Preface

The document, A Journey (1997), first introduced the general concept of integrating technology into the curriculum at the elementary level in Prince Edward Island. As stated in this earlier document, using information technology in the schools was considered new and largely uncharted territory. We continue a journey into an interesting world of communication and information tools for teaching and learning. Journey On Grades 1-3 (1999) provided a framework and lesson plans for teachers at the primary level to integrate communication and information technology in their classrooms. Journey On Grades 4-6 (September 2000) and the document, Journey On Grades 7-9 (September 2000), continued with the same framework and specific grade level lesson plans intended for teachers in elementary and intermediate schools. Journey On Grade Level 10-12 guides for the senior high level integrated technology into core subject areas; Math (February 2000), English (May 2000), Social Studies (August 2001), Physics (September 2002), Biology (October 2002) and Chemistry (February 2002).

Journey On (2007), provides grade specific curriculum outcomes that have been assigned to core curriculum subjects. This Science document contains specific technology outcomes, instructional considerations, teaching suggestions - activities and assessment strategies, lesson plans, and links to other curriculum areas.

These documents will serve as a guide for teachers. Lesson plans suggest specific exercises for classroom use and will serve as a starting point from which teachers may develop and enhance their own ideas and competencies in the area of communication and information technology (CIT).
Acknowledgements

The Department of Education, Technology In Learning, gratefully acknowledges the suggestions, lesson plans, and other contributions made by Prince Edward Island students and educators. The authors would also like to extend their appreciation to those individuals who provided feedback and editorial comments during the development of this document.

The communication and information technology committees were instrumental in providing input for the curriculum outcomes grades K-12 framework on which Journey On (2007) is based. Past and present members of the committees are listed below:

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Vision

Technology education for Atlantic Canada fosters the development of all learners as technologically literate and capable citizens who can develop, implement, and communicate practical, innovative, and responsible technological solutions to problems.

*Foundation for the Atlantic Canada Technology Education Curriculum, APEF, Pg. 5*
Introduction

Purpose of Document

Journey On is a practical working guide which will provide educators and administrators at all levels, including schools, school boards/districts, and provincial departments, with a reference point for integrating communication and information technologies (CIT) into the Prince Edward Island school curriculum.

Journey On will be the basis for future decisions pertaining to human and physical CIT resources. These decisions will focus on personnel, professional development, instructional techniques, course development, student and teacher access to technology, and hardware and software purchases.

It is recognized that many disciplines have their own specialized technologies and technological processes. Students will have the opportunity to develop skills required to use these specialized technologies within the context of courses such as Computer Science, Science, Career Exploration, Visual Communication, Industrial Arts, and Home Economics. CIT differs from other technologies because of its vast and far reaching applications in all disciplines.

The purpose of Journey On is to focus on how CIT can be used from grade 1-12 and across all areas of the curriculum as part of a more global strategy that will contribute to the development of technologically competent and literate individuals graduating from our school system.

Journey On:

- provides strategies and concrete suggestions for effective integration of communication and information technologies into the Prince Edward Island curriculum in a way that enhances learning
- identifies the communication and information technologies that we wish our students to use
- identifies the knowledge and skills that students need to develop to be considered technologically competent in communication and information technologies
Terminology

Technology

The broad definition of technology includes the tools and processes we use to alter our surroundings, perform a task, discover more about ourselves, and communicate. For the purpose of this document technology refers to the tools used to access, gather, process, and share information. These communication and information technologies (CIT) pertain to computers and their peripherals such as scanners, printers, digital cameras, projection devices, and videoconferencing equipment.

Technological Competence

The Atlantic Provinces Educational Foundation (APEF) defines technological competence as "the ability to use a variety of technologies, demonstrate an understanding of technological applications and apply appropriate technologies for solving problems independently." Individuals competent in information and communication technologies have specialized knowledge and skills that enable them to use technology to access, gather, process, and share information.

Technological Literacy

Technological literacy encompasses technological competence but refers to a higher level of understanding of technology. Individuals literate in the area of CIT think critically about information gained through the use of technology, the application of specific technologies, and the impact of technology on individuals and society when formulating decisions, opinions and courses of action. These individuals apply problem solving strategies and creative thinking skills to independently learn how to use new technologies, or circumvent problems associated with older technologies. CIT literate individuals demonstrate confidence and a positive attitude as they adapt and use technologies for a beneficial purpose.
Philosophy

The use of technology in our educational system is based upon a number of underlying beliefs:

• as educators in Prince Edward Island we are committed to provide for the development of children so that each may take a meaningful place in society

• literacy extends beyond the traditional concept of the ability to read and write print materials to encompass media and information literacy

• technological competence is a requirement for literacy and lifelong learning in today’s world

• students today require knowledge, skills and attitudes for dealing with the rapid pace of change and growth of our knowledge base

• technology, when used appropriately, enhances student-centred learning and the teacher’s role as a facilitator
Technology Integration

Integrating communication and information technologies into the curriculum is a preferred strategy for developing technologically literate learners. Integration occurs when the technology is used as a tool to achieve existing curricular learning outcomes within the context of a theme or subject. Technology knowledge and skills are not acquired separately in an integrated approach but in the context of learning activities intended to address various outcomes across the curriculum. Integration means that the use of technology as a teaching tool should not be limited to specialist teachers but applies to teachers in all curricular areas.
**Advantages of Technology Integration**

Integration of technology into the curriculum

- ensures that curriculum is the principle focus, rather than technology
- promotes the development of creative thinking, critical thinking, research, communication, and problem solving skills
- provides access to rich resources and learning experiences that can extend far beyond those offered in traditional classrooms
- motivates students to complete learning tasks and become more readily engaged in their own learning
- supports current research which suggests that people learn in a holistic fashion rather than in a compartmentalized manner
- supports contemporary approaches to education such as cooperative learning, constructivism, resource-based learning and individualized learning
- provides teachers with an additional means to address multiple learning styles
- provides students with the opportunity throughout their school career to expand and reinforce their repertoire of technology skills
- enables the students to acquire a better understanding of how to use technology in meaningful ways
- ensures that all students have the opportunity to develop technological competencies
- prepares students to select appropriate technologies to complete tasks
- provides teachers with an opportunity to model lifelong learning as students witness teachers learning and using new skills for a purpose
**ABCs of curriculum**

**An Outcome-based Curriculum**

An outcome-based curriculum is a student-centred design which focuses on expectations of the student as a result of learning. It ensures that each student is provided with the time and assistance to meet his/her potential.

A learning outcome is the result of learning for the student, something that the student will know, be able to do, or be like.

**Essential Graduation Learnings (EGLs)**

“The essential graduation learnings are statements that describe the knowledge, skills, and attitudes expected of all students who graduate from high school.” (APEF/CAMET) These statements are the framework upon which curriculum for all subject areas is based. The six Essential Graduation Learnings include:

- Aesthetic Expression
- Citizenship
- Communication
- Personal Development
- Problem Solving
- Technological Competence

**General and Specific Curriculum Outcomes**

General curriculum outcomes are statements that describe what students are expected to know in a curriculum area upon graduation. Specific outcomes are statements that identify what students should know and be able to do at a particular grade level. These are used to guide the teacher in planning day to day activities. Students demonstrate the essential graduation learnings through accomplishing the outcomes.
Other Features of the Curricula

In addition to the six essential graduation learnings, there are a number of underlying concepts and strategies which are interwoven into the 1-12 curricula of Prince Edward Island, and which influence methods of delivery and instruction.

Cooperative Learning and Group Work

Small and large group work provide students with the opportunity to develop language (communication skills) and social skills.

Creative Thinking

“Creative thinking deals with combining elements of reality in novel ways to formulate new perceptions, enriched concepts and new understandings” (Nature of Thinking)

Critical Thinking

Critical thinking involves the analysis of statements or arguments and an evaluation of their worth or validity. Critical thinking skills include identifying and validating sources; determining what is being said, relevancy, and point of view or perspective; detecting bias; recognizing persuasive techniques; and drawing logical, well-supported conclusions.

Diversity/Equity Education

Diversity education encourages the understanding of diversity within our society and promotes a commitment to equity by fostering an awareness and critical analysis of individual and systemic discrimination.

Resource-based Learning

Resource-based learning is an educational approach that actively engages the students in carefully structured learning activities that use a wide range of resources, and emphasizes skills and strategies needed to achieve information literacy.

Learning Styles

The Theory of Multiple Intelligences suggests that all people learn differently, with eight identified intelligences. It is essential that educators make students aware of their learning styles and teach using a variety of methods to provide students the opportunity to learn in a number of ways.
**General Curriculum Outcomes**

**Mathematics**

**Number Concepts/ Number and Relationship Operations**
- Students will demonstrate number sense and apply number theory concepts
- Students will demonstrate operation sense and apply operation principles and procedures in both numeric and algebraic situations

**Patterns and Relationships**
- Students will explore, recognize, represent and apply patterns and relationships, both informally and formally

**Shape and Space**
- Students will demonstrate an understanding of and apply concepts and skills associated with measurement
- Students will demonstrate spatial sense and apply geometric concepts, properties, and relationships

**Data Management and Probability**
- Students will solve problems involving the collection, display and analysis of data
- Students will represent and solve problems involving uncertainty

**Language Arts**

**Speaking and Listening**
Students will be expected to
- speak and listen to explore, extend, clarify, and reflect on their thoughts, ideas, feelings, and experiences
- communicate information and ideas effectively and clearly, and respond personally and critically
- interact with sensitivity and respect, considering the situation, audience, and purpose

**Reading and Viewing**
Students will be expected to
- select, read, and view with understanding a range of literature, information, media, and visual texts
- interpret, select, and combine information using a variety of strategies, resources, and technologies
- respond personally to a range of texts
- respond critically to a range of texts, applying their understanding of language, form, and genre

**Writing and Other Ways of Representing**
Students will be expected to
- use writing and other forms of representation to explore, clarify, and reflect on their thoughts, feelings, experiences and learnings; and use their imaginations
- create texts collaboratively and independently, using a variety of forms for a range of audiences and purposes
- use a range of strategies to develop effective writing and media products and to enhance their clarity, precision and effectiveness

Health, Music, Physical Education and Visual Arts curriculum guides exist on Prince Edward Island. These guides contain general curriculum outcomes and specific curriculum outcomes.

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Science

Science, technology, society, and the environment (STSE)
- Students will develop an understanding of the nature of science and technology, the relationships between science and technology, and the social and environmental contexts of science and technology.

Skills
- Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions.

Knowledge
- Students will construct knowledge and understanding of concepts in life science, physical science, and Earth and space science, and apply these understandings to interpret, integrate, and extend their knowledge.

Attitudes
- Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.

Social Studies

Citizenship, Power, and Governance
- Students will be expected to demonstrate an understanding of the rights and responsibilities of citizenship; and the origins, functions, and sources of power, authority, and governance.

Culture and Diversity
- Students will be expected to demonstrate an understanding of culture, diversity, and world view, recognizing the similarities and differences reflected in various personal, cultural, racial, and ethnic perspectives.

Individuals, Societies, and Economic Decisions
- Students will be expected to demonstrate the ability to make responsible economic decisions as individuals and as members of society.

Interdependence
- Students will be expected to demonstrate an understanding of the interdependent relationship among individuals, societies, and the environment - locally, nationally, and globally, and the implications for a sustainable future.

People, Place, and Environment
- Students will be expected to demonstrate an understanding of the interactions among people, places, and the environment.

Time, Continuity, and Change
- Students will be expected to demonstrate an understanding of the past and how it affects the present and the future.
### Language Arts

The Foundation for the Atlantic Canada English Language Arts Curriculum (1996) identifies technological advances in our society as a contributing factor to the revision of the concept of literacy. Literacy now encompasses print literacy, visual literacy, media literacy, and other literacies required to use technology in our culture. This APEF foundation guide suggests that students use a range of information retrieval, and information processing technologies to meet their own information needs. Specific examples of student experiences should include:

- using a word processor to develop a piece of writing
- constructing simple databases and spreadsheets to organize information
- exploring the applications of interactive CD-ROM software
- using graphic communication software
- producing a variety of desk top publishing texts
- using multimedia
- using e-mail
- using listservs and web browsers
- using appropriate technologies to organize and create complex information with multiple textual and graphic sources
- distinguishing sources which are central, reliable and relevant among the vast number of choices offered by technologies

Adapted from APEF Foundation Guide for English Language Arts Curriculum (1996) page 40

### Mathematics

The Foundation for the Atlantic Canada Mathematics Curriculum guide (1996) supports the recommendations of National Council of Teachers of Mathematics (NCTM) curriculum standards to use technology i) to enhance the teaching and learning of mathematics and ii) to relate school mathematics to the world in which students live through developing and interpreting mathematical models. APEF suggests that technology has altered the nature of what mathematics is important to learn and has made possible the development of new problems and innovative ways of investigating these problems. Specifically, it is recommended that technology should be used to:

- explore situations with complicated numbers which previously would have been beyond their capabilities
- quickly and easily explore individual or groups of related computations or functions
- create and explore numeric and geometric situations for the purpose of developing conjectures
- perform simulations of situations which would otherwise be impossible to examine
- easily link different representations of the same information
- model situations mathematically
- observe the effects of simple changes in parameters or coefficients
- analyze, organize, and display data

Adapted from APEF Foundation Guide for Mathematics Curriculum (1996) page 39
in the Core Curriculum Areas

