining separate elements of information, images and sound with a degree of success to produce a reasonably understandable demonstration of learning
1	–	plans and conducts, with assistance, an adequate search for pertinent information, images and sound, using a wide range of electronic sources
	–	demonstrates limited skill in accessing, using and controlling a variety of electronic media to create a presentation; requires help
	–	creates a presentation that is not of an acceptable level and that does not serve as a demonstration of learning

ILLUSTRATIVE EXAMPLES

SOCIAL STUDIES, GRADE 8

General Outcomes: P1, P5, C1

SPECIFIC OUTCOMES

The student will be able to:

P1	3.1	design a document, using style sheets and with attention to page layout, that incorporates advanced word processing techniques, including headers, footers, margins, columns, table of contents, bibliography and index
	3.2	use advanced menu features within a word processor to accomplish a task; for example, insert a table, graph or text from another document
	3.3	revise text documents based on feedback from others
P5	3.2	demonstrate proficient use of various information retrieval technologies
C1	3.1	plan and conduct a search, using a wide variety of electronic sources
	3.2	refine searches to limit sources to a manageable number
	3.3	access and operate multimedia applications and technologies from stand-alone and online sources
	3.4	access and retrieve information through the electronic network
	3.5	analyze and synthesize information to create a product

RELATED CURRICULUM OUTCOMES

Social Studies, Grade 8
Topic C, South America: A Case Study in Brazil

- the interactions of people with their physical environment continues to influence patterns of life in Brazil

STUDENT TASK

Task

You are a travel agent and your supervisor has asked you to create a travel brochure for a region of Brazil. Using word processing or desktop publishing software, design a brochure that shows the physical and human geography of the region. Use sources such as the Internet, CD-ROM or scanners to acquire images to include in the brochure.

You may wish to create your brochure as a web page, slide show or a multimedia software presentation.

SCORING GUIDE

The student:

4 – includes many related images that effectively complement textual information
– includes all pertinent information—information is well thought-out and extensive
– creates a brochure that is well organized, creative and includes appropriate subheadings

3 – includes some related images that complement textual information
– includes all pertinent information—information shows thought but could be more extensively developed
– creates a brochure that is organized and includes appropriate subheadings

2 – includes images, but some may be unrelated to the topic or do not complement textual information
– includes all basic information
– creates a brochure that is adequately organized but may not include key elements

1 – includes few or no related images—the brochure has little visual appeal
– includes little or no information
– creates a brochure that is poorly organized or incomplete

ILLUSTRATIVE EXAMPLES

CROSS-CURRICULAR, GRADE 8

General Outcomes: F1, F2, F3, C6

SPECIFIC OUTCOMES

The student will be able to:

F1	3.1	demonstrate an understanding that information can be transmitted through a variety of media
	3.8	demonstrate an understanding that technology is a process, technique or tool used to alter human activity
F2	3.6	explain ways in which technology can assist in the monitoring of local and global environmental conditions
F3	3.1	use time and resources on the network wisely
C6	3.4	pose and test solutions to problems by using computer applications such as computer-assisted design or simulation/modelling software

RELATED CURRICULUM OUTCOMES

Social Studies, Grade 8
Topic A, Canadian Geography; GO 1.2, Bullet 2; GO 3.2, Bullets 1, 4 and 5; GO 4.2, Bullet 3; GO 4.3, Bullets 1, 2 and 3

- identify possible sources and location of information (print, non print, interviews, surveys)
- acquire information to find answers to questions through listening, observing, reading and using community resources
- read and interpret maps to identify relationships between human and physical geography
- compare information about a topic drawn from two or more sources to see if they are identical, similar, parallel or inconsistent, unrelated or contradictory
- categorize information to develop concepts regions, location, place, movement, environmental interaction
- construct maps (including contour demonstrating use of symbols, location, direction, distance, scale and physical geography

STUDENT TASK

Background

In the fall of 1995, RADARSAT, Canada's most advanced observation satellite, was launched. Circling Earth once every 24 hours, RADARSAT provides us with the most current information on weather conditions, ice movements, flooding, ocean currents, forestry and agricultural conditions, and the global environment in general. RADARSAT allows us to monitor the ever-changing conditions on Earth.

To learn more about RADARSAT and Canada's role in satellite technology, visit the RADARSAT web site or the Canadian Space Agency's web site. Consider what other sources of information are available to you.

Task

You have been assigned a work experience option with the Canadian Space Agency. They have asked you to spend some time with the RADARSAT team. You have been doing so well that the staff have given you the task of reviewing some new transmissions. While looking at the latest images of the area known as the "Ring of Fire" you notice something unusual. You call the team captain over to look at what you have found. She congratulates you on discovering a new island that has been formed as a result of volcanic activity!

Once you have some background information on Canada's role in space and in satellite technology, use a draw or simulation program to help you design a map of your new island. Use what you know about landforms, bodies of water and vegetation to make your map more interesting. Indicate the absolute location—latitude and longitude—keeping in mind that it was found in the region of the "Ring of Fire". Finally, name the new island.

Using your word processing skills, compose a brief report about your island. Include information about the physical geography—landforms, bodies of water, soil, vegetation, climate. Be certain that this description is consistent with the location of the island. Edit and revise your report.

English Language Arts, Grade 8
GO 1.2, Bullet 2; GO 3.2, Bullets 1, 4 and 5; GO 4.2, Bullet 3; GO 4.3, Bullets 1, 2 and 3

- articulate, represent and explain personal viewpoints clearly
- access, record and appraise personal and peer knowledge and understanding of a topic to establish an information base for inquiry or research
- recall, expand, and use a variety of skills [including visual and auditory] to access information and ideas from a variety of sources [such as subtitles, marginal notes and key words, electronic searches, previews and reviews, visual effects, sound effects]
- construct meaning using direct statements, implied meaning, and inferences; adjust rate of reading or viewing according to purpose, topic, density of information and organizational patterns of text
- format for legibility and emphasis when composing and revising; enhance the coherence and impact of documents using electronic editing functions [such as cut, paste, copy, insert]
- edit for sentence variety, word choice, and tone appropriate to audience and purpose, and to eliminate misplaced modifiers
- know spelling conventions and apply them to familiar and unfamiliar words; use appropriate resources when editing and proofreading
- know and apply capitalization and punctuation conventions consistently in a variety of sentence structures and written forms when editing and proofreading
- integrate new understanding with previous viewpoints and interpretations

SCORING GUIDE

The student:

4 – conducts a highly effective and time-efficient search—once an appropriate site(s) has been found, time is used wisely to review the content of the site(s)
– demonstrates clearly how technology, including RADARSAT, can be used to monitor environmental conditions—local, national, international
– demonstrates clearly, through the information-gathering process, an understanding that the Internet is a source of textual and visual information