Science

The Foundation for the Atlantic Canada Science Curriculum guide (1998) states that technology can be used to facilitate the learning of science and recommends that technology should have a major role in the teaching and learning of science. APEF proposes the following guidelines for the implementation of technologies in the teaching and learning of science:

• tutorial software should engage students in meaningful interactive dialogue and creatively employ graphs, sound, and simulations to promote acquisition of facts and skills, promote concept learning and enhance understanding
• simulation software should provide opportunities to explore concepts and models that are not readily accessible in the laboratory (e.g., those that require hazardous materials, unavailable equipment, or more time than is possible in real-time classroom.)
• analog-digital interface technology should be used to permit students to collect and analyse data as scientists do, and perform observations over long periods of time, enabling experiments that otherwise would be impractical
• databases and spreadsheets should be used to facilitate the analysis of data by organizing and visually displaying information
• networking among students and teachers should be encouraged to permit students to emulate the way scientists work and to reduce teacher isolation
• using tools such as the World Wide Web should be encouraged as it provides instant access to an incredible wealth of information on any imaginable topic

Adapted from APEF Foundation Guide for Science Curriculum (1998) page 44

Social Studies

The Foundation for the Atlantic Canada Social Studies (1998) recommends that technology have a major role in the teaching and learning of social studies but, that it enhance, not replace, essential social studies learning. APEF recognizes that Communication and Information Technologies have become important tools for the acquisition, analysis, presentation, and communication of data in ways that allow students to become more active participants in research and learning:

• CD-ROMs and the Internet provide teachers and students with quicker and easier access to extensive and current information. Students and teachers should critically analyse such information to determine its validity, accuracy, bias, and interpretation
• students are enabled to directly employ inquiry skills by exposure to first hand information through direct e-mail conversations, student created Web sites, and listservs. These modes of communication provide connections to students and cultures from around the world.
• students can present their learnings to peers within their classroom and beyond in a wide variety of forms (graphics, maps, text, graphic organizers, Web sites, multimedia presentations, etc.) that fit their learning styles.
• technology can provide opportunity for students to become more actively involved in their learning by allowing students control of information gathering, processing, and presentation.

Adapted from APEF Foundation Guide for Social Studies (1998) page 40
Technology Curriculum Outcomes

GENERAL TECHNOLOGY OUTCOMES
(as per APEF Technology Foundation Document)

GTO A- Technology Problem Solving
Students will be expected to design, develop, evaluate, and articulate technological solutions.

GTO B- Technology Systems
Students will be expected to operate and manage technological systems.

GTO C- History and Evolution of Technology
Students will be expected to demonstrate an understanding of the history and evolution of technology and of its social and cultural implications.

GTO D- Technology and Careers
Students will be expected to demonstrate an understanding of current and evolving careers and of the influence of technology on the nature of work.

GTO E- Technological Responsibility
Students will be expected to demonstrate an understanding of the consequences of their technological choices.
Areas

1. **Computer Systems** - In general, a complete, working computer. The computer system includes not only the computer, but also any software, networking, and peripheral devices that are necessary to make the computer function. Every computer system, for example, requires an operating system such as Windows.

2. **Social, Ethical and Health** - General user guidelines for the responsible use of technology.

3. **Internet** - A global network connecting millions of computers. This network carries various information and services such as email, online chat, video, audio, web sites and other documents of the World Wide Web.

4. **Concept Maps** - Visual representations of relationships between ideas. Methods for grouping and organizing information. Visual learning allows new concepts to be more thoroughly and easily understood.

5. **Graphics** - Refers to display and manipulation of images (text, pictures and drawings)

6. **Spreadsheets** - A table of values (text, numeric, dates) or information arranged in rows and columns. Spreadsheets allow the computation of data with formulas and the creation of charts and graphs.

7. **Word Processing** - Using a computer to create, edit, and print documents. A word processor enables you to create a document, store it electronically, display it on a screen, modify it by entering commands and characters from the keyboard, and print it.

8. **Multimedia** - The use of computers to create and present several different media such as text, graphics, video, animation, and sound in an integrated way.

9. **Database** - A collection of data organized in such a way that a computer program can quickly select desired pieces of information from a search request. You can think of a database as an electronic filing system.

10. **Telecommunications** - Refers to all types of data transmission, from voice to video using a variety of media such as copper cable, fibre optics, satellites, wireless technology, etc.

11. **Web Authoring** - The act of developing a web site. Software is available that will generate the required HTML coding for the layout of the particular Web page.

Each skill area of the outcome continuum is identified by grade level and progress as follows:

- **Awareness** - the student is exposed to the technology as it is being used by others.
- **Guided** - the student begins to use the technology with the help of others.
- **Summative Assessment** - beyond this grade level, students will be expected to meet the outcome independently.
- **Independent** - the student uses the technology without assistance.
## Computer Systems

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<th>Students will be expected to:</th>
<th>Awareness</th>
<th>Guided</th>
<th>Independent</th>
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<tr>
<td>A1.1 make use of help features to independently find solutions to problems</td>
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<td>B1.1 login, open and close a program, open, save and close a file with mouse</td>
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<td>B1.2 demonstrate proper use of login numbers and names, set-up and change passwords, and be aware of implications of multiple logins</td>
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<td>B1.3 begin to work with more than one file open at once (multi-task)</td>
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<td>B1.4 differentiate between “Save” and “Save as...”</td>
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<td>B1.5 be able to identify the common windows components of a given software screen (eg. menu bar, button bar, cursor, insertion point)</td>
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<td>B1.6 have an understanding of file management (drives and folders, rename, select, move, copy, paste, delete, display format, backup, etc.)</td>
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<td>B1.7 understand how to display file properties</td>
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<td>B1.8 understand the difference between software and hardware</td>
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<td>B1.9 identify system specifications and be aware of compatibility issues between the hardware and the software (processor speed and type, RAM, hard drive size, optical drive, connection types, video card, sound card, monitor, network cards)</td>
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<td>B1.10 understand how and when to re-boot (warm boot vs cold boot)</td>
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<td>B1.11 describe networks, file servers, connections (wireless, line types and speeds)</td>
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<td>B1.12 demonstrate proper use of network printing, choose proper printer, recognizes process and purpose of Print Queues</td>
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<td>B1.13 identify computer viruses, how they are transmitted and how anti-virus software is used to protect or clean a computer</td>
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<td>B1.14 identify SPAM, pop-up ads, spyware and other invasive software coding</td>
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<td>B1.15 modify and utilize master pages/templates</td>
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<td>B1.16 import and export files to other formats (.html, .pdf)</td>
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<td>C1.1 identify technologies that are found in everyday life</td>
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### Social, Ethical, and Health

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<td>A2.1 identify aspects of an ergonomic workstation (lighting, monitor angle, work placement, keyboard height, seat height, posture, etc.)</td>
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<td>B2.1 demonstrate proper touch keyboarding techniques (ie: home row, quick key strokes, proper reaches)</td>
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<td>C2.1 examine current Canadian law governing the use of technology</td>
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<td>D2.1 determine the technological requirements for specific career goals</td>
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<td>E2.1 respect equipment and other student’s work</td>
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<td>E2.2 work co-operatively at work station</td>
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<td>E2.3 adhere to acceptable use agreement for work station/network/Internet</td>
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<td>E2.4 use electronic communication etiquette</td>
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<td>E2.5 adhere to rules of freeware, shareware and commercial ware</td>
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<td>E2.6 adhere to copyright and privacy laws, give credit to sources of information (MLA, APA)</td>
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<td>E2.7 identify ethical issues involved with Internet content, awareness of inappropriate use of technology</td>
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<td>E2.8 demonstrate caution before sending personal information over the internet</td>
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<td>E2.9 follow publishing etiquette (suitable language, no discrimination, etc.). Adhere to the guidelines for school web pages as outlined by PEI Department of Education.</td>
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</table>
**Internet**

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<tr>
<th>Students will be expected to:</th>
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<tbody>
<tr>
<td>A3.1 demonstrate awareness of the Internet as a source of information</td>
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<td>A3.2 use various tools (search engines and directories) and strategies necessary to carry out research</td>
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<td>A3.3 obtain/download material (text, graphics, files) from Internet</td>
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<td>B3.1 Use the various browser navigation tools (back, forward, history)</td>
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<td>B3.2 manage bookmarks/favorites</td>
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<tr>
<td>B3.3 distinguish among various file formats (file extensions), required plugins, file compression/decompression utilities</td>
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<tr>
<td>C3.1 discuss ways in which the Internet is evolving</td>
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<td>E3.1 critically evaluate information and its source based on pre-determined criteria</td>
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Journey On - P.E.I. Department of Education
### Concept Maps

<table>
<thead>
<tr>
<th>Students will be expected to:</th>
<th>Awareness</th>
<th>Guided</th>
<th>Independent</th>
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<tbody>
<tr>
<td>A4.1 use brainstorming techniques to generate ideas</td>
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<tr>
<td>A4.2 create a web (i.e.: literary, concept, character, word, Venn Diagrams, and timelines)</td>
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<td>A4.3 categorize ideas graphically</td>
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<td>A4.4 create links between ideas, re-link or delete links between ideas</td>
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<td>A4.5 elaborate on ideas (i.e. adding notes, annotations, etc.)</td>
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<tr>
<td>B4.1 add fonts, graphics, sound, and colours to enhance ideas</td>
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<tr>
<td>B4.2 create hyperlinks to files, web sites, or multimedia content</td>
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</table>
## Graphics

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<th>Students will be expected to:</th>
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<tr>
<td>A5.1 create illustrations or graphics by using the various drawing tools</td>
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<td>A5.2 apply principles of design</td>
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<tr>
<td>B5.1 demonstrate various object editing features (ie. select, unselect, resize, crop, area fill, add colour and pattern, size adjustment using the mouse or scale, various erasing techniques, object orientation, changing font and text size, colour or appearance, creating text blocks, change text wrap selection and other text manipulation functions)</td>
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<tr>
<td>B5.2 carry out various object manipulations (ie. object alignment, creation of graphics in layers, grouping/un-grouping components of an image)</td>
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<td>B5.3 use other graphic creation tools (i.e. clone brush, colour replacements, effects and filters, hexadecimal (RGB and CMYK colour values)</td>
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<td>B5.4 convert various graphic formats between vector (ie: .png, .psp, .cdr) and bitmap images (ie: .wmf, .tif, .bmp, .gif, jpeg, .jpg). import a graphic file from another source</td>
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### Spreadsheets

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<th>Students will be expected to:</th>
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<tbody>
<tr>
<td>A6.1 plan / design a spreadsheet to organize and tabulate data from various sources (to make a schedule, tally/score sheet, solve a mathematical word problem)</td>
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<td>A6.2 correct errors, modify or delete data in a cell</td>
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<td>A6.3 design own formulas incorporating functions (if SUM(B1..D1)&gt;0, @SUM(B1..D1), 0) and absolute / relative cell references</td>
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<td>A6.4 use different types of graphs / charts (line, pie, bar) to visually represent data; label graph components (legend, title, x-y axis, colour, fill pattern)</td>
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<td>B6.1 identify spreadsheet components and terminology (rows and columns, cell addresses, data entry bar)</td>
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<td>B6.2 identify different types of cell data (text, numeric, function, date)</td>
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<td>B6.3 enter data into simple preexisting spreadsheets, auto fill data, data entry bar, sort data</td>
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<td>B6.4 edit spreadsheet layout (insert and delete rows or columns, select a range of cells, alter column widths and row heights, locking row and column headings, lock and unlock cell(s), fixed titles)</td>
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<tr>
<td>B6.5 enter formulas to perform calculations across columns, rows, cells, move/copy data or formulas from one area of spreadsheet to another</td>
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<td>B6.6 format numbers (decimal places, currency, etc.), format text (font, colour, size)</td>
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<tr>
<td>B6.7 create links [between notebooks (tabs or sheets), external files, graphs, charts, website]</td>
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### Word Processing

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<th>Students will be expected to:</th>
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<tr>
<td>A7.1 create and edit data files and form documents to perform a merge</td>
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<td>A7.2 identify examples of desktop publishing (i.e. newspaper, catalogue, ads, brochure)</td>
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<tr>
<td>B7.1 use a grade level appropriate wordprocessor to create and edit written work</td>
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<td>B7.2 locate characters on a keyboard and identify functions of word processing (i.e. cursor, insertion point, enter key, space bar, upper case, backspace, shortcut key)</td>
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<td>B7.3 use editing tools to revise work (i.e. spell check, thesaurus, find and replace)</td>
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<td>B7.4 change font, size, colour, style (i.e. bold, italics, underline, insert special characters, drop capitals)</td>
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<td>B7.5 format text (i.e. justification, line spacing, outlines and bullets, text wrap)</td>
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<td>B7.6 format documents (i.e. using margins, tab rulers, indents, page center, border, watermark)</td>
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<td>B7.7 insert a graphic and manipulate, (i.e. resize, add borders and fill, create text art)</td>
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<td>B7.8 insert and format tables and text boxes (i.e. lines, fill, columns, rows, borders, alignment)</td>
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<td>B7.9 format multi-page documents with headers, footers, page numbers, page breaks and keep text together function, change page orientation/size (i.e. text presentation features)</td>
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<td>B7.10 insert automated features (i.e. date and file stamp)</td>
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### Multimedia