3 – conducts an effective and time-efficient search—once an appropriate site(s) has been found, time is used wisely to review the content of the site(s)
– demonstrates, with a few examples, how technology, including RADARSAT, can be used to monitor environmental conditions—local, national, international
– demonstrates, through the information-gathering process, an understanding that the Internet is a source of textual and visual information

2 – conducts a search with some difficulties—once an appropriate site(s) has been found, time is not consistently used in a wise manner to review the content of the site(s)
– demonstrates a limited awareness that technology, including RADARSAT, can be used to monitor environmental conditions—local, national, international
– demonstrates, through the information-gathering process, an awareness that the Internet is a source of textual and visual information

1 – conducts a search with difficulty and may require assistance—once an appropriate site(s) has been found, time is not consistently used in a wise manner to review the content of the site(s)
– does not appear to understand that technology, including RADARSAT, can be used to monitor environmental conditions—local, national, international
– demonstrates, through the information-gathering process, a very basic awareness that the Internet is a source of textual and visual information

ILLUSTRATIVE EXAMPLES

CROSS-CURRICULAR, GRADE 8

General Outcomes: F1, F2, F3, P5, C3

SPECIFIC OUTCOMES

The student will be able to:

F1	3.1	demonstrate an understanding that information can be transmitted through a variety of media
F2	3.5	make inferences regarding future trends in the development and impact of communication technologies
	3.7	analyze and assess the impact on society of having limitless access to information
F3	3.6	model and assume personal responsibility for ethical behaviour and attitudes and acceptable use of information technologies and sources in local and global contexts
P5	3.2	demonstrate proficient use of various information retrieval technologies
C3	3.1	evaluate the authority and reliability of electronic sources
	3.2	evaluate the relevance of electronically accessed information to a particular topic

RELATED CURRICULUM OUTCOMES

Science, Grade 8
ST Attitudes 1, 3, 7, Concept 2; STS, Attitude, All, Concepts 1–4 (Science and SS Secondary Targets); Process Skills 10, 12; Participation Skills 1, 2, 3; Nature of Science, Concepts, All

- appreciate the need for technological devices and processes to serve human needs
- be aware of alternatives in the approach to technological problems
- be confident in personal ability to solve practical problems
- learn that technology is a process of solving practical problems
- appreciate the need for informed decision making at both personal and societal levels

STUDENT TASK

Background

The Internet provides us with a limitless source of information. But, as we "surf the net", how do we evaluate the reliability and quality of the web sites that we visit? Refer to <http://www.2Learn.ca> for information on evaluating resources.

Task

In small groups or as a whole class, brainstorm a list of the top news stories from the past month from television, radio, magazines, newspapers and other media. Choose one current event or issue, and conduct an Internet search for that topic.

As you read the information from each site, keep a point form list of any discrepancies. What, if any, differences are there in how the facts are presented? What different opinions are expressed? Which site(s) is right and which one(s) is not completely accurate? How do you know? What strategies do you use to separate fact from opinion? How do you know the difference between a reliable web site and one that is of lesser quality and/or trustworthiness?

In small groups, compile a list of factors that you consider when judging the reliability of materials that you find on the Internet. Combine your ideas with those of other groups in your class to create a set of guidelines for researching on the Internet.

Returning to your computer, conduct a search on evaluating web sites. You may need to try several different key words. Keep a list of the key words that lead you to relevant sites. Share that information with classmates by writing the successful words on the board.

As you find other examples of ideas on evaluating web sites, print out hard copies. Compare the ideas of others to your own. If necessary, modify the class guidelines to make your list stronger. Proofread and edit your work for spelling, grammar, and choices of words and punctuation. Once you have finalized your work, consider how to display it for quick and easy reference.

As a follow-up activity, write an essay considering the following questions: As a source of information, what does the Internet mean for society? What are some possible advantages and disadvantages of this technology?

- appreciate the contributions and limitations of scientific and technological knowledge to the societal decision making process
- be confident in the uses of scientific and technological knowledge for informed personal decision making
- be committed to the pursuit of knowledge and the responsible application of that knowledge
- appreciate the different perspectives that bear upon the societal decision process (e.g., scientific, technological, personal, social, environmental and economic)
- have respect for the perspectives and viewpoints of others
- demonstrate an understanding that science is a disciplined way to develop explanations for natural phenomena
- demonstrate an understanding that scientific knowledge is cumulative and subject to change
- demonstrate an understanding that significant aspects of the scientific enterprise including observable data that can be repeatedly
- demonstrate in various places, at different times, by different investigators, experimentation (scientific inquiry) as a means to support, modify or reject proposed ideas about natural phenomena, and interpretations and conceptual inventions that are theoretical in nature

Social Studies, Grade 8
Process Skills 10, 12; Participation Skills 1, 2, 3

- compare information about a topic drawn from two or more sources to see if they are identical, similar, parallel or inconsistent, unrelated or contradictory
- determine values underlying a position (identify, define, describe-value priorities, value conflicts)
- converse with others in a variety of settings, including informal, small-group and whole-class discussions
- observe the courtesies of group discussion, such as speaking in turn, using appropriate tone and giving feedback in a non-threatening manner
- contribute to the group (leader, recorder, member) and group processes—staying on topic, extending the ideas of others, paraphrasing, and working toward a consensus or a decision

SCORING GUIDE

The student:

4 – considers, critically, the societal impact of having open access to Internet information and opinion; shows insight into the potential impact of technology on communication; is able to identify several significant positive and negative societal implications of Internet technology
  – conducts a highly efficient search; retrieves and prints only relevant pieces
  – models responsible citizenship consistently, while using the Internet
  – makes significant contributions to group work; has several ideas or skills for critically analyzing and evaluating the authority, reliability and relevance of information found on the Internet; demonstrates ability to critically assess the quality of individual web sites
  – clearly demonstrates, throughout the activity, an understanding that media—television, newspapers, radio, magazines, the Internet—transmit information and opinion

3 – is beginning to critically consider the societal impact of having open access to Internet information and opinion; shows insight into the potential impact of technology on communication; is able to identify two or more significant positive and negative societal implications of Internet technology
  – conducts an effective search; retrieves and prints largely relevant pieces
  – models responsible citizenship consistently, while using the Internet
  – contributes to group work; is clearly developing skills for critically analyzing and evaluating the authority, reliability and relevance of information found on the Internet; demonstrates ability to assess the quality of individual web sites
  – demonstrates an understanding that media—television, newspapers, radio, magazines, the Internet—transmit information and opinion

2 – is beginning to consider the societal impact of having open access to Internet information and opinion; shows some awareness of the potential impact of technology on communication; is able to identify one or two positive and negative societal implications of Internet technology
  – conducts a search with some difficulty; may retrieve and print some irrelevant pieces
  – models responsible citizenship, usually, while using the Internet