**Students are expected to:**

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<tbody>
<tr>
<td>A8.1</td>
<td>apply planning strategies, (storyboards, scripts, graphic organizing, brainstorming)</td>
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<td>A8.2</td>
<td>create an age/grade appropriate slide show presentation that may contain one or more of the following objects (text, graphics, images, animations, audio and video)</td>
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<td>A8.3</td>
<td>describe situations where streaming video and audio is appropriate</td>
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<td>A8.4</td>
<td>create graphics, audio and video special effects (animation, virtual reality, panorama)</td>
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<td>A8.5</td>
<td>select appropriate medium to convey a message (be conscious of file size, formats and storage location)</td>
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<td>B8.1</td>
<td>navigate multimedia resources such as slide shows, online resources or CD rom interactive educational activities</td>
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<td>B8.2</td>
<td>use multimedia creation and editing tools (screen captures, scanner, sound recording, digital image editing software: still and video)</td>
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<td>B8.3</td>
<td>convert file formats for a particular application (.jpg, .gif, .bmp, mp3, .wav, avi, mpeg, mov, etc.)</td>
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<tr>
<td>B8.4</td>
<td>use proper tools and procedures to enhance product quality. (Microphones, lighting, camera movement, instrumentation, teleprompters, assign various responsibilities to a production team.)</td>
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</tr>
</tbody>
</table>
### Database

**Students will be expected to:**

<table>
<thead>
<tr>
<th></th>
<th><strong>Awareness</strong></th>
<th><strong>Guided</strong></th>
<th><strong>Independent</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A9.1</strong></td>
<td>use an existing database (CD ROM, Microcat, Dynex, Internet search engine) to find information (sign up for Provincial Library Card - Abbycat)</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>A9.2</strong></td>
<td>perform searches on a database file using logical and Boolean operators (understands commands, scope, filters, and conditions)</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>A9.3</strong></td>
<td>design/plan a database to use as a method of organizing information</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>A9.4</strong></td>
<td>create and modify a form (add graphics, and error checking routines)</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>A9.5</strong></td>
<td>use databases to analyze data and look for trends</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>B9.1</strong></td>
<td>enter data into a pre-existing database, edit data, and use automated text</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>B9.2</strong></td>
<td>create fields and with variable field types (numeric, text, date) and properties (color, width, font, etc.)</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>B9.3</strong></td>
<td>restructure database (add / delete fields, change field width)</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>B9.4</strong></td>
<td>sort records alphabetically, numerically and by multiple fields</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>B9.5</strong></td>
<td>create a report from the entire database or selected records</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
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<tr>
<td><strong>B9.6</strong></td>
<td>create a report with automated summaries and calculations (understand logic, date and summary field types)</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
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</tr>
<tr>
<td><strong>B9.7</strong></td>
<td>bring database information into a word processing environment ie: (Mail Merges)</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>B9.8</strong></td>
<td>distinguish between the two general types of database management systems (flat and relational)</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
<tr>
<td><strong>E9.1</strong></td>
<td>examine functions and implications of database driven websites (ie: online purchasing, searching, and password secured sites)</td>
<td>1 2 3 4 5 6 7 8 9 1 0 1 2</td>
<td></td>
</tr>
</tbody>
</table>
## Telecommunications

<table>
<thead>
<tr>
<th>Students will be expected to:</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td><strong>Email:</strong></td>
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<td>B10.1 send messages</td>
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<td>B10.2 open messages</td>
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<tr>
<td>B10.3 manage mail/folders</td>
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<tr>
<td>B10.4 manage address books</td>
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<tr>
<td>B10.5 use distribution lists</td>
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<tr>
<td>B10.6 send and open attachments</td>
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<td>B10.7 create signatures</td>
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<td>B10.8 apply filters and rules</td>
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<td>B10.9 use calendar features such as appointments, tasks, reminder notes/memos</td>
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<tr>
<td><strong>E-Learning/Collaborative tools:</strong></td>
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<td>A10.1 collaborate using software: (ie. whiteboard, slideshow, application sharing, chat, messaging, send and receive files, photos, group file sharing, resource sharing (links), online content creation and sharing, assignment drop box, video and audio, discussion forums, journal.)</td>
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<td>B10.10 use the organizational features of collaborative tools such as scheduling, calendaring, and interactive syllabus</td>
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<td><strong>A11.1</strong> identify web page creation possibilities</td>
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<td><strong>A11.2</strong> create appropriate text and image file formats</td>
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<td><strong>A11.3</strong> create an interactive webpage. (online surveys, forms, interactive database, polls)</td>
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<td><strong>B11.1</strong> examine html tags</td>
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<tr>
<td><strong>B11.2</strong> create a basic web page (may include backgrounds, images, hyperlinks, tables)</td>
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<tr>
<td><strong>B11.3</strong> indicate where file or page is hosted (server, web server, hosting service)</td>
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<tr>
<td><strong>B11.4</strong> apply website file management and transfer files to and from web servers (ftp), edit pages online</td>
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<td><strong>B11.5</strong> use special features (image maps, cascading style sheets, frames, rollovers, layers)</td>
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<tr>
<td><strong>B11.6</strong> embed objects (audio, video, pdfs, animation, Flash, Java Script Applet,)</td>
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<tr>
<td><strong>E11.1</strong> describe standards which guide web based publication (W3C accessibility guidelines)</td>
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</tbody>
</table>
## How to Use this Document

### Paper Document

The first section of the document includes background material, definitions, philosophy, advantages of technology integration, an overview of the APEF curriculum, and grade 1-12 general outcomes for information and communication technologies.

The remainder of the document addresses the level and defines specific knowledge and CIT skills expected of students as they work toward technology competency. Practical considerations are given for incorporating CIT into the curriculum and accompanying lesson plans. The information is presented in a two-page layout as outlined on the following pages.

### On-line Document

An on-line version of this document will be developed. Having a document on-line has a number of advantages. It enables teachers to easily cross-reference material in the document with on-line help manuals and curriculum documents. It can encourage a greater level of collaboration among all educational partners. An on-line document can be easily revised and updated without having to copy and redistribute. It is our intent to revise, modify, and add new materials in the future only to the on-line version of Journey On.
Two Page-Layout

Four major sections are found on these pages as you go from left to right: 1) specific CIT outcomes, 2) instructional considerations, 3) teaching suggestions or names of grade specific lesson plans, and 4) links to curriculum outcomes. The applicable technology curriculum outcome area is found in a box at the top of each page along with the grade level.

<table>
<thead>
<tr>
<th>Technology Curriculum Outcome Area</th>
<th>Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer Systems</strong></td>
<td></td>
</tr>
<tr>
<td>Specific CIT Outcomes</td>
<td>Instructional Considerations</td>
</tr>
</tbody>
</table>
## Two Page-Layout in Detail

### Specific Outcomes
- are steps towards accomplishing the general technology outcomes and lettered as subdivisions of GTOs

### Computer Systems

<table>
<thead>
<tr>
<th>Students will be expected to:</th>
<th>Instructional Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1.1 make use of help features to independently find solutions to problems</td>
<td>A1.1 Using the drop-down help menu will provide help materials, tutorials, and technical discovery approaches to find solutions</td>
</tr>
<tr>
<td>B1.6 have an understanding of file management (drive and folder, rename, select, move, copy, paste, delete, display format, backup, etc.)</td>
<td>B1.6 Discuss the need for organizing electronic files. As storage space is limited, deleted and outdated files deleted, a hard drive or archived to a disk, memory stick or CD/DVD drive. File backup is available for users to maintain their files.</td>
</tr>
<tr>
<td>B1.8 understand the difference between software and hardware</td>
<td>B1.8 Software provides the electronic instructions to tell the computer what to do. There are two main categories of software: systems or operating software, such as Windows, macOS, or Linux, and applications.</td>
</tr>
</tbody>
</table>

### Teaching Suggestions, Activities and Assessment
- readiness considerations
- may be suggestions for activities or name of lesson plan

### Links to Curriculum Outcomes
- letters and numbers representing curriculum outcomes as defined in other APEF (CAME) documents

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## Web Authoring

### Students will be expected to:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A11.2</strong> create appropriate text and image file formats (Independent)</td>
<td><strong>A11.2</strong> Graphics programs allow more control over font styles, size, colour and format. Eg. text with specialized font face, elongated appearance, neon variable colours, and presented in a spiral shape. Use a maximum of two fonts. Use one font for text passages and one for accents such as titles, buttons, etc. Use common fonts on web pages as speciality fonts are replaced when viewed on the users’ computer. Designers can provide the font for download, however, they must be aware of copyright for the fonts. Most people will leave a site rather than download the font as it takes time and they often are concerned about downloading files. A second consideration is that each installed font will consume computer memory. Gif, .png and .jpeg are the main graphics file formats for web publishing. To reduce download times, use the smallest graphic size possible (file size not physical size). Use .jpeg for complex graphics such as photographs, art, images with shadows and shading. Use .gif for graphics with a few colours and transparency. Strategies to reduce the file size of an image include cropping the image to include only focal information, resizing the image to particular dimensions, and reducing its colour depth and resolution.</td>
</tr>
<tr>
<td><strong>A11.3</strong> create an interactive webpage (Independent)</td>
<td><strong>A11.3</strong> Interactive components of webpages require databases and server side scripting which are unavailable to students. However, there are various online companies that offer free services that may be incorporated into a static website. I.e. polls, surveys, web</td>
</tr>
<tr>
<td><strong>B11.1</strong> examine HTML tags (Guided 10)</td>
<td><strong>B11.1</strong> While web editors are easy to use and automate many web page construction tasks there are times when a knowledge of html coding is helpful for trouble shooting and customizing pages. Web page editors allow pages to be displayed in webpage and html views.</td>
</tr>
</tbody>
</table>

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*Journey On - P.E.I. Department of Education, 2007*
# Web Authoring

## Teaching Suggestions, Activities and Assessment

### Technology Lesson Plan:

**Five Themes of Geography**  Pg. 145  
Outcomes  E2.9, A8.3, A11.3, B11.4, B11.5, E11.1

**Exploring the Ancient World**  Pg. 148  
Outcomes  E2.9, A11.2, B11.1, B11.2, B11.3, B11.6

**The Family Heritage Scrapbook**  Pg. 172  
Outcomes  A3.2, A8.4, B5.3, B8.2, C2.1, E3.1 D2.1

A11.2  Create main headings as text images using a graphics program; save these graphics in .gif format. Ensure that image files are saved in .jpg format.

A11.3  Search for free interactive online tools using such terms as “online polls interactive web page tools” to find online companies providing these services. For example Bravenet (http://www.bravenet.com) and Protopage (http://www.protopage.com) provide a variety of website tools. (site active April, 2007)

Incorporate the required coding necessary to embed the selected interactive tool within the web page.

B11.1  Web editors allow the user to view the html coding. Create a table and view the resulting code. Discuss the characteristics of html coding.

Locate further information on particular .html tags by referring to an online source or tutorial.

## Links to Specific Curriculum Outcomes

<table>
<thead>
<tr>
<th></th>
<th>History</th>
<th>Geography</th>
<th>Law</th>
<th>Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1, D1, E1, F1</td>
<td>His 421</td>
<td>Geo 421</td>
<td>B2, C1, C4, D1, E1</td>
<td></td>
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<tr>
<td>2.3, 4.2, 4.5, 4.9, 5.4, 7.1, 8.6, 12.1, 13.1, 14.1, 14.4, 15.1, 15.7, 16.5, 17.1, 18.3</td>
<td>Geo 521</td>
<td>B2, C1, C4, D1, E1</td>
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<tr>
<td>A11.2</td>
<td>His 621</td>
<td>Geo 621</td>
<td>C1, C2, C5, D2, E1, E2</td>
<td></td>
</tr>
<tr>
<td>2.3, 4.2, 4.5, 4.9, 5.4, 7.1, 8.6, 12.1, 13.1, 14.1, 14.4, 15.1, 15.7, 16.5, 17.1, 18.3</td>
<td>Geo 621</td>
<td>C2, D2, E2, E3, E5, E6</td>
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</tbody>
</table>
## Web Authoring

### Students will be expected to:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Instructional Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B11.2</strong> create a basic web page (Independent)</td>
<td><strong>B11.2</strong> Web page editors allow the user to select templates that provide suggestions for layout, background and a navigation system. Should a user choose to create an original design, s/he must be careful that the background chosen does not make the text unreadable and that the colours chosen match. By convention, elements in a web page are designed inside a table with its borders turned off. Formatting web pages in this way allows the page to be viewed, in proportion, using various monitor resolutions. Eg. in the school system the monitor resolution is set at 800 X 600 pixels; many home users set their monitor resolution to 1024 X 768 or 1280 X 1024 pixels.</td>
</tr>
<tr>
<td><strong>B11.3</strong> indicate where file or page is hosted (Independent)</td>
<td><strong>B11.3</strong> The anatomy of a URL demonstrates the entire site structure. The initial section after http:// is the server address (eg. <a href="http://www.edu.pe.ca">www.edu.pe.ca</a>) Folders and subfolders are separated by a backslash (<a href="http://www.edu.pe.ca/journeyon/">www.edu.pe.ca/journeyon/</a>). Individual files finish the URL with a file extension (eg. .htm, .asp, .php, .jpg, .avi, etc.) <a href="http://www.edu.pe.ca/journeyon/pd.htm">www.edu.pe.ca/journeyon/pd.htm</a></td>
</tr>
<tr>
<td><strong>B11.4</strong> apply website file management and transfer files to and from web servers, edit pages online (Independent)</td>
<td><strong>B11.4</strong> Image files are placed in their own folder in the website file structure. Different sections of a web site are placed in separate folders, as well. This allows the web site to be more easily maintained as files related to particular sections can be identified. The transfer of files to and from a web server and editing of content online requires the use of a FTP program (file transfer protocol), username and password. Depending on individual school procedures, the school web master will perform these activities; work with students as they perform file management; some FTP software may be set up so that particular users have logins and passwords to access the sections of the web site for which they are responsible.</td>
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</table>
# Web Authoring

<table>
<thead>
<tr>
<th>Teaching Suggestions, Activities and Assessment</th>
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</thead>
<tbody>
<tr>
<td>B11.2 Create a basic webpage relating to a social studies curriculum topic. Provide criteria or create a rubric.</td>
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<tr>
<td>B11.3 Use Inspiration 7.5 to draw the file structure for the following URL: <a href="http://www.edu.pe.ca/journeyon/pro_d_pages/frontpage/class_webpage_exercise.htm">http://www.edu.pe.ca/journeyon/pro_d_pages/frontpage/class_webpage_exercise.htm</a>. The structure of a web URL is [server], [folder], [subfolder], [file]. The server address (<a href="http://www.edu.pe.ca">www.edu.pe.ca</a>) would be found at the top level of an organizational chart structure.</td>
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<tr>
<td>B11.4 Consult with the school web master to determine how files will be transferred to the server. Ascertain if there are any special file naming or formatting considerations. Internal web sites: Teachers may transfer files to folders on the network M: drive on behalf of students. The web site can be viewed by those on the school local area network. A link may be placed on the school web page that would make the information easier to find, i.e. <code>&lt;a href=&quot;mr_smith\globalization\index.html&quot;&gt;Globalization and PEI&lt;/a&gt;</code> An explanatory note should be provided for Internet visitors that indicates the link is available only from within the school network.</td>
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</table>

## Links to Specific Curriculum Outcomes

| History | Geography | Law | Economics |
|---------|-----------|-----|-----------|-----------|
|         |           |     |           |           |
|         |           |     |           |           |
|         |           |     |           |           |
# Web Authoring

<table>
<thead>
<tr>
<th>Students will be expected to:</th>
<th>Instructional Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>B11.5 use special features (Independent)</td>
<td>B11.5 Image maps are a combination of image and HTML coding. The code creates “hot spots” on the image which may be linked to files or web pages. Often hot spots are used as navigation elements in web pages. Should this be done, the designer must include an alternative navigation bar in case the image map does not work with a particular browser. Large images can be “sliced” into smaller portions held together by an invisible table. Each part of the image loads at the same time and encourages the visitor to remain as the image is revealed. Elements of the image can be used to link to files, webpages, popups, etc. similar to a hot spot.</td>
</tr>
</tbody>
</table>

A Cascading Style Sheet may be defined and placed in the header of an HTML document to automatically apply formatting to the page i.e. spacing, font, colour, etc. Frames break the page into areas that load from separate HTML files. A disadvantage of using frames is that a page cannot be printed as displayed. Rollovers and mouseovers may be programmed using script or automatically through the use of a web editor such as Front Page or Dreamweaver. Layering techniques are used to overlap elements of the image. |

B11.6 embed objects (Independent) | B11.6 An embedded object is multimedia content or simply a file (.pdf) created with one application and placed into a webpage with HTML coding. Embedding the object, ensures that the object retains its original format. Video that is included on a site must include information about its size so that users can decide whether or not they want to wait the time required to view the media. Provide a link to a plugin source for a downloadable file (e.g. Quicktime). Never incorporate the automatic downloading of a video/audio file into the loading of a page. Audio must be produced on the best quality sound equipment the user can obtain. Reeves and Nass (1996) found that users will tolerate poor video but are very affected by poor audio. Care must be taken not to overload the user with competing visual and audio information. People have difficulty reading text and listening to unrelated audio at the same time. |
### Web Authoring

#### Teaching Suggestions, Activities and Assessment

<table>
<thead>
<tr>
<th>B11.5</th>
<th>Investigate how to apply a special feature that will improve the communicative intent of the website. View examples of websites that have a combination of sliced images and hot spots. Determine where the hot spots are and where the slices are. Critique a web site created with hot spots. Recognize and describe the hot spots. Identify the function of the hot spot. Does the site provide a text based navigation? Evaluate the effectiveness of these special features. Examples of special graphic features may often be found in news, weather, arts and government sponsored websites. Here are some current examples: Royal Academy of Arts: <a href="http://www.royalacademy.org.uk/">www.royalacademy.org.uk/</a> Weather: <a href="http://www.weatheroffice.ec.gc.ca/">www.weatheroffice.ec.gc.ca/</a> Collaborate with Computer Literacy or Creative Multimedia classes to apply special features.</th>
</tr>
</thead>
</table>

| B11.6 | Search for free Java applets from the Internet for displaying stylized text, images, and video. Download the selected .zip file, uncompress and insert original works into these “display containers”. Embed or link audio, video, animation or data files (.pdf, .wpd, etc.). Remember to describe the contents of the linked files as well as their file size. |

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#### Links to Specific Curriculum Outcomes

<table>
<thead>
<tr>
<th>History</th>
<th>Geography</th>
<th>Law</th>
<th>Economics</th>
</tr>
</thead>
</table>

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*Journey On - P.E.I. Department of Education, 2007*
### Web Authoring

**Students will be expected to:**

<table>
<thead>
<tr>
<th>E11.1 describe standards which guide web based publication (Guided 10)</th>
</tr>
</thead>
</table>

**Instructional Considerations**

E11.1 The World Wide Web Consortium (W3C) found at http://www.w3c.org provides guidelines for creating online content and research relating to new Internet tools. Many of the guidelines relate to consideration of the broader Internet audience and suggest ways to make content available to all users. This may include factors such as making sure that colours selected may be seen by people who are colour blind, alternative navigation schemes other than by graphics, pictures identified with “ALT” text and provide choices for format and/or file sizes of multimedia content.
## Web Authoring

<table>
<thead>
<tr>
<th>Teaching Suggestions, Activities and Assessment</th>
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</tr>
</thead>
<tbody>
<tr>
<td>E11.1 Visit the World Wide Web Consortium (W3C) page at <a href="http://www.w3c.org">http://www.w3c.org</a>. List five considerations that must be taken into account to make websites accessible for all users.</td>
<td>History</td>
</tr>
<tr>
<td>Ensure that web site produced follows accessibility guidelines.</td>
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`Social Studies`
### Social, Ethical and Health

<table>
<thead>
<tr>
<th>Students will be expected to:</th>
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</thead>
<tbody>
<tr>
<td><strong>C2.1</strong> examine current Canadian law governing the use of technology (Independent)</td>
<td><strong>C2.1</strong> Many changes to Canadian laws governing technology use are “reactive” in nature as new technology and applications are developed. Extensions to laws have been made related to Electronic Contracts; Copyright; Trademarks; Internet Consumer Protection; Internet Advertising; Personal Information Protection; Criminal Law and Securities Law. Technology issues have implications for cultural identity/protection initiatives.</td>
</tr>
</tbody>
</table>

*Journey On - P.E.I. Department of Education, 2007*
## Social, Ethical and Health

<table>
<thead>
<tr>
<th>Teaching Suggestions, Activities and Assessment</th>
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</thead>
<tbody>
<tr>
<td><strong>Technology Lesson Plan:</strong></td>
<td>History</td>
</tr>
<tr>
<td>PEI Land Online  Pg. 62</td>
<td>His. 421</td>
</tr>
<tr>
<td>Outcomes  A3.2, A3.3, B3.3, D2.1</td>
<td>B1, B2, C1, C2, C3, C4, D1, E1</td>
</tr>
<tr>
<td><strong>Five Themes of Geography</strong>  Pg. 145</td>
<td>His. 521</td>
</tr>
<tr>
<td>Outcomes  E2.9, A8.3, A11.3, B11.4, B11.5, E11.1</td>
<td>A1, C1, C2, C3, C4, C5, D1</td>
</tr>
<tr>
<td><strong>The Family Heritage Scrapbook</strong>  Pg. 172</td>
<td></td>
</tr>
<tr>
<td>Outcomes  A3.2, A8.4, B5.3, B8.2, C2.1, E3.1 D2.1</td>
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</table>

C2.1 Visit the Canadian IT Law Association (http://www.it-can.ca/en/resources.html). Assign a group to a particular area of law that required revision because of advances in technology. Have each group report findings. Discuss controversial issues.
### Social, Ethical and Health

#### Students will be expected to:

**D2.1** determine the technological requirements for specific career goals (Independent)

**E2.9** follow publishing etiquette. Adhere to the guidelines for school web pages as outlined by PEI Department of Education (Independent)

#### Instructional Considerations

**D2.1** Technology competence is identified as an “Essential Skill” by Human Resources and Skills Development Canada. Statistics Canada has identified technology skills as important as numeracy and literacy to career success. Earning potential of persons possessing numeracy, literacy, and technological skills is five fold higher than those who have equivalent numeracy and literacy skills. (Murray, T. Scott. Statistics Canada. A Presentation To Cabinet, Charlottetown, PE. January 28, 2005)

**E2.9** The Journey On website (http://www.edu.pe.ca/journeyon/tech_support_pages/GuidelinesforSchoolWebPages.html) provides many suggestions and guidelines for online publishing. Note that pictures and student names should never appear together in an online document. Parental release forms must be signed for student names, pictures or works to appear in an online document. Release forms may be downloaded from the Journey On site.
# Social, Ethical and Health

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<tbody>
<tr>
<td>E2.9 A more formal writing style must be used when publishing material for a wider audience. Discuss how student writing will change and the role of the “editor” in publishing. Peer review of written material will improve the quality of the publication. Adhere to the guidelines for school web pages when publishing to the Internet. (Found on the Journey On site at <a href="http://www.edu.pe.ca/journeyon/tech_support_pages/GuidelinesforSchoolWebPages.html">http://www.edu.pe.ca/journeyon/tech_support_pages/GuidelinesforSchoolWebPages.html</a>)</td>
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</tbody>
</table>
## Internet

**Students will be expected to:**

<table>
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<tr>
<th>Instructional Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A3.2</strong> use various tools and strategies necessary to carry out research (Independent)</td>
</tr>
<tr>
<td><strong>A3.3</strong> obtain/download material from Internet (Independent)</td>
</tr>
<tr>
<td><strong>B3.3</strong> distinguish among various file formats, required plug-ins, file compression/decompression utilities (Independent)</td>
</tr>
</tbody>
</table>
# Internet

## Teaching Suggestions, Activities and Assessment

<table>
<thead>
<tr>
<th>Technology Lesson Plan:</th>
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<tbody>
<tr>
<td>Using Discussion Forums For Research</td>
</tr>
<tr>
<td>Outcomes A3.2, A10.1, B10.10, E3.1</td>
</tr>
<tr>
<td>Preparing For Debate Using Discussion Forum</td>
</tr>
<tr>
<td>Outcomes A3.2, A10.1, B10.10, E3.1</td>
</tr>
<tr>
<td>Detecting Bias in Primary &amp; Secondary Sources</td>
</tr>
<tr>
<td>Outcomes A3.2, A3.3, B3.3, E2.9, E3.1</td>
</tr>
</tbody>
</table>

**A3.2** Search engines, such as Google, Kart00, and Metacrawler will provide links to sites. Key the search term, such as culture or justice. Possible links to thousands of sites related to each word will be returned.

Narrow the search by determining key words closely related to your chosen topic and place quotation marks around these i.e. “native american culture”. Look in the search engine results for ideas on other search terms i.e. first nations, spirituality, indigenous, etc.

**A3.3** Check that the material is free for educational use or contact the author/webmaster for permission to use downloaded content. Provide acknowledgement for the source of downloaded information.

**B3.3** Search for a topic related file on the Internet containing the extension .pdf. This file will automatically open with Adobe Acrobat Reader on school computers.

Research the .pdf format to explain why the author chose to save the file in this manner.

## Links to Specific Curriculum Outcomes

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<thead>
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<th>History</th>
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*Journey On - P.E.I. Department of Education, 2007*
### Students will be expected to:

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<thead>
<tr>
<th>E3.1 Critically evaluate information and its source based on predetermined criteria (Independent)</th>
</tr>
</thead>
</table>

### Instructional Considerations

E3.1 The validity of information contained in a particular web site may be evaluated by critically examining several factors.

Dalhousie University Library provides a summary and evaluation checklist at [http://www.library.dal.ca/how/criteval.htm](http://www.library.dal.ca/how/criteval.htm) that breaks the evaluation process into the following six general areas: (site available April, 2007)

- Authority or credentials of the author. Has he/she written other articles? Is he/she educated or have experience in the area? Is the author writing for an organization, such as a university or government?

- Purpose. Who is the intended audience? eg. adults, toddlers or teens? Is the site trying to persuade or sell something? Is there a hidden agenda or bias?

- Coverage. Is information factual, detailed and presented in its full and proper context? Does the presentation seem to make sense?

- Currency. Is the site up-to-date and references recent research or facts on the topic?

- Objectivity. Is material presented with balanced and fair arguments? Is there consistency in that arguments do not contradict one another?

- Accuracy. Is the information provided in the site corroborated or supported in other sources? Is a bibliography provided?