English Language Arts, Grade 8
GO 1.1, Bullets 1 and 3; GO 1.2, Bullets 2 and 3; GO 2.3, Bullet 7; GO 3.1, Bullet 4; GO 3.2, Bullets 1 and 5; GO 3.3, Bullet 6; GO 3.4, Bullet 2

- revise understanding and expression of ideas by connecting new and prior knowledge and experiences
- seek out and consider diverse ideas, opinions and experiences to develop and extend own ideas, opinions and experiences
- exchange ideas and opinions to clarify understanding and to broaden personal perspectives
- reconsider and revise initial understandings and responses in light of new ideas, information and feedback from others
- identify creative uses of language and visuals in popular culture, such as commercials, rock videos and magazines; explain how imagery and figurative language, such as hyperbole, create tone and mood
- choose a plan to access, gather and record information, according to self-selected parameters
- obtain information from a variety of sources, such as artifacts, debates, forums, biographies, autobiographies, surveys, documentaries, films, CD-ROMs, charts and tables, when conducting research
- develop and use criteria for evaluating the usefulness, currency and reliability of information for a particular research project
- evaluate the relevance and importance of gathered information; address information gaps
- integrate appropriate visual, print and/or other media to inform and engage the audience

– contributes somewhat to group work; is developing an awareness of the need for critically analyzing and evaluating authority, reliability and relevance of information found on the Internet; is approaching ability to independently assess the quality of individual web sites
– demonstrates an awareness that media—television, newspapers, radio, magazines, the Internet—transmit information and opinion

1 – has given superficial consideration to the societal impact of having open access to Internet information and opinion; shows limited awareness of the potential impact of technology on communication; may not be able to identify positive and negative societal implications of Internet technology
– conducts a search with difficulty; may require assistance to locate relevant sites
– models responsible citizenship, occasionally, while using the Internet
– makes limited contributions to group work; has limited awareness of the need for critically analyzing and evaluating authority, reliability and relevance of information found on the Internet; would have great difficulty in independently assessing the quality of individual web sites
– demonstrates a general awareness that media—television, newspapers, radio, magazines, the Internet—transmit information and opinion

ILLUSTRATIVE EXAMPLES

CROSS-CURRICULAR, GRADE 8

General Outcomes: F1, F3, P3, P5, P6, C1, C4

SPECIFIC OUTCOMES

The student will be able to:

F1	3.1	demonstrate an understanding that information can be transmitted through a variety of media
F3	3.1	use time and resources on the network wisely
P3	3.2	create multimedia presentations that incorporate meaningful graphics, audio, video and text gathered from remote sources
P5	3.2	demonstrate proficient use of various information retrieval technologies
P6	3.2	demonstrate proficiency in accessing local area network, wide area network and Internet services, including uploading and downloading text, image, audio and video files
C1	3.1	plan and conduct a search, using a wide variety of electronic sources
	3.2	refine searches to limit sources to a manageable number
	3.3	access and operate multimedia applications and technologies from stand-alone and online sources
	3.4	access and retrieve information through the electronic network
	3.5	analyze and synthesize information to create a product
C4	3.1	create a plan for an inquiry that includes consideration of time management
	3.2	develop a process to manage volumes of information that can be available through electronic sources

STUDENT TASK

Background

Canada is a world leader in satellite and robotic technology. Since the 1960s, we have launched many successful satellites that have allowed us to be linked with Canadians living in the most remote areas of the north. We have also used this technology to help us communicate with many other countries around the world and to help us monitor global conditions. The business of "watching" Earth from space is known as remote sensing.

More recently, Canada has become a very competitive "exporter" of this type of technology. In the autumn of 1995, we launched our most sophisticated remote sensing satellite, RADARSAT. RADARSAT orbits Earth every 24 hours, providing us with the most current information about weather conditions, ice movements, flooding, ocean currents, forestry and agricultural conditions, and the global environment in general. In addition to learning about our own country, we sell this information to other nations around the world.

To learn more about RADARSAT and Canada's role in satellite technology, visit the RADARSAT web site or the Canadian Space Agency's web site. Consider what other sources of information are available to you.

Now that you have some background information on Canada's role in space and in satellite technology, you can begin to appreciate how remote sensing gives us a whole new perspective on Canadian geography. We are able to study our country as it changes on a daily basis, region by region.

Task

You and a partner have been asked by a local radio/television station, in cooperation with the Canadian Space Agency, to put together a multimedia software presentation on one of the physical and economic regions of North America. Choose one of these regions and compile information and images, including satellite images, to create a ten minute "newscast" presentation on the physical and human geography of that region. Be sure to include in your work information on each of the five concepts of geography—location, place, movement, environmental interaction and regions.

As you begin to prepare your presentation, brainstorm possible sources of information and images. As your work develops, pay attention to the organization of the presentation. Revise your work so that it has a logical flow.

RELATED CURRICULUM OUTCOMES

Social Studies, Grade 8
Topic A, Canadian Geography

- identify possible sources and location of information (print, non print, interviews, surveys)
- acquire information to find answers to questions through listening, observing, reading and using community resources
- read and interpret maps to identify relationships between human and physical geography
- compare information about a topic drawn from two or more sources to see if they are identical, similar, parallel or inconsistent, unrelated or contradictory
- categorize information to develop concepts regions, location, place, movement, environmental interaction
- construct maps (including contour demonstrating use of symbols, location, direction, distance, scale and physical geography

English Language Arts, Grade 8
GO 3.1, Bullet 1; GO 3.2, Bullets 1 and 5; GO 3.3, Bullet 2; GO 3.4, Bullets 1, 2 and 3

- experiment with several ways to focus a topic, and select a form appropriate to audience and purpose
- obtain information from a variety of sources, such as artifacts, debates, forums, biographies, autobiographies, surveys, documentaries, surveys, documentaries, films, CD-ROMs, charts and tables, when conducting research
- develop and use criteria for evaluating the usefulness, currency and reliability of information for a particular research project
- organize ideas and information to establish an overall impression or point of view in oral, print and other media texts
- communicate ideas and information in a variety of oral, print and other media texts, such as interviews, minilessons and documentaries

As well, be careful to observe the courtesies of group work.

When all presentations have been made, discuss how multimedia software presentations, as one use for technology, are different from other forms of presentations. Which do you prefer? Why? Compose a paragraph that explains your preference.