Should a weakness be found in any one of the above areas, the reader should be careful about relying on information found on that particular site. Stress that anyone can easily create a professional looking web site without it being edited or supported by factual information. The tilde symbol (~) in a URL indicates that the resource was constructed and belongs to a particular individual, such as student or faculty member in an educational organization. There are many “fringe groups” who use the Internet to convey their “message” or “view of the world” to an unsuspecting public.
### Internet

#### Teaching Suggestions, Activities and Assessment

**E3.1** Visit the Media Awareness Network site to critically assess the validity of online resources. ([http://www.media-awareness.ca/english/teachers/wa_teachers/fact_or_folly_teachers/index.cfm](http://www.media-awareness.ca/english/teachers/wa_teachers/fact_or_folly_teachers/index.cfm))

Search for sites which contain fictitious information using terms such as “critical literacy”, “fact or fiction”, ”online”, “crop circles”, “sasquatch”, “ufo” in a search string.

Teachers should preview selected sites carefully, and provide the URL of pertinent pages. Using the criteria found under “Instructional Considerations”, judge the validity of these sites.

#### Links to Specific Curriculum Outcomes

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</thead>
<tbody>
<tr>
<td>E3.1 Visit the Media Awareness Network site to...</td>
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</tbody>
</table>
### Telecommunications

**Students will be expected to:**

**A10.1** collaborate using software (Independent)

**B10.10** use the organizational features of collaborative tools such as scheduling, calendaring, and interactive syllabus (Guided 10)

<table>
<thead>
<tr>
<th>Instructional Considerations</th>
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</thead>
<tbody>
<tr>
<td>A10.1 Within the classroom, collaborative tools (i.e. whiteboard, slideshow, application sharing, chat, messaging, send and receive files, photos, group file sharing, resource sharing (links), online content creation and sharing, assignment drop box, video and audio, discussion forums, journal) make it possible for students and teachers to work together in a virtual workspace. This is particularly useful when students are involved in groupwork outside of class time and live a distance apart. These tools may also make it possible for students with illness to stay in touch with peers and class activities. Establishing connections with classrooms in different parts of Canada or the world can be a powerful tool for the classroom teacher in all subject areas. Student assignments take on another level of authenticity when they are shared with other classes via telecommunications.</td>
</tr>
<tr>
<td>B10.10 Online learning content management systems rely on specific instructions linking content to activities and completion dates (interactive syllabus). These tools ensure that activities are performed in sequence and are not overlooked. They allow larger activities to be subdivided into smaller, manageable parts.</td>
</tr>
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</table>
Telecommunications

Teaching Suggestions, Activities and Assessment

<table>
<thead>
<tr>
<th>Technology Lesson Plan:</th>
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<td>Using Discussion Forums For Research Pg. 153</td>
</tr>
<tr>
<td>Outcomes A.3.2, A.10.1, B.10.10, E.3.1</td>
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</tbody>
</table>

| Preparing For Debate Using Discussion Forum Pg. 156 |
| Outcomes A.3.2, A.10.1, B.10.10, E.3.1 |

| The Social Studies Blog Pg. 158 |
| Outcomes A.10.1, E.2.9, E.3.1 |

| Let's Review Pg. 166 |
| Outcomes A.10.1, B.10.10 |

 outcome A.10.1 Use of collaborative tools expands the resources available to the classroom. The teacher and students can communicate with each other regarding questions from discussion in class. Teachers can model the information process by accessing online experts. This demonstrates that teachers, just like students, do not have all the answers but have the skills to find out.

Online tools may be used to prepare for a class debate or a guest speaker. Use of file sharing or threaded discussion forum features allow the monitoring of individual contributions to group activities.

Outcome B.10.10 Ensure that timelines and instructions for assignment are complete.

Post assignments / homework within an online content management system or on the school web page. Use “Hand in Folder” feature.

E-mail assignments/ instructions (.pdf files are useful for attachments)

Links to Specific Curriculum Outcomes

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### Database

**Students will be expected to:**

| **B9.6** create a report with automated summaries and calculations (Independent) |
| **B9.7** bring database information into a word processing environment (Guided 10) |

**Instructional Considerations**

| **B9.6** A database may be used to record information about people, places and the economy. A report may be generated with specific fields i.e. name, family name, address, ethnic background, age, marital status, children, occupation, family income, etc. Fields may be selected to group information in a report such as community, age and marital status. These may be listed in alphabetical order with automated summaries indicating the community and particular categories of information i.e. the number of people single, married, divorced in each community. At the end of the report, final total summaries may be calculated i.e. number of all single, married, or divorced persons on PEI. |
| **B9.7** Database data may be accessed and used to fill form fields (merged) in a word processing document. Form letters and mailing address labels are examples of database information used to create individualized documents. Fields must be created in the word processing document, along with spacing and punctuation, that specify the location for the variable data (That data which changes from one document to another). Paper size and margins must be selected for custom documents such as envelopes. Form letters might be generated that specify everyone in a geographic area that is 65 years old. These letters would be sent to individuals asking them to attend a special event, to take part in a survey. |
## Database

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<td><strong>Introduction to GIS</strong> Pg. 60</td>
<td></td>
</tr>
<tr>
<td>Outcomes A3.2, A3.3, B3.3, B9.8, D2.1</td>
<td></td>
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<tr>
<td><strong>Analyzing Crime Rate Statistics</strong> Pg. 160</td>
<td></td>
</tr>
<tr>
<td>Outcomes A3.2, A3.3, B8.2, B9.6, B9.8</td>
<td></td>
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<tr>
<td><strong>The Church Yard Project</strong> Pg. 174</td>
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<tr>
<td>Outcomes B5.4, B9.6, B9.8</td>
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</table>

B9.6 Discuss various ways data may be organized or summarized to provide useful information.

B9.7 Construct a survey that gathers information about historical, economic or political events from the point of view of business persons, farmers, fishermen, tourist operators, etc. in the community. Use form letter features of software to personalize this survey request.
# Database

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| **B9.8** distinguish between the two general types of database management systems (Guided 10, 11) | **B9.8** Databases may be termed “Flat” or “Relational”. A flat database stores data in the form of one table. This structure has the advantage that it is easy to set up and understand. Flat databases are especially useful for simple applications where there are few fields or pieces of data. As the number and types of fields increase the limitations of the flat structure become apparent. The user is forced to read large amounts of text data and must enter the same information in many different records. It is time-consuming to update changes in records and it may be impossible to search or create reports containing the exact information required.  

A relational database is one that stores information in several tables that are linked together by a special key field such as student ID. For example Trevlac is a relational database. The database would be set up with one table to hold student contact information. A second table might hold the timetable information. A third table may hold grades for all courses that the student has taken. A fourth table may be used to track student attendance. The computer may search and combine information from all four tables into a report very easily. If data changes are necessary only the table that contains that data needs to be accessed and updated. |
Each Island high school should be registered with a Statistics Canada ESTAT account. Choose “Accept and Enter” at the bottom of the page. Access to ESTAT materials on the STATS Canada site should occur automatically. If not, check with your librarian or STC.

Statistics Canada data is stored in a series of database “tables”. (Think of each table resembling a spreadsheet grid). The power of the database is provided by the ability of the user to make queries that will search and retrieve data from many different tables at one time. This type of database is termed a “relational database” as relationships or connections are established between the data found in each separate table. The type of database found in simple programs such as Appleworks or MS-Works is called a “flat” database. A flat database contains only one table and does not provide the flexibility required for more sophisticated “real world” applications. Statistics Canada uses the term “time series retrieval” to allow the user to select data from several tables at one time. “Table retrieval” will provide information from one table only, much the same as in a flat database. Review this terminology.

Discuss a social studies application where the sophistication of a relational database would be required. e.g.: to keep track of geneology records for the province or a community. Suggest fields that would be included in separate tables. What would be the “key” field that would link one table to the next?
## Multimedia

<table>
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<tr>
<th>Students will be expected to:</th>
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</thead>
<tbody>
<tr>
<td><strong>A8.3</strong> describe situations where streaming video and audio is appropriate (Independent)</td>
<td><strong>A8.3</strong> Multimedia files may be viewed by downloading or streaming them from the Internet. &quot;Downloading&quot; involves placing a hyperlink on a web site whereby the whole file is downloaded to the user's computer before it becomes viewable. This may involve a long wait depending on the file size and line speed. &quot;Streaming&quot; allows the media to commence playing after partial download and is appropriate for very large files. There are several formats for the creation of streaming video (Windows Media Macromedia, Real Media, Quicktime, MPEG-4). Streaming is also used in the delivery of “live events” through web casting.</td>
</tr>
</tbody>
</table>
Multimedia

<table>
<thead>
<tr>
<th>Teaching Suggestions, Activities and Assessment</th>
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<tr>
<td>Five Themes of Geography Pg. 145</td>
<td>A8.3, A11.3, B11.4, B11.5, E2.9, E11.1</td>
</tr>
<tr>
<td>Documenting Local History Pg. 170</td>
<td>A3.2, A8.4, B5.3, B8.2, B8.4, C2.1</td>
</tr>
<tr>
<td>The Family Heritage Scrapbook Pg. 172</td>
<td>A3.2, A8.4, B5.3, B8.2, E3.1</td>
</tr>
<tr>
<td>Do You Have An Issue With That? Pg. 176</td>
<td>A3.2, A8.4, A8.5, B8.2, B8.4, E3.1</td>
</tr>
<tr>
<td>Tourist Destination? Pg. 178</td>
<td>A3.2, A8.4, A8.5, B8.2, E3.1</td>
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</table>

A8.3 There are many sites that provide online materials for social studies i.e: atlases, historical video/audio, graphics. Discuss why some resources seem to take a long time before they can be viewed while others appear relatively quickly.

Use multimedia content to promote awareness and understanding of other cultures, differing perspectives and to provide personal historical accounts.
# Multimedia

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<td><strong>A8.4</strong> create graphics, audio and video special effects (Guided)</td>
<td>A8.4 Digital cameras have the capacity to create digital stills with special effects and short audio/video segments. Note that quality of this media is low. For best results, consider using a digital video camera. Network software have the capacity to create animations and video clips such as Paintshop Pro [Animation Shop], Corel Presentations, Movie Maker [XP].</td>
</tr>
<tr>
<td><strong>A8.5</strong> select appropriate medium to convey a message (Independent)</td>
<td>A8.5 Select a medium to convey the message. Medium includes text and graphics (illustrated posters, brochures), audio, animation, and video. Multimedia production includes combining two or more media together to satisfy the viewers preferred learning style.</td>
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## Multimedia

### Teaching Suggestions, Activities and Assessment

<table>
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<td>History</td>
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**A 8.4** Discuss how the use of graphics, audio and video special effects enhance the presentation and support the “message”.

Create a digital model of a social studies concept using animation techniques i.e.: immigration patterns or military movements on a map. Incorporate a commentary or explanation of the visual.

**A 8.5** Use text to explain a concept. Use audio to reinforce the message and to provide atmosphere. Still images or video provide visual context. Animation may be used to illustrate the concept in ways that would be impossible in real life.

Provide an opportunity to choose a media that will effectively demonstrate the concept (poster, radio ad, animated short, collage of still photos, video, etc.) Explain reasons for choice of media.
## Multimedia

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<tbody>
<tr>
<td><strong>B8.2</strong> use multimedia creation and editing tools (Independent)</td>
<td><strong>B8.2</strong> Hardware resources such as digital cameras that can capture still as well as video/audio footage, video cameras, web cams, microphones, and scanners are reasonably priced and widely available. Graphics programs allow the user to capture screen shots from the computer monitor, edit digital pictures, create animations and combine graphics and text. Video/audio editing capability is available on Windows XP computers. Home computer systems are now being marketed with multimedia features and software that appeal to the multimedia consumer.</td>
</tr>
<tr>
<td><strong>B8.4</strong> use proper tools and procedures to enhance product quality (Independent)</td>
<td><strong>B8.4</strong> Skill in multimedia development will continue to evolve as equipment becomes available at lower grade levels and in the home. The experiences of individual group members and expertise of other colleagues in the school must be taken full advantage of to create quality multimedia content. Be aware of the surroundings in which multimedia content is acquired. For instance, environmental noise from pop machines, fans, conversations, etc. interfere with audio quality. Shadows, traffic, lighting type affect video quality.</td>
</tr>
</tbody>
</table>
### Multimedia

**B8.2** Review one or more of the following multimedia creation tools to support an activity. Use Paintshop Pro to capture a screen image. A microphone, with Audacity or Inspiration 7.5, may be used to create an audio file. Scan a source document, modifying dimensions. Take a digital photograph or video and edit it.

**B8.4** Story board the multimedia sequence. Plan so that interferences are kept to a minimum. Images/videos are best shot outdoors or in natural light. If available, use tripod lighting or flash. A hand held microphone may reduce peripheral noise. Add sound track with voice overs and sound effects with editing software.

Multimedia activities require collaborative teamwork. Higher levels such as analysis, synthesis, and evaluation in Bloom’s Taxonomy are addressed.
Integrating CIT Outcomes by Core Subject Area

Outcomes from the CIT curriculum continuum that are identified as Awareness, Guided or first year Independent at the senior high level must be integrated into core subjects areas. These outcomes have been allocated to core areas by grade level so that students experience computer information technology being applied throughout all content areas during their high school years. This strategy also limits the number of CIT outcomes that must be addressed in any one subject.

### SENIOR HIGH CIT OUTCOME DISTRIBUTION

<table>
<thead>
<tr>
<th>Grade</th>
<th>Social Studies</th>
<th>English</th>
<th>Math</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Web Authoring</td>
<td>Internet</td>
<td>Graphics</td>
<td>Multimedia</td>
</tr>
<tr>
<td></td>
<td>Social/Ethical</td>
<td>Telecommunications</td>
<td>Spreadsheets</td>
<td>Database</td>
</tr>
<tr>
<td>11</td>
<td>Internet</td>
<td>Multimedia</td>
<td>Graphics</td>
<td>Web Authoring</td>
</tr>
<tr>
<td></td>
<td>Telecommunications</td>
<td>Database</td>
<td>Spreadsheets</td>
<td>Social/Ethical</td>
</tr>
<tr>
<td>12</td>
<td>Multimedia</td>
<td>Web Authoring</td>
<td>Graphics</td>
<td>Internet</td>
</tr>
<tr>
<td></td>
<td>Database</td>
<td>Social/Ethical</td>
<td>Spreadsheets</td>
<td>Telecommunications</td>
</tr>
</tbody>
</table>

Within the social studies curriculum, lesson plans have been developed that integrate the CIT curriculum outcomes into specific subject content areas. Teachers are encouraged to incorporate tools and concepts introduced in lesson plans at one grade level, e.g., History 421, “Exploring the Ancient World”, into others by referring to the “Links to other subject outcomes”. On page 29, notice that links are provided to Geography 521/621, Law 521 and Economics 621 where a webpage lesson may be used to meet the listed outcomes. Lesson plan activities are meant to be suggestions. They may be adapted, changed or applied to different content providing the CIT outcomes, as outlined for that area, have been met.

### SOCIAL STUDIES CIT OUTCOME DISTRIBUTION

<table>
<thead>
<tr>
<th>Subject</th>
<th>Outcome Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geography 421</td>
<td>Web Authoring Social/Ethical</td>
</tr>
<tr>
<td>History 421</td>
<td></td>
</tr>
<tr>
<td>Geography 521</td>
<td>Internet Telecommunications</td>
</tr>
<tr>
<td>History 521</td>
<td></td>
</tr>
<tr>
<td>Law 521</td>
<td></td>
</tr>
<tr>
<td>Political Studies 521</td>
<td></td>
</tr>
<tr>
<td>Geography 621</td>
<td>Multimedia Database</td>
</tr>
<tr>
<td>History 621A &amp; 621B</td>
<td></td>
</tr>
<tr>
<td>Economics 621</td>
<td></td>
</tr>
<tr>
<td>Political Studies 621</td>
<td></td>
</tr>
</tbody>
</table>

## Lesson Plan Layout

**Outcomes**

- Technology: A5.2, A8.4, B5.5, B8.2, B8.4, C2.1
- PEI History 621B:
- Geography 421:
- Geography 521:
- Law 521:
- History 621A:
- Political Studies 521:
- Political Studies 621:
- CAS 4Cl: 2.4, 3.1, 4.6, 4.7, 5.4, 5.5

**Activity**

Conduct primary research of local history. Communicate the results of this inquiry through writing and multimedia.

**Resources**

- Word Processor
- Internet Connection
- Multimedia resources chosen will vary:
  - Slide show (Corel Presentations)
  - Web Editor (Dreamweaver or Front Page)
  - Video Editor (Movie Maker XP)
  - Audio Editor (Audacity)
  - Animation (Stop Motion Animator)
  - Scanner, microphone, web camera, digital camera or video camera

**Instructions**

Research and document an aspect of local history. Examples may include interviews concerning personal experiences, or recollections of events, industries or buildings in a community. Other documentation may be found in histories, diaries, maps, newspaper articles, photographs and from visits to local museums.

Specific example topics might include life during the depression; the

Links to other Social Studies subject outcomes that may be met with a similar activity
# Lesson Plan Index

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<td>Using Discussion Forums For Research</td>
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<tr>
<td>Preparing For Debate Using Discussion Forums</td>
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<td>The Social Studies Blog</td>
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<td>Analyzing Crime Rate Statistics</td>
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<td>Canada’s Court System: An Island Perspective</td>
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<td>Do You Have An Issue With That?</td>
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<td>The Laws of Supply and Demand</td>
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<tr>
<td>The Consumer Price Index</td>
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</tbody>
</table>
Lesson Plan: Introduction to GIS

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, B9.8, D2.1</td>
<td>Explore Geographic Information Systems (GIS) describing the many applications of this technology and possible career choices.</td>
</tr>
<tr>
<td>Geography 421:</td>
<td>Resources</td>
</tr>
<tr>
<td>Geography 521: 1.2, 1.3, 1.4, 1.5, 1.6</td>
<td>• Internet connection</td>
</tr>
</tbody>
</table>

**Instructions**

Geographic Information Systems (GIS) incorporate global positioning, earth observation, Computer Assisted Drawing (CAD) and relational database technologies. Global positioning uses a series of satellites (at least 4) that constantly transmit a time-stamped signal. A GPS device on the ground will use these signals to calculate location co-ordinates. i.e.: -63.930692(X) 46.573314(Y). GPS points are accurate within meters anywhere on the earth. Earth observation satellites use imaging technology to capture land or weather information. Relational databases are used to link GPS points (location data for objects) with information collected about that object. e.g.: type of tree, age, height, circumference, diseases, etc. CAD is used to create “layers” that contain maps, text names, boundaries (country, province, city, park) lakes, streams, roads, power lines, etc.

Your house may be found in a GIS system. Information concerning the owner, civic address, street, property number, tax assessment, elevation, etc. may be found. A “layer” map of PEI or your community may be accessed to see its’ location, or other “layers” activated to display utilities such as water, sewage or power lines. An aerial or satellite image map may be accessed to view the house in relationship to woods, streams, or other landmarks. All information is provided within seconds.

A powerful aspect of the GIS system is to provide answers to questions and show relationships. For example, Emergency Measures Organization may be interested in finding the number of houses on PEI that are below a certain elevation in order to plan/prepare for storm surge flooding. By making a “query” in the GIS system all properties that are “at risk” may be displayed on a map and information about the property listed e.g.: owner, community, elevation, value, etc.

GIS systems must be carefully designed, planned and organized if they are to provide the proper information to the user. Operators of the system must be capable of determining the various ways in which the data housed in the system may be used. This means “asking the right questions” to get data that will help make the “best” decisions for our citizens, government, community, environment and industry.
Lesson Plan: Introduction to GIS

Other Activities
- invite someone who works with GIS to speak to the class
- visit http://www.gov.pe.ca/aerialsurvey/index.php3 to view aerial photographs of PEI. Discuss how these images might be useful in a GIS system containing PEI data? (Photo’s may be available for the years 1935, 1958, 1974, 1990 and 2000)
- Visit the Environment Canada weather radar animations at http://weatheroffice.ec.gc.ca/radar/index_e.html View a radar map. Click on Tab “How to Use”. Also, visit the Satellite Imagery link found on this site. Are these two maps GIS applications? Support your answer.
- discuss if the GIS databases found online are “Flat” or “Relational”.

Instructions (continued)


3. Career information relating to GIS is found at http://www.virtualjobshadow.com/esri_link.htm Listen to the various profiles available. Provide a listing of skills mentioned that are required to perform the job under the headings “Geography Skills”, “GIS Skills” and “Specialized Skills”. Are “geography skills” and “GIS skills” different?

<table>
<thead>
<tr>
<th>Geography Skills</th>
<th>GIS Skills</th>
<th>Specialized Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>eg. Collecting Data</td>
<td>Record GPS coordinates for data, prepare map files and overlays, enter data in database, look for trends &amp; relationships</td>
<td>Biologist, Identifying plants</td>
</tr>
</tbody>
</table>

4. Visit http://www.gov.pe.ca/gis/ and view the type of GIS data that is available from the Government of Prince Edward Island web site. List 5 specific data layers from the GIS Catalogue area that may be obtained from the site. i.e.: Emergency Data - Fire Districts. In which file formats (extensions) is this layer data available?

Suggestions For Assessment
- given a specific occupation, describe Geography and technology skills required. (If any)
- check that individual activities have been completed satisfactorially.
- discuss findings in small groups or review as a class
**Lesson Plan:** PEI Land On-Line

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology:</strong> A3.2, A3.3, B3.3, D2.1</td>
<td>Explore an online Geographic Information System (GIS) to discover information about your community on Prince Edward Island.</td>
</tr>
<tr>
<td><strong>Geography 421:</strong></td>
<td>Resource: Internet Connection</td>
</tr>
<tr>
<td><strong>Geography 521:</strong></td>
<td>Instruction: The PEI Land On-Line GIS system provides information to the public concerning properties on PEI. The part of this site containing information relating to property owners, renters, field boundaries and Enhanced Environmental Farm plans is password protected. Information pertaining to GPS coordinates are not provided in either the public or private areas of the site. Visit <a href="http://www.agripe.isn.net/MapXtreme/index.html">http://www.agripe.isn.net/MapXtreme/index.html</a> for the PEI Land Online site. (Part of this site is password protected. Click on the logo in the top right of the page for the public materials section)</td>
</tr>
<tr>
<td><strong>CAS401:</strong></td>
<td>1.1</td>
</tr>
</tbody>
</table>

**Technology:** A3.2, A3.3, B3.3, D2.1

**Geography 421:**

Geography 521: 1.3, 1.4, 1.5

CAS401: 1.1
Lesson Plan: PEI Land On-Line

Instructions (continued)
Descriptions of map tools and navigational aids follow:

- Use to center map where the mouse clicks
- Click to zoom in or draw a square around area of interest in map
- Click to zoom out or draw a square around area of interest
- Select a land parcel (must be zoomed in on map) its boundary will be marked in red
- Provides information about a parcel in a pop-up window (password area only)
- Measures distance between mouse clicks on the map
- Provides area between selected points (use ruler tool to select)
- Select miles or kilometer units
- Select acres or hectares
- Data layer information that can be enabled (may need to be zoomed in to see layer information) Tools appear at right of map.
- Search map for civic address or community. Replaces layer tools at the right of the map.

The data layers that may be enabled for the map are shown below:

<table>
<thead>
<tr>
<th>Layer Name</th>
<th>Show</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civic Addresses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized Watershed Boundaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetlands &amp; Sand Dunes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slope greater than 9% under 1 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEI Sloped Land Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Outline 1997</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest Outline 1990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthophoto 2000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Lesson Plan: PEI Land On-Line**

**Instructions (continued)**

Information on the data layer(s) selected do not appear until the map is zoomed.

1. Select the community where you live in the search area and click on “find”.
2. Use the zoom tool and draw a square around the area on the map close to where you live or where your school is located. Repeat if you have not located the proper location.
3. Select the “center” tool and click the map to center to place the property in the center of the map display.
4. Click on the “layers tool”. Place a check in the Properties “show” area. “Apply Changes”.
5. Use the “selection tool” to select the property. Note that a red line shows the boundary around the property.
6. Select the “ruler tool” and click at the front of the property and click once again at the back of the property. How long is the property measured in meters? What tool button do you have press if the distance is expressed in feet?
7. Use the “ruler tool” and click on points all of the way around the outside boundary of the property. Use the area tool to find the area of the property in acres. What was the area? Does this seem accurate?
8. Click on the “layers tool”. Place a check in the Civic Addresses “show” and “label” area. “Apply Changes”. What is the civic address of the property you have selected?
9. Uncheck the civic address boxes. Check the Orthomap 2000. “Apply Changes”. An aerial map of the property and surrounding area should appear. Are there noticeable changes in the area since the time the photo was taken?
11. Uncheck the orthomap. “Apply Changes”. Select an area near your community where there is swampy land, ponds or streams. Check “Wetlands and Sand Dunes”. “Apply Changes”. Zoom in to the area if the “green” low lying areas are not showing.
12. Uncheck “Wetlands and Sand Dunes”. Locate another area near your community that is “hilly”. Check “Slope greater than 9%”. “Apply Changes”. Zoom closer to the area if “yellow” areas are not displayed indicating slopes of 9% or over.
13. Check “PEI SLOped Land Inventory”. “Apply Changes”. How did this effect your map?
Lesson Plan: PEI Land On-Line

<table>
<thead>
<tr>
<th>Other Activities</th>
<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Visit <a href="http://eservices.gov.pe.ca/pei-icis/address-locator/maps-search.jsp">http://eservices.gov.pe.ca/pei-icis/address-locator/maps-search.jsp</a> to find community property numbers, street and road names, etc. CA Communities provides information about particular communities. Note that GPS points are provided at the bottom of the map display. (The Address Locator is a free online tool that is available to everyone. Most other areas of this online GIS tool are for registered users and fees are charged for information supplied.)</td>
<td>14. Select a farming area near your community from the map. Uncheck any selected layers. Check “Agricultural Outline 1997”. “Apply Changes”. Zoom closer if required. Does the agricultural land area appear to be mapped accurately?</td>
</tr>
<tr>
<td>15. Enable the “Forest Outline 1900” layer. Compare this to the areas shown from the “Agricultural Outline 1997”. Is there more or less farmland in the area selected in 1997 as compared to 1900? Did your finding surprise you. What are some of the factors that might explain the change?</td>
<td>16. Uncheck any layers. Check the Soil Type “Show” and “Label” boxes. Use the information tool to find more information about the soil found in various areas surrounding your community. What are some types of information provided for soil in a location. (from the pop-up window after the information tool is used)</td>
</tr>
<tr>
<td>17. Visit <a href="http://eservices.gov.pe.ca/pei-icis/address-locator/maps-search.jsp">http://eservices.gov.pe.ca/pei-icis/address-locator/maps-search.jsp</a> to find community property numbers, street and road names, etc. CA Communities provides information about particular communities. Note that GPS points are provided at the bottom of the map display. (The Address Locator is a free online tool that is available to everyone. Most other areas of this online GIS tool are for registered users and fees are charged for information supplied.)</td>
<td>Suggestions For Assessment</td>
</tr>
<tr>
<td>• demonstrate the map tools and layer features. Have individuals practice with the tool to ensure they understand how they work.</td>
<td>• pair students together to check each others calculations.</td>
</tr>
<tr>
<td>• use the school or another public property from which students will collect data. This will give an indication of whether students are able to use the map tools properly.</td>
<td>• review the possible uses of GIS in the farming, forestry and fishing industries.</td>
</tr>
</tbody>
</table>
## Lesson Plan: Viewing Map Projections Using GIS

**Outcomes**

**Technology:** A3.2, A3.3, B3.3, D2.1

**Geography 421:**

- Geography 521: 1.2, 1.4, 1.5, 1.6
- Geography 621

**Activity**

Change the projection of a global map using Global Information System (GIS) software. Identify distortions/inaccuracies that result when a particular projection is selected.