SCORING GUIDE

The student:

4 – creates a highly effective and concise multimedia software presentation that incorporates extensive information from electronic and non-electronic sources; has carefully analyzed and sorted information to include only the most relevant facts and images related to the physical and human geography of the selected region
  – conducts highly productive and time-efficient search and retrieval processes; uses time on the Internet to great advantage
  – demonstrates clearly an understanding that the Internet can be used as a source of textual and visual information

3 – creates an effective and relatively concise multimedia software presentation that incorporates substantial information from electronic and non-electronic sources; has carefully analyzed and sorted information to include only relevant facts and images related to the physical and human geography of the selected region
  – conducts productive and time efficient search and retrieval processes; uses time on Internet to advantage
  – demonstrates an understanding that the Internet can be used as a source of textual and visual information

2 – creates a multimedia software presentation that incorporates an acceptable level of information from electronic and non-electronic sources; has analyzed and sorted information, but has some difficulty with including only relevant facts and images related to the physical and human geography of the selected region
  – conducts search and retrieval processes; uses time on the Internet generally to advantage, but has some difficulties with efficiency
  – demonstrates an awareness that the Internet can be used as a source of textual and visual information

• plan and facilitate small-group and short, whole-class presentations to share information • present information to achieve a particular purpose and to appeal to interest and background knowledge of reader or audience • plan and shape presentations to achieve particular purposes or effects, and use feedback from rehearsals to make modifications	1 – creates a multimedia software presentation with assistance; includes some information from electronic and non-electronic sources, but has gaps in knowledge; has only superficially analyzed and sorted information; has considerable difficulty with including only relevant facts and images related to the physical and human geography of the selected region – conducts search and retrieval processes with assistance; has difficulties with efficiency – demonstrates a basic awareness that the Internet can be used as a source of textual and visual information

ILLUSTRATIVE EXAMPLES

ENGLISH LANGUAGE ARTS, GRADE 9

General Outcomes: F4, C3

SPECIFIC OUTCOMES

The student will be able to:

F4	3.4	recognize that the ability of technology to manipulate images and sound can alter the meaning of a communication
C3	3.1	evaluate the authority and reliability of electronic sources

RELATED CURRICULUM OUTCOMES

English Language Arts, Grade 9
GO 1.1, Bullet 1; GO 3.2, Bullet 3

- question and reflect on personal responses and interpretations; apply personal viewpoints to diverse situations or circumstances
- evaluate information sources for possible bias and use criteria designed for a particular inquiry or research plan

STUDENT TASK

Task

Using a scanner or the Internet, your teacher has acquired an image that can convey a message of two different meanings, depending on which part of the image is viewed. Using presentation software, your teacher has created two slides/screens. The first slide presents a partial image. The second slide presents the complete image. **Note:** If available, consider using software that can morph images.

View the first, partial, image presented on the screen. Answer the following:

- What is your impression of the image on the screen?
- If the image is expanded, predict what else you might see on the screen.
- On your own, select an image and use software to alter it. Note how the change affects how you view the image.

Now, view the second image. Answer the following questions:

- What is your impression of the expanded image?
- How has your perspective changed from viewing the first image?

Discuss the following issues:

- What strategies can be used to assist in evaluating the validity of information and images gathered from such electronic sources as the Internet? Refer to <http://www.2Learn.ca> for information on evaluating sources.
- Technology allows us to manipulate or alter images and audio files. What advantages and disadvantages do you perceive for such use of technology?

SCORING GUIDE

The student:

4 – recognizes and articulates, clearly, the ability of technology to manipulate images, thereby potentially altering the message
– identifies a variety of strategies to critically evaluate the authority and reliability of the data retrieved from electronic sources

3	–	recognizes and articulates, adequately, the ability of technology to manipulate images, thereby potentially altering the message
	–	identifies some strategies to critically evaluate the authority and reliability of the data retrieved from electronic sources
2	–	has a very general insight into the possibility of technology to manipulate image files
	–	identifies one or two strategies to evaluate the authority and reliability of the data retrieved from electronic sources; demonstrates a basic understanding of the necessity of critical viewing
1	–	has a superficial understanding of the possibility of technology to manipulate image files; has a limited grasp of how data manipulation can alter meaning
	–	is unable to independently identify strategies for evaluation of the authority and reliability of the data from electronic sources

ILLUSTRATIVE EXAMPLES

ENGLISH LANGUAGE ARTS, GRADE 9

General Outcomes: F4

SPECIFIC OUTCOMES

The student will be able to:

F4
- 3.1 identify aspects of style in a presentation
- 3.2 understand the nature of various media and how they are consciously used to influence an audience
- 3.3 identify specific techniques used by the media to elicit particular responses from users

RELATED CURRICULUM OUTCOMES

English Language Arts, Grade 9
GO 2.2, Bullet 3; GO 2.3, Bullets 2 and 4

- discuss how word choice and supporting details in oral literary, and media texts [including drama and oral presentations] affect purpose and audience
- examine the use of a variety of techniques [such as establishing setting, character portrayal, stereotyping...] to portray gender, cultures and sociogroups in oral, literary and media texts
- examine creative uses of language in popular culture [such as advertisements, magazines]; recognize how figurative language and techniques create a dominant impression, mood, tone and style

STUDENT TASK

Background

As a viewer of television and a reader of newspapers and magazines, you are constantly bombarded with advertising through commercials and advertisements.

Task

Choose three advertisements that include text, and for each advertisement complete an analysis that includes the following points:

- determine the primary purpose of the advertisement
- determine the specific audience the advertisement is intended to reach
- identify and discuss the advertising techniques used to appeal to the intended audience
- identify and describe the use of illustrations, logos, colours, music, props, activities, headlines, setting, dominant shapes and/or slogans that are used to enhance the style of the presentation
- describe how the advertisement seeks to influence the audience
- explain why the advertisement does or does not elicit the intended audience response
- explain any hidden messages implied by the text, graphics or layout design.

Present your advertising texts and analyses in a format of your choice. Consider how technology can be used in your presentation; e.g., word processing, hyperstudio, multimedia software, web pages.

SCORING GUIDE

The student:

4
- identifies, accurately, aspects of style and critically analyzes individual elements—text, graphics, layout—to evaluate the effectiveness of advertisements
- identifies and explains, accurately, specific media techniques used to elicit particular responses from the intended audience
- provides a highly creative and insightful analysis of how media is consciously used to influence an audience

3	– identifies, accurately, aspects of style in advertisements – identifies, accurately, specific media techniques used to elicit particular responses from the intended audience – provides an accurate and thoughtful analysis of how media is consciously used to influence an audience
2	– identifies some aspects of style in advertisements – identifies some specific media techniques used to elicit a response from an intended audience – provides some analysis of how media is consciously used to influence an audience
1	– identifies few or no aspects of style in advertisements – identifies few or no specific media techniques used to elicit a particular response from the intended audience – misinterprets information or provides no analysis of how media is consciously used to influence an audience

ILLUSTRATIVE EXAMPLES

ENGLISH LANGUAGE ARTS, GRADE 9

General Outcomes: F2, P2, C4

SPECIFIC OUTCOMES

The student will be able to:

F2	3.2	identify potential technology-related career paths
P2	3.2	design, create and modify a spreadsheet for a specific purpose, using functions such as SUM, PRODUCT, QUOTIENT, and AVERAGE
C4	3.1	create a plan for an inquiry that includes consideration of time management
	3.2	develop a process to manage volumes of information that can be available through electronic sources

RELATED CURRICULUM OUTCOMES

English Language Arts, Grade 9
GO 3.3, Bullet 4; GO 4.4, Bullet 1

- reflect on new knowledge and its value to self and the wider community; determine personal inquiry and research strengths and learning goals
- plan and conduct peer-involved class activities to share individual inquiry or research and understanding on a topic

STUDENT TASK

Background

This activity is related to career management as well as conducting inquiry.

Task

You are interested in pursuing a career path related to technology. Research five technology-related career paths, and learn more about the training required for each. Before beginning your search, develop a plan for inquiry that includes consideration of time management. Access the World Wide Web, and search pertinent sites that identify potential technology-related career paths. Limit your searches by using specific key words and by carefully considering search engines. Develop a process, such as a table, spreadsheet or database, to manage the information you collect. Keep a bibliography of successful sites. Suggested sites to begin your search include Alberta Advanced Education and Career Development at <http://www.aecd.gov.ab.ca>; University of Manitoba–Student Affairs at <http://www.umanitoba.ca/counselling/careers.html>.

SCORING GUIDE

The student:

4 – identifies, accurately, five potential technology-related career paths and the necessary training for each; describes, thoroughly, each one in detail
– implements a logical and highly effective process to manage the information collected
– creates a thoughtful, innovative plan for inquiry that includes realistic considerations of time management

3 – identifies, accurately, five potential technology-related career paths and the necessary training for each; describes each one in detail
– implements an organized and practical process to manage the information collected
– creates a logical plan for inquiry that includes considerations of time management

2	–	identifies five potential technology-related career paths and satisfactorily describes each one
	–	develops an adequate process to manage information collected
	–	develops an acceptable plan for inquiry, but experiences some difficulty in carrying out the time management aspect of the plan
1	–	identifies and briefly describes, with assistance, potential technology-related careers
	–	develops an insufficient process and, therefore, experiences difficulty in managing the information collected
	–	provides a very limited plan for inquiry that does not consider time management

ILLUSTRATIVE EXAMPLES

SCIENCE, GRADE 9

General Outcomes: F3, P1, P4, P5, P6, C1, C2, C3

		SPECIFIC OUTCOMES The student will be able to:
F3	3.4	cite sources when using copyright and/or public domain material
	3.5	download and transmit only materials that comply with the established network use policies and practices
	3.6	model and assume personal responsibility for ethical behaviour and attitudes and acceptable use of information technologies and sources in local and global contexts
P1	3.3	revise text documents based on feedback from others
	3.4	use appropriate communication technology to elicit feedback from others
P4	3.1	integrate information from a database into a text document
P5	3.2	demonstrate proficient use of various information retrieval technologies
P6	3.1	communicate with a targeted audience, within a controlled environment, by using communication technologies such as newsgroups and web browsers
	3.2	demonstrate proficiency in accessing local area network, wide area network and Internet services, including uploading and downloading text, image, audio and video files
C1	3.1	plan and conduct a search, using a wide variety of electronic sources
	3.5	analyze and synthesize information to create a product

STUDENT TASK

Background

Environmental issues are of increasing concern to many Albertans. These issues are often complex and involve many different points of view. This activity will allow you to work in small groups to learn more about a particular environmental problem.

Task

In order to better understand the viewpoints of various groups of Alberta citizens, identify an environmental issue of concern that affects the people of this province. You may wish to use the newspaper, radio or television newscasts, or the Internet as sources of ideas.

Examples of topics might include: the location of feedlots, mining or logging in or near protected areas, and water quality.

Your task is to conduct and report on a research study on an environmental issue. Once you have selected the issue, brainstorm a list of possible people or groups of people that would have an interest in and opinion on that issue. These people are known as stakeholders. You may need to do additional research in order to put together a complete list.

Compile a database of contacts—organizations, postal addresses, telephone and fax numbers, web sites, and e-mail addresses—that would allow you to connect with these stakeholders. Compose a cover letter with a set of questions requesting information on each stakeholder group's particular point of view regarding the issue. As a group, review and edit the letter before sending it out.

While waiting for responses, continue your research on the issue, using a variety of sources; e.g., periodical databases, Internet web sites and magazine articles. Put together a hard copy and/or digital file of information that your group can easily access as you work through this project. Be sure to keep a bibliography of sources.

Analyze your responses from stakeholders, looking for similarities and differences in perspectives. Synthesize this information by combining their responses with your other research. Create a table or other appropriate format, such as graphs, to display your findings. In paragraph form, clearly describe the issue and summarize the points of view of the various stakeholders. Integrate your table or graphics into the text document.

C2	3.1	access diverse viewpoints on particular topics by using appropriate technologies
	3.2	assemble and organize different viewpoints in order to assess their validity
	3.3	use information technology to find facts that support or refute diverse viewpoints
C3	3.2	evaluate the relevance of electronically accessed information to a particular topic

RELATED CURRICULUM OUTCOMES

Science, Grade 9
Unit 6, Attitude 5; Skills 1; Skills 3, 2nd Bullet; Skills 4, 1st and 2nd Bullet

- respect for the perspectives and viewpoints of others
- identify issues and concerns in regard to environmental quality
- examine personal, social and environmental perspectives on each alternative
- consider alternatives
- consider perspectives

SCORING GUIDE

The student:

4 – establishes contact effectively with a wide range of stakeholders, by using communication technologies; displays considerable ambition in seeking out several points of view and eliciting feedback from stakeholders
– conducts a highly productive search for information and differing viewpoints, using a variety of sources, including electronic sources; evaluates, carefully, the relevance of data gathered and organizes it in a very efficient manner
– records bibliographic information in a precise manner; respects the need for copyright laws and cites references fully; includes a bibliography that contains many citations
– demonstrates considerable skill and knowledge in creating and integrating a table, or other data display, with text; shows well-developed abilities to use advanced menu features within a word processor program
– models exceptional citizenship consistently when using information technologies; downloads only those materials that comply with school policies for acceptability; takes ownership for own behaviour

3 – establishes contact, proficiently, with a range of stakeholders, by using communication technologies; displays initiative in seeking out several points of view and eliciting feedback from stakeholders
– conducts a productive search for information and differing viewpoints, using a variety of sources, including electronic sources; assesses relevance of data gathered and organizes it in a logical and user-friendly manner
– records, carefully, a bibliography that contains several citations
– demonstrates proficiency in creating and integrating a table, or other data display, with text; shows skill in using advanced menu features within a word processor program
– models strong citizenship consistently when using information technologies; downloads only those materials that comply with school policies for acceptability; takes ownership for own behaviour