**Resources**

- Internet connection
- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Files: world_hd.axl (found on data disk: ..esri/data)

**Instructions**

ARC Explorer Java Edition for Education (AEJEE) is GIS software made available for educational use by Environmental Systems Research Institute (ESRI). AEJEE is used to read GIS information that has been compiled using other GIS software. Limited functionality has been provided for students to interact with the data and to format maps for printing.

In this activity students will alter the projection of a world map within AEJEE. They will record the name of the projection, its' type, distortion and accuracies that occur in displayed maps.

1. Launch the ARC Explorer software. Select “File” - “Open” and locate the file world_hd.axl found in C:/ESRI/Data (or where directed by your teacher)
Lesson Plan: Viewing Map Projections Using GIS

<table>
<thead>
<tr>
<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. The world map opens in a “geographic” or “lat-long” display. Notice as you move the mouse around the map that the Status Bar at the bottom left of the screen displays latitude and longitude, expressed in decimal degrees.</td>
</tr>
<tr>
<td>3. To the left of the map is “layer data” for cities, rivers, country, lat-long and oceans. Check and un-check these layers to see how the map is affected. Leave “country” and “world30” layers checked when you are finished.</td>
</tr>
</tbody>
</table>

ARC Explorer Tools:

- **zoom map to full view**
- **click to zoom or draw a square around a location to zoom to that location. e.g.: draw a square around the Maritimes; zoom back to full view.**
- **zoom out**
- **pan; use to move map in viewing area**
- **identify information on the map from a simple database table. Point to Canada using this tool. What information is provided?**
- **find information on the map from information stored in the database. Select “river”, type “Amazon”. Check “rivers” in the layer data at the left. The Amazon river system should be clearly visible on the map. Uncheck the river layer and zoom back to full view.**
- **“map tips” may be set to provide information from the map as the mouse pointer moves. Click on the “map tips” tool. Select “country” from the layers column on the left and CNTRY-NAME from the fields column. Select “Set Map Tips” and “OK”. As you move the mouse over the map country names should display beside the pointer.**
- **Select “Kilometers” as the unit of measure. Click on Newfoundland and drag a straight line to Australia. Three lines will appear and a box listing several numbers. The blue line is a “geodesic” line or great circle route. The magenta line is a “rhumb” line, or line of constant angle from start to finish. The red line is “segment” and represents the total length as drawn on the map. Remember that the map is projected and that the shortest distance on a sphere is a great circle. Select “Measure” and “Clear Measure Totals”. Do another measurement from Alaska to the tip of Africa.**
Lesson Plan: Viewing Map Projections Using GIS

Instructions (continued)

One of the biggest challenges facing cartographers is that of representing a spherical surface on a flat piece of paper or computer screen. Even if the earth were perfectly round (which it is not) showing a 3D object in 2D space would involve distortion of distance, area, shape, direction or a combination of these.

Projections:

4. To change map projection choose “Tools” - “Projection”.

5. Open “World Projections” (Sphere) and choose “Orthographic”.

Create a table similar to the following and complete the information.

<table>
<thead>
<tr>
<th>Projection</th>
<th>Distortion</th>
<th>Accurately Displays</th>
<th>Used For</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winkel-Tripel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robinson</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goode’s Interrupted*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Goode’s Interrupted projection is not found in AEJEE. It is a combination of Mollweide and Sinusoidal (both of which are in AEJEE) that are stitched together at the equator.

6. Search for an image of the Goode’s Interrupted projection. How was it created? Complete the table above for this projection.
Lesson Plan: Viewing Map Projections Using GIS

Other Activities:
- investigate the "up-side-down map" that is championed by Australians. Does this map have merit?

Assessment:
- display a map in a projection that might be used by Australians, Africans, and Asians.

Instructions (continued)

The projections are centered on the Atlantic Ocean between North America and Europe at the 180th meridian. This view may be changed using a custom projection.

1. Select "Eckert IV" world projection and click "apply".
2. In the "Select Co-ordinate System" window click "custom"
3. Set the central meridian to 150 and the linear units to "kilometers". Click "OK". Zoom to full.
4. Select "View" from the pull-down menu and "Zoom to Scale". Enter a scale of 1:300,000,000.

![Select Coordinate System](image)

![Map Projection](image)
### Lesson Plan: Creating Maps Using AEJEE

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, D2.1</td>
<td>Create a map with title, legend, scale, compass rose and overview. Print or export to an image file format.</td>
</tr>
</tbody>
</table>

#### Resources
- Internet connection
- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Files: world_hd.axl (found on data disk: esr/data)

#### Instructions
Completed maps may be printed or exported as an image file for use in another applications such as a word processor. This would be helpful for students wishing to display map characteristics that support the position taken in a paper or for teachers preparing original learning materials for classes.

1. Open the file world_hd.axl
2. Create an “overview map” that will display the whole world in the layer table of contents as we zoom into various sections of the map. Select “View” - “Overview Map”.
3. A new space will appear at the bottom of the table of contents under “World30”. Right click “World30” and choose “Use in Overview Map” from the menu. The blue colour of the world30 layer will appear with a red border above and below.
4. Right click the “country” layer and choose “Use in Overview Map”.
5. Zoom into Eastern Canada on the main map and notice what happens to the overview map.

6. The overview map shows the zoom location from the main map area. It may also be used to quickly move to different areas of the world map at the same zoom level. Drag the red square to a new location in the overview map. What happens in the main map area? This feature provides an easy way to compare regions on a map.
7. Right-click on the label “country” in the table on contents. Select “Rename” and key “land mass”. Press the enter key. Repeat and rename “world30” to “oceans”.
8. Save your work. g:/myworld.axl
Lesson Plan: Creating Maps Using AEJEE

Instructions (continued)
Create a Map for Printing or Export:

1. Zoom to a region on the map such as the Maritime Provinces or Caribbean.
2. Choose "View" - "Layout View"
3. Click "Zoom to whole page" button to see the print size.
4. Drag the "map handles" to resize. The completed page is shown below. Directions will be provided for each element.

5. Right-click the map and choose Properties. Select the frame tab and in the border section choose "Solid Line", width "2".

6. Click the map area if it is not already selected. Choose the "Add Map Legend" button. Drag the resulting legend to the right side of the page and resize. Right-click the legend and choose "Properties". Under the "Frame" tab, set a "solid line" border, width "2". Set the "Gap X" and "Gap Y" to "6". Click "OK".

7. Click the map, again. Choose the "Add Map Scale Bar" button. Choose "Alternating Scale Bar" and click "OK". Drag the scale to the bottom left area and resize as necessary. Right-click the scale and choose "Properties". In the "Scale and Units" tab, set "When resizing .." to "Adjust number of divisions", and set "Units/Label Position" to "below bar". Select "OK". (Make sure units are Kilometers and division value is 500)

8. Click the map, again. Choose the "Add overview Map" button. Drag this to the right as indicated. Resize as necessary.

Note: use the "+" or "-" zoom buttons to resize the page view, if required.
Lesson Plan: Creating Maps Using AEJEE

Other Activities
- identify various projections within AEJEE and publish them to a class web page
- print blank class maps and have students label locations or features
- locate information from the Geography network servers, format the data and print maps depicting relationships e.g. Plate tectonics, earthquakes, volcanos, vegetation, climate zones, agriculture, physical environment, ecoregions, hurricanes, population, cities, roads, etc.
- “Country-Centered World” lesson plan, pg. 98 of this guide.

Instructions (continued)

9. Click on the map, again. Choose the “North Arrow” button and select a symbol. Drag it to the bottom right of the map and resize.

10. Click any empty space on the page. Select the “Text tool”. Find the graphic and drag it to the title position on the top of the page. Right-click the graphic and choose “Properties”. Key the title of the map in place of “Text”. Choose “Change Properties...” and choose Arial font, size 36, and Bold. Click “OK”. Reposition on the page, if necessary. Repeat for your name. Use a font size of 18.

11. Resave your file (g:/myworld.axl)

12. Select “File” - “Export to Image”. Set the resolution with a number from 72 to 300 dots per inch. The image file format may be .bmp, .jpeg or .png. Save the file as g:/myworld.jpeg as this format may be used on the Web or in a Word Perfect document. View the file in Paintshop Pro or “Insert” into a Word Perfect file.

13. Print the map directly from AEJEE “File” - “Print” or print from within Word Perfect. Use “print preview” if the option is available on your system. The page orientation may need to be changed from “Portrait” to “Landscape”.

Suggestions For Assessment
- relate the formatting of AEJEE maps to cartographic standards and principles
- ensure map elements are resized and spaced proportionally on the page
- observe map navigation through both the map overview area and the map view
- provide opportunities for students to practice cartographic skills with other data sets
- encourage students to mentor or help others who might be experiencing challenges
### Lesson Plan: Accessing Online Data Using AEJEE

#### Outcomes

- **Technology:** A3.2, A3.3, B3.3, D2.1
- **Geography 421:** Geography 521: 1.5, 1.6, 2.1, 2.2, 2.5, 2.6, 3.2
- **CAS401:** 10-1-1, 10-1-2, 10-1-3

#### Activity

Access maps and layer data from online Internet Servers using AEJEE software.

#### Resources

- Internet connection
- ARC Explorer Java Edition for Education (AEJEE) GIS Software

#### Instructions

The Geography networks in Canada and the US have Internet servers that allow AEJEE to connect and retrieve layer data relating to a wide range of Geography topics. (For a listing of free data downloads see http://www.geographynetwork.ca/data/freedata.html)

To connect AEJEE to the Canadian Geography Network Internet Server follow these steps.

1. Select the “Add Data” button.
2. Select “Internet Servers” from the “Content Chooser”
3. Select “Add Internet Server”
4. Key the address of Internet server http://www.geographynetwork.ca
### Instructions (continued)

5. An extensive list of maps (raster image) and layer data (shape files) appear in the “content chooser” window.

- **Raster file** will include map image layer. May also contain other layer information in drawings and tables.
- **Shape file**, made of lines, dots or shapes (vector data). Used to show regions (polygons), roads (lines) or position (dots to show city locations). Raster files must be used to provide the map image (i.e., map of PEI) for any shape file information selected (roads on PEI). May also include table data.
- **Coverage file**, similar to a shape file but holds the related vector data files and tables inside a file folder. After selecting a coverage file in AEJEE you will notice the icon changes to a folder on the Geography Network server.

In short, look for raster files to view maps. If you want to add further data to your map (i.e., ArcCanada Historical Sites) select shape files or coverages to add these layers. Map type and scale must match from the raster to shape files for the data to be meaningful.

6. Scroll across the window to find the file **CanadaMap**. Click on this file and select “OK”, then click on the raster file in the window that opens. Click “OK”.

7. A very basic Map of Canada with layer information for roads, lakes and provinces is provided. Further shape files may be added to this map (ArcCanada & DMTI, MD & CAN csd layers may be added from the server). Select the “Add Data” button and select “ArcCanada_Grid_F” shape file.

8. The grid file will place the latitude and longitude lines on the map at 5 degree intervals. The “5 Degree Grid” appears in the table of contents but does not appear on top of the map. To fix this, right-click on the text “CanadaMap” in the table on contents.
Lesson Plan: Accessing Online Data Using AEJEE

Instructions (continued)

9. Select “Properties” from the pop-up menu and set the transparency slider to 75%. Click “Apply” and “Ok”. The grid should now appear on the map.

10. Select “Add Data” and select “ArcCanada_NationalParks_F” shapefile from the www.geography.ca server.

11. The “National Parks” layer should appear in the bottom of the table of contents. The layer data does not display in the map view area. In order to display the data do one of the following: right-click the “National Parks” layer and select “Move Layer” - “Move to Top” or right-click the “Canada Map” layer; select “Properties” and move the transparency slider to 75%.

12. Table data is provided with the “National Parks” layer. To view this information select the “National Parks” layer and right-click. Select “Attribute Table”. Note the information supplied within the table.

13. Information from the table may be accessed on the map by using the “Identify Tool” and clicking on a dark green polygon shape that represents a national park. What is the name of the national park found in Cape Breton? How big is this park?

SAVE FILE: g:/gis/national_parks
Lesson Plan: Accessing Online Data Using AEJEE

Instructions (continued)

14. Use the “Find Tool” to find “Banff National Park”. Make sure layer to search “National Parks” is selected. Click “Find”. A result should be returned. Look at the map. Banff National Park should be high-lighted in yellow.

15. To select parks that are between 5 and 10 sq. kilometers in size, make sure the “National Parks” layer is selected and select the “Query Builder” tool. Click on shape.area and construct the equation using the “on screen calculator”. Press execute when finished. View the map. All parks that meet this criteria should be high-lighted. What are the names of these parks?

Note: Use the “Clear All Selections” tool to clear high-lighted areas of the map following “Find” or “Query Builder” queries.
16. Set “Map Tips” to display the park name when the cursor is placed above the park. Make sure that the “National Parks” layer is highlighted on the left of the selection screen and park name field on the right. Click “Set Map Tips” and “OK”. View the map. (You may need to let the cursor rest on the park for its name to eventually appear)

17. Suppose we are camping at Fundy National Park and would like to know which other national parks are within a one-day drive of 500 kilometers. AEJEE can help us identify possible choices. Follow these steps:

   - zoom to the Maritimes area of the map
   - click the “Select Features” tool and select “Circle”
   - draw a small circle around Fundy National Park. It should turn yellow on the map.
   - click the “Buffer” tool
   - enter 500 for “buffer distance”, kilometers for “buffer units” and check “use buffer to select features from this layer”. Make sure that the “National Parks” layer is selected. Click “apply”. A 500 kilometer circle should appear around Fundy National Park.

   What National Parks are within the 500 kilometer, one-day travel, criteria?

SAVE FILE: g:/gis/national_parks
Lesson Plan: Accessing Online Data Using AEJEE

Instructions (continued)

AEJEE does not allow the creation of line or polygon shape files. Point shape files may be created with corresponding table information and HOTLINKS to online web URLS, media files or documents found on the users' computer. The graphic below displays dots that show the location of five national parks in the Maritimes (and Quebec). Information may be provided to the user by selecting a dot with the "identify tool" or by clicking the dot with the "HOTLINKS" tool.

![Map of national parks](image)

To create a point shape file perform the following steps:

1. Use Notepad to create a data file that will be opened in AEJEE. Key information as displayed below. There should not be spaces and HOTLINK must be capitalized. Key each site on a separate line.

   site,lat,long,name,HOTLINK
   2,46.705,-60.702,Cape Breton Highlands National Park,http://www.pc.gc.ca/pn-np/ns/chbreton/index_e.asp

   In way of explanation - Site is simply a number that is incremented for each new record. The lat. and long. decimal numbers came from X and Y values supplied in AEJEE as the mouse moves over the map. Name could be any text and HOTLINK was copied and pasted from Internet Explorer as web pages were visited. More data columns could be added to the table using this method as required.
Lesson Plan: Accessing Online Data Using AEJEE

### Instructions (continued)

If a document (i.e.: pei_national_park.pdf) was to be HOTLINKED instead of an Internet URL the following would be keyed: g://gis/pei_national_park.pdf

2. Save this file as g://gis/parksgps.csv (make sure that Notepad does not enter the extension .txt at the end of this filename)

3. From the AEJEE menu bar, choose “View” - “Add Event Theme”

4. Navigate to the file “parksgps.csv” and select it. For the “X field” choose “long” and for the “Y field” choose “lat”. Choose a shape and colour for the symbol to be displayed. Size of 5 should be acceptable. Click “OK”. A new layer “Parksgps” will be added to the table of contents in AEJEE.

5. If all has gone well, the symbol chosen should appear on the map. Select the parksgps layer in the table of contents. Use the “identify” tool and click on one of the symbols. Is the information added in the parksgps layer displayed for that particular park? Sometimes information from an other layer may display. Try selecting the symbol again if the proper information did not display.

6. Click the “HOTLINK” button and select (double click) a park symbol from the map. The web site for that park should launch automatically. (There may be a short delay for this to happen). As the X and Y coordinate must correspond closely, try again if the site does not display. It may help to zoom in closer to the target symbol before double clicking.
# Lesson Plan: Accessing Online Data Using AEJEE

## Other Activities

- prepare a table/layer for national parks found in the West or North
- configure another layer feature with the "CanadaMap" shape file found on the [www.geography.ca](http://www.geography.ca) server

## Suggestions For Assessment

- format and print the final map including the parksgps layer
- use a checklist. As students enable features on their map check the work from the monitor (map tips, find tool, query builder, HOTLINK)
### Lesson Plan: AEJEE - Labelling and Classifying Features

#### Outcomes
- Technology: A3.2, A3.3, B3.3, D2.1
- Geography 421:
- Geography 521: 1.6, 1.5, 3.2

#### Activity
Label and classify features with a geographic information system (GIS)

#### Resources
- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Shape files: ../esri/pei/Civic_Address/Community.shp and ../esri/pei/Topographic/WATERSHED.shp

#### Instructions
The shape files for this activity will be accessed locally. The original files are supplied on DVD but may be copied to drives C: or M: for student use. (The DVD drive may be used directly, if available). Ensure that the folders are copied exactly as configured on the DVD, otherwise AEJEE will not be able to locate associated data files.

The Community.shp file will be used to identify and colour the three counties of Prince Edward Island. Launch AEJEE and use the “Add Data” button to navigate to ../esri/pei/Civic_Address/Community.shp

1. Right-click “Community” in the table of contents and select “Attribute Table”. View the information found in the various columns of the table, especially the “COUNTY1” column.

Notice how the table of content has changed.
Lesson Plan: AEJEE - Labelling and Classifying Features

Instructions (continued)

To add labels for the counties:

1. Right-click on Properties. Select the “Labels” tab.
2. Choose “Label Features Using” - “COUNTY1”
3. Change font size to “12”.
4. Select “Effects” - “Glow” - “Apply” and “OK”
5. Save your work as: g:/esri/watershed.axl

“PRN”, “QUN” and “KNS” appear on the map. These labels were provided in the table that was associated with the Community shape file. Each county should also be displayed in a different pastel colour.

Part II

Sections of the map may be classified based upon numeric data that is contained in the GIS table. In this section PEI watersheds will be displayed in separate colours depending upon their size in hectares. The colour and range values will be displayed in the table of contents.

1. Use the “Add Data” button to navigate to ../esri/pei/Topographic/WATERSHED.shp
2. Right-click on the "WATERSHED” layer and select “Move Layer” - “Move to bottom”
3. View the information found in the various columns of the table, especially the “AREA_HA” column.
4. Right-click the WATERSHED layer and select Properties. Make sure that the “Symbols” tab is selected. Enter the following data: “Draw feature using” - “Graduated Symbols”; “Field” choose “AREA_HA”; “Classes” = “5”; Color “Start” = “Blue”, “End” = “Red”; Classified by “Manual”. (A separate window will open when “Manual” is selected. Formatting for this window will be found on the next page.)
A “Class Breaks and Histogram” chart appears in the pop-up window. The smallest watershed is 3.8 hectares while the largest is 19,665.46 hectares.

The lowest and highest values can not be changed. The middle values can be changed manually.

1. Select the second value in the “Breaks” area (3936.132). In the blank space “Current” key “7000”. Press “Enter”.
2. Select the third value in the “Breaks” area (7868.464). In the blank space “Current” key “10000”. Press “Enter”.
3. Repeat by replacing “11800.7959” with “13000” and “15733.128” with “16000”.
4. Select “OK” and “Apply”.
5. The new divisions will appear in the table of contents and shaded regions will appear on the map.
6. Set “Map Tips” to display the name of the watershed when the mouse is passed over it. What are the names of the three largest watersheds?
7. Save the project as g:/esri/watershed.axl
### Lesson Plan: AEJEE - Labelling and Classifying Features

#### Other Activities
- Use the contour shapefile, found in the Topography folder, to examine elevation data within selected watersheds.
- Label and shade the federal ridings on the Federal Electoral map found in ../esri/pei/federal_electoral folder.
- Devise a manual classification scale for country population or for the area of countries (sq. kms). A shape file containing base information may be found ../esri/data/world/country.shp.
- Investigate a local watershed from the point-of-view of early settlement in the area. Create point shape files containing information concerning the location of a particular feature, i.e.: dam to produce power for sawmill, location of first homesteads, etc. HOTLINK digital pictures or Internet links regarding the historic significance of sites within the watershed.
- "Labelling and Classifying Birth Rates or Death Rates" lesson plan, pg. 105 of this guide.

#### Suggestions For Assessment
- Visually check that the communities map has been divided into three counties and that they are labelled and shaded.
- Demonstrate setting the manual classification interval for the watershed map.
- Three watersheds appeared in the last interval while no watersheds were found in the second-last. Have students devise an interval that will have equal intervals in the lower hectares (less than 6000) and a final one of 12,000 and greater.
- Construct and print the final map, including a title, legend, scale and compass rose.

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_Draft_
**Lesson Plan:** Mapping Early PEI Settlements

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, D2.1</td>
<td>Create a point shape file to show the location and selected data for early settlements on Prince Edward Island.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PEI History 621:</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geography 421:</td>
<td>• ARC Explorer Java Edition for Education (AEJEE) GIS Software</td>
</tr>
<tr>
<td>Political Studies 521:</td>
<td>• Shape file: ../esri/pei/lots/lot_township_polygon.shp</td>
</tr>
</tbody>
</table>

**Resources**

- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Shape file: ../esri/pei/lots/lot_township_polygon.shp

**Instructions**

1. Launch the AEJEE program and use the “Add Data” button to navigate to the ../esri/pei/lots/lot_township_polygon.shp file. The map of PEI will display showing the location of the 67 lots.

2. Notice as you move the mouse around the map that 9 digit X and Y coordinates are displayed in the bottom left-hand side of the AEJEE window. These coordinates may be used to create an “Event Theme” or point shape file with data table.

3. Research early settlements on PEI as directed by your teacher. Brainstorm data that you would like to have displayed from the map when the “information” button is activated over a location.

4. Use “Notepad” program to key the data from #3 into a “comma separated values” (.csv) file. Do not leave any spaces after comma’s in this file. Headings in the first line can not be longer than 8 characters. Use the following text as an example to test with your map. (Do not press the “Enter” key after “French” in the first line of data)

   site,yvalue,xvalue,lot,name,namenow,settled,origin,sponsor
   1,683941.338,387840.135,10,Port La Joie,Charlottetown,1720,French,Comte de Saint-Pierre
   2,669113.929,408781.969,12,Belfast,Belfast,1803,Scottish,Lord Selkirk

5. Save this file as g:/gis/settlements.csv (Notepad will save the file as a .txt file unless the “Save as type” field contains .txt is changed to “All Files” in the “Save As” dialogue box. If the file saves as settlements.csv,txt use the “Maintain Your Files” program to rename it to settlements.csv)

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## Lesson Plan: Mapping Early PEI Settlements

### Other Activities

- Use the HOTLINK feature (see page 78) to link photographs, websites or student prepared written documents from the map.

- Locate pioneer era establishments from the local area e.g.: blacksmith shop, hotel, butter maker, cheese factory, tannery, grist mill, ship building, churches, cemeteries, etc. Create an “Event Theme” that shows the location, and data such as owner, year(s) of operation, etc. HOTLINK pictures or other media to the map created.

- Create an “unofficial tourist map” of the local area. Add points of interest such as site where folklore (or incidents) may have taken place, where particular artifacts were found, where shipwrecks occurred, where famous people lived or visited, or where poems or songs were written, etc. Provide details through a table or HOTLINK further documentation or media to the map.

### Instructions (continued)

6. AEJEE cannot create shapefiles of lines or polygons, but can convert .csv files containing X and Y values into point shape files. From the AEJEE menu bar, choose “View” - “Add Event Theme”

7. Navigate to the file “g:/gis/settlements.csv” and select it. For the “X field” choose “xvalue” and for the “Y field” choose “yvalue”. Choose a shape and colour for the symbol to be displayed. Size of 5 should be acceptable. Click “OK”. A new layer “settlements” will be added to the table of contents in AEJEE.

8. If all has gone well, the symbol chosen should appear on the map. Select the settlements layer in the table of contents. Use the “identify” tool and click on one of the symbols. Is the information added in the settlements layer displayed for that particular historic site? Sometimes information from another layer may display. Try selecting the symbol again if the proper information did not display.

9. Now add the data for the other early settlements selected into the settlements.csv Notepad file. Repeat the steps above to save the data and add an “Event Theme”.

### Suggestions For Assessment

- Assign groups to research early settlements
- Further fields were added to the data i.e: population, religion, etc.
- Historic sites are displayed accurately on the map
- Identify historic sites from the map visually (without the aid of the information tool)
### Lesson Plan: The PEI Electoral Map (2006)

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, D2.1</td>
<td>Investigate changes to the PEI Electoral Map using AEJEE.</td>
</tr>
</tbody>
</table>

#### Resources
- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Shape files: ../esri/pei/election/Electoral_Boundaries_with_Buffer.shp
  ../esri/pei/election/old/Elec_District.shp

#### Instructions
Information regarding the Electoral Boundaries Report, its rejection and the subsequent Bill No. 49 - "An Act to Amend the Electoral Boundaries Act" may be found on the Elections PEI website: http://www.electionspei.ca/

A central principle of democracy is “representation by population”. As populations shift, especially from rural to more urban areas the electoral districts and boundaries must be reviewed to ensure that MLA’s represent