2	– establishes contact with the minimum number of stakeholders, by using communication technologies; needs encouragement in seeking out several points of view and eliciting feedback from stakeholders – conducts a basic search for information and differing viewpoints, using a variety of sources, including electronic sources; experiences some difficulty with sorting and organizing data gathered – records most bibliographic information; shows a rudimentary understanding of the need for copyright laws; includes a bibliography that contains a minimum number of citations – finds creating and integrating a table, or other data display, with text to be problematic; shows a satisfactory level of skill in using advanced menu features within a word processor program – varies in ability to model citizenship when using information technologies; downloads, generally, only those materials that comply with school policies for acceptability; takes ownership for own behaviour reluctantly
1	– expresses frustration or reticence in establishing contact with the minimum number of stakeholders when using communication technologies; needs assistance in seeking out several points of view and eliciting feedback from stakeholders – conducts an unacceptable search for information and differing viewpoints, using a variety of sources, including electronic sources; experiences much difficulty with sorting and organizing data gathered – records some bibliographic information; shows no understanding of the need for copyright laws; includes a bibliography that contains less than a minimum number of citations – finds creating and integrating a table, or other data display, with text to be problematic without assistance; is not able to independently use advanced menu features within a word processor program – experiences difficulty in modelling citizenship when using information technologies; downloads inappropriate materials that do not comply with school policies for acceptability; takes ownership for own behaviour reluctantly; may be asked to temporarily relinquish network account

ILLUSTRATIVE EXAMPLES

SCIENCE, GRADE 9

General Outcomes: F1

SPECIFIC OUTCOMES

The student will be able to:

F1 3.5 explain the difference between digital and analog data on communication systems

RELATED CURRICULUM OUTCOMES

Science, Grade 9
Unit 4, Skills 4, Concept 6

- evaluate alternative designs for a simple electrical device
- recognize systems and subsystems within household electromechanical devices (e.g., record players, electric washers)

STUDENT TASK

Background

Sound—voice or music—may be recorded in analog or digital formats. Newer forms of sound recordings, such as compact discs, use digital formats. To complete this task, you will need to investigate analog and digital sound.

Task

Demonstrate the difference between analog and digital technology, by examining various audio sources, such as a turntable and vinyl records, reel-to-reel tape recorder, 8-track cassette player, CD player, and digital audiotape player.

Compare and describe the quality of the audio from the various sources.

Hypothesize the reason why the audio is superior from the newer sources—consider the difference between analog and digital technologies.

SCORING GUIDE

The student:

4 – explains, thoroughly and accurately, the difference between digital and analog data on communication systems

3 – explains, reasonably, the difference between digital and analog data on communication systems

2 – explains, partially, the difference between digital and analog data on communication systems

1 – does not explain the difference between digital and analog data on communication systems

ILLUSTRATIVE EXAMPLES

SOCIAL STUDIES, GRADE 9

General Outcomes: F1, F2

SPECIFIC OUTCOMES

The student will be able to:

F1	3.6	explain how the need for global communication will affect technology around the world
F2	3.1	describe the impact of communication technologies on past, present and future workplaces, lifestyles and the environment
	3.3	identify the cultural impact of global communication
	3.4	evaluate the driving forces behind various technological inventions

RELATED CURRICULUM OUTCOMES

Social Studies, Grade 9
Topic C, Canada: Responding to Change

- technology has affected our way of life and will continue to influence our future
- convey information, explain thoughts, feelings and ideas and use persuasive arguments

STUDENT TASK

Background

Over the past century, technology has had a dramatic effect on how we communicate with one another. The inventions of the wireless telegraph, the telephone, the fax machine, and e-mail are only a few examples.

Task

- Identify the impact of several communication technologies—one past, one present—on our lifestyles, environment and work.
- What drives this technology forward?
- How has communication technology contributed toward a global community?

Select an effective method to present this information, using some form of communication technology; e.g.:

- written report
- written report with graphics and/or pictures
- multimedia
- web page
- video or any combination of these.

Be sure to support your comments with facts.

SCORING GUIDE

The student:

4 – provides a clear and insightful presentation of the impact of technology on our lifestyle, environment and nature of work
– provides several defensible arguments that explain how the need for global communication will affect technology around the world

3 – provides a clear presentation of the impact of technology on our lifestyle, environment and nature of work
– provides a defensible argument that explains how the need for global communication will affect technology around the world

2	–	provides a presentation of the impact of technology on our lifestyle, environment and nature of work – provides a limited and unsupported argument that does not explain how the need for global communication will affect technology around the world
1	–	provides a few ideas on the impact of technology on our lifestyle, environment or nature of work – does not provide any explanation of how the need for global communication will affect technology around the world

ILLUSTRATIVE EXAMPLES

SOCIAL STUDIES, GRADE 9

General Outcomes: F2

SPECIFIC OUTCOMES

The student will be able to:

F2	3.5	make inferences regarding future trends in the development and impact of communication technologies
	3.8	identify the manner in which telecommunications technology affects time and distance

RELATED CURRICULUM OUTCOMES

Social Studies, Grade 9
Topic C, Canada: Responding to Change

- technology has affected our way of life and will continue to influence our future
- identify and evaluate alternative answers, conclusions, solutions or decisions regarding questions and issues used for inquiry and research on responding to change

STUDENT TASK

You have entered a design competition where you are to "invent" a futuristic device that will revolutionize the way we communicate with each other.

Design this device on paper or in electronic format, and include dimensions and specific features as well as an explanation of how your device affects time and distance.

SCORING GUIDE

The student:

4 – creates a unique design that reflects highly insightful inferences regarding future trends in communication technologies
  – includes an exceptionally original explanation that demonstrates a keen awareness of the impact of communication technologies with regard to time and distance
  – demonstrates an astute perceptiveness in understanding and conveying the role of telecommunications technologies as applied to self, work and society

3 – creates an original design that reflects perceptive inferences regarding future trends in communication technologies
  – includes a creative explanation that demonstrates an awareness of the impact of communication technologies with regard to time and distance
  – demonstrates an admirable understanding of the role of telecommunications technologies as applied to self, work and society

2 – creates a design that reflects a reasonable level of inference regarding future trends in communication technologies
  – includes an explanation that demonstrates some awareness of the impact of communication technologies with regard to time and distance
  – demonstrates a satisfactory level of understanding of the role of telecommunications technologies as applied to self, work and society

1	– creates a design that reflects a restricted level of inference regarding future trends in communication technologies – includes an explanation that demonstrates virtually no awareness of the impact of communication technologies with regard to time and distance – demonstrates an incomplete understanding of the role of telecommunications technologies as applied to self, work and society

ILLUSTRATIVE EXAMPLES

SOCIAL STUDIES, GRADE 9

General Outcomes: F3

SPECIFIC OUTCOMES

The student will be able to:

F3 3.2 explain the issues involved in balancing the right to access information with the right to personal privacy

RELATED CURRICULUM OUTCOMES

Social Studies, Grade 9
Topic C, Canada: Responding to Change

- write, from several points of view and with sensitivity to more than one perspective, a clear and effective letter, editorial or essay/position paper about technological change and its effect on quality of life with more emphasis on synthesis and evaluation of information from varied sources

STUDENT TASK

Background

The volume of information made available to us through new technologies allows for greater use and abuse of knowledge by people in our society.

Task

With your peers, discuss the issues of access to information and personal privacy faced by users of online services. Following your discussion, write an essay/position paper about technological change and its effect on quality of life. Focus specifically on the issues involved in balancing the right to access information with the right to personal privacy.

SCORING GUIDE

The student:

4 – communicates information effectively, by providing a clear thesis with support that contains rich, vivid and powerful details
  – demonstrates a thorough understanding of the issues and provides new insights into some aspect of the topic
  – explores, insightfully, numerous issues involved in balancing the right to access information with the right to personal privacy

3 – communicates information, by providing a clear thesis with sufficient support and detail
  – demonstrates a complete and accurate understanding of the issues specific to the topic
  – explains, accurately, many issues involved in balancing the right to access information with the right to personal privacy

2 – communicates information, by providing a main idea with limited support and detail
  – demonstrates an incomplete understanding of the issues specific to the topic and has some misconceptions
  – explains very few issues involved in balancing the right to access information with the right to personal privacy

1	– communicates information, by providing a limited main idea with little or no support and detail – demonstrates little or no understanding of the issues specific to the topic – makes little or no attempt to explain issues involved in balancing the right to access information with the right to personal privacy

ILLUSTRATIVE EXAMPLES

CROSS-CURRICULAR, GRADE 9

General Outcomes: F1, F6

SPECIFIC OUTCOMES

The student will be able to:

F1	3.1	demonstrate an understanding that information can be transmitted through a variety of media
	3.2	explain the concept of software and hardware compatibility
	3.4	demonstrate an understanding that digital technology follows a logical order of operations
F6	3.1	connect and use audio, video and digital equipment
	3.5	describe the steps involved in loading software

RELATED CURRICULUM OUTCOMES

English Language Arts, Grade 9
GO 3.4 Share and Review Bullets 1 and 2;
GO4.3 Present and Share Bullets 1, 2 and 3

- communicate ideas and information in a variety of oral, print and other media texts, such as media scripts, multimedia presentation, panel discussions and articles
- integrate appropriate visual, print and/or other media to reinforce overall impression or point of view and engage the audience
- select, organize and present information to appeal to the interests and background knowledge of various readers or audiences
- choose appropriate types of evidence and information, and convince various readers and audiences
- integrate a variety of media and display techniques, as appropriate, to enhance the appeal, accuracy and persuasiveness of presentations

STUDENT TASK

Background

Teachers may want to model connecting various components and model steps involved with loading software before students engage in hands-on activity. They may wish to complete this on a stand-alone computer rather than the network. Reading the user's manual or help screens first can help show how to connect various components and/or load software. Students might complete this as an oral presentation or a multimedia presentation.

Task

Many of you have grown up with a variety of electronic devices including computers. You are quite comfortable putting together electronic components and working with technology. Plan a presentation that demonstrates how to correctly connect some components (e.g., computer monitor, mouse, keyboard and central processing unit; television and videocassette recorder; video camera and television) and demonstrates steps involved with loading software. Explain how connection or installation failure/success can be influenced by software and/or hardware compatibility. Use and apply terminology appropriate to the technology being used. You will need to select, organize and present your information by considering appropriate techniques to appeal to your chosen audience.

SCORING GUIDE

The student:

4 – uses media creatively to reinforce the overall impression of the presentation and engage the audience
– makes effective use of extensive terminology appropriate to the technology being used
– is insightful and precise in the explanation of how connection and installation failure or success can be influenced by software and/or hardware compatibility
– is precise and accurate in the explanation and demonstration of connections and installation steps

3	–	explains, appropriately and accurately, how connection and installation failure or success can be influenced by software and/or hardware compatibility
	–	is logical and accurate in the explanation and demonstration of connections and installation steps
	–	makes effective use of a variety of terminology appropriate to the technology being used
	–	makes effective use of media to reinforce the overall impression of the presentation and shows consideration of the audience
2	–	uses media in the presentation but shows a limited consideration of the audience
	–	uses general or common terminology appropriate to the technology being used
1	–	presents an explanation and demonstration of connections and installation steps that are confusing, incomplete and/or incorrect

ILLUSTRATIVE EXAMPLES

CROSS-CURRICULAR, GRADE 9

General Outcomes: F2, F3, C1, C4

SPECIFIC OUTCOMES

The student will be able to:

F2	3.4	evaluate the driving forces behind various technological inventions
	3.7	analyze and assess the impact on society of having limitless access to information
F3	3.1	use time and resources on the network wisely
C1	3.2	refine searches to limit sources to a manageable number
	3.3	access and operate multimedia applications and technologies from stand-alone and online sources
	3.4	access and retrieve information through the electronic network
	3.5	analyze and synthesize information to create a product
C4	3.3	demonstrate the advanced search skills necessary to limit the number of hits desired for online and offline databases; for example, the use of "and" or "or" between search topics and the choice of appropriate search engines for the topic

RELATED CURRICULUM OUTCOMES

Science, Grade 9
Nature of Science, Science and Technology, Science Technology and Society

- be aware of alternatives in the approach to technological problems
- demonstrate an understanding that science and technology are interrelated: the development of new technologies may open new areas for scientific investigation
- demonstrate an understanding that significant aspects of the technological problem process include critical thinking in revaluating potential solutions and suggesting improvements

STUDENT TASK

Background

Nearly 200 years ago, a young girl named Mary Shelley wrote the horror story ***Frankenstein***. It was both shocking and riveting when it was first published, and it has become a piece of classic English literature that is still read today. In our modern technologically advanced age, Mary Shelley's message, to be wary of our desires to meddle in areas of science in which we ought not be involved, is still timely. Currently, the issue of cloning is very much a topic of discussion.

Task

In mid-October of 1997, Dr. Ian Wilmut, the first scientist to successfully clone an animal (a sheep), visited Alberta. In a presentation to teachers, he talked about society's responsibility to set boundaries on how this type of technology is used.

Conduct an Internet search on cloning, Dr. Wilmut and the sheep that he cloned—called Dolly. Select two articles: one that favours cloning and one that opposes the use of this technology. Then, using the articles as a starting point for drawing your own conclusion on the issue, write a position paper about the use of cloning. Be sure to address the following questions:

- What is cloning?
- What forces in society have led to cloning?
- What need does it fulfill?
- Should cloning be used or not? Why?
- If so, under what circumstances would its use be acceptable or unacceptable?
- What guidelines should be in place to help ensure the ethical use of cloning?
- Should everyone have access to information on cloning? Why or why not?

SCORING GUIDE

The student:

4 – demonstrates a highly perceptive awareness of the potential impact on society of having limitless access to information; shows much depth of thought and originality in analysis of information from articles and responses to questions

- appreciate the need for informed decision making at both personal and societal levels
- appreciate the contributions and limitations of scientific and technological knowledge to the societal decision process
- appreciate different perspectives that bear upon the societal decision process (e.g., scientific, technological, personal, social, environmental and economic)
- respect the perspectives and viewpoints of others
- the societal decision process works toward building a consensus. Significant aspects of societal decision making include recognition of scientific and technological knowledge for informing the process
- many of the effects of science and technology on society are unforeseen at the time decisions have to be made

Social Studies, Grade 9
Topic C, Process Skills, Bullets 2, 3, 4, 9, 10, 11, 12, 14 and 15

- identify possible sources and location of information (print, non-print, interviews, surveys); use the *Reader's Guide to Periodical Literature* and other indexes
- acquire information to find answers to questions through listening, observing, reading and using community resources
- differentiate between main and related ideas
- make notes (jottings, point from, webbing) that outline the main and related ideas form reading and while listening and observing
- compare information about a topic drawn from two or more sources to see if it is identical, similar, parallel or inconsistent, unrelated or contradictory; detect bias
- draw conclusions about technological change and its effect on quality of life
- determine values underlying position (identify, define, describe—value priorities, value conflicts)
- make generalizations by stating relationships among concepts about technological change and its effect on quality of life
- identify and evaluate alternative answers, conclusions, solutions or decisions regarding questions and issues used for inquiry and research on responding to change

– provides an exceptionally thoughtful and insightful evaluation of societal forces behind the development of cloning technology
– conducts a highly effective and time-efficient search, and selects notably relevant articles that clearly outline two different perspectives
– provides information that is synthesized in a creative and comprehensive way to produce the final product/position paper

3 – demonstrates a comprehensive awareness of the potential impact on society of having limitless access to information; shows depth of thought in analysis of information from articles and responses to questions
– provides a thoughtful and insightful evaluation of societal forces behind the development of cloning technology
– conducts an effective and time-efficient search, and selects relevant articles that clearly outline two different perspectives
– provides information that is synthesized in an in-depth manner to produce the final product/position paper

2 – demonstrates an awareness of the potential impact on society of having limitless access to information; shows an adequate level of thought in analysis of information from articles and responses to questions
– provides a somewhat superficial evaluation of societal forces behind the development of cloning technology
– conducts a search with limited effectiveness and efficiency; selects generally relevant articles that outline two perspectives, although differences are not readily apparent
– provides information that is synthesized in a cursory manner to produce the final product/position paper

1 – demonstrates little or no awareness of the potential impact on society of having limitless access to information; shows an unsatisfactory level of thought in a limited analysis of information from articles and in responses to questions
– provides a shallow evaluation of societal forces behind the development of cloning technology
– requires assistance in order to carry out a search; is not able to independently select relevant articles
– provides information that is repeated rather than synthesized; provides a final product/position paper—that is unacceptable

English Language Arts, Grade 9
GO 1.1, Bullets 1 and 2; GO 1.2, Bullet 1; GO 2.2, Bullet 5; GO 3.1, 3rd Bullet 3; GO 3.2, Bullet 1

- talk with others and experience a variety of oral, print and other media texts to explore, develop and justify own opinions and points of view
- explore and explain how interactions with others and with oral, print and other media texts affect personal understandings
- integrate own perspectives and interpretations with new understandings developed through discussing and through experiencing a variety of oral, print and other media tests
- express the themes of oral, print or other media texts in different forms or genres
- select types and sources of information to achieve an effective balance between researched information and own ideas
- obtain information reflecting multiple perspectives from a variety of sources, such as expository essays, graphs, diagrams, online catalogues, periodical indices, film libraries, electronic databases and the Internet, when conducting research

ILLUSTRATIVE EXAMPLES

CROSS-CURRICULAR, GRADE 9

General Outcomes: F5, P1, P2, C1

SPECIFIC OUTCOMES

The student will be able to:

F5	3.2	identify and apply safety procedures required for the technology being used
P1	3.2	use advanced menu features within a word processor to accomplish a task; for example, insert a table, graph or text from another document
P2	3.2	design, create and modify a spreadsheet for a specific purpose, using functions such as: SUM, PRODUCT, QUOTIENT, and AVERAGE
	3.3	use a variety of technological graphing tools to draw graphs for data involving one or two variables
	3.4	use a scientific calculator or a computer to solve problems involving rational numbers
C1	3.1	plan and conduct a search, using a wide variety of electronic sources
	3.4	access and retrieve information through the electronic network

RELATED CURRICULUM OUTCOMES

Mathematics, Grade 9
Number Operations, SP 9.8
- solve problems, using rational numbers in meaningful contexts

Social Studies, Grade 9
Topic A, Economic Growth; USA
- draw conclusions about economic growth within a market economy

STUDENT TASK

You have $10 000 to invest in a minimum of three stocks. Research information about stocks, using the Internet and newspapers, and discuss your choices with outside experts. After making your selections, use a spreadsheet to record the weekly closing price for each stock for a minimum of eight weeks. Determine the profit gain or loss for each stock.

Once the recording period has ended, graphically display profit gain/loss for all eight weeks, using a bar graph for each stock. Insert the graphs in a text document and analyze the results. You may compare or contrast the growth, downward trends, acute fluctuations or constant growth. Using the word processor, write a one-page summary analyzing the data and summarizing the results; e.g., acute fluctuations due to sharp decline in stock market in week three. Did you profit or lose from your total investment?

SCORING GUIDE

The student:

4 – plans and conducts a search independently, using the Internet or other electronic source to access and retrieve information about stocks
– designs, creates and modifies a clearly labelled spreadsheet to calculate correctly the profit or loss of stock investments
– uses graphing tools to draw and clearly label a chart displaying the development of the investment
– uses advanced menu features to insert graphs in a word processing document and includes an analysis consistent with the graphical information

3 – plans and conducts a search, using the Internet or other electronic source to access and retrieve information about stocks
– designs, creates and modifies a spreadsheet to calculate the profit or loss of stock investments
– uses graphing tools to draw a chart displaying the development of the investment
– includes an analysis that shows small errors with the graphical information

2	– retrieves information about stocks, with some direction – requires assistance to design, create and modify a spreadsheet to calculate the profit or loss of stock investments – uses graphing tools to draw a chart displaying the development of the investment – creates a spreadsheet and graphs that may not be clearly labelled
1	– has difficulty retrieving information about stocks – creates a spreadsheet that contains missing or incorrect calculations and that cannot be used to solve the problem – does not include an analysis or includes an illogical one

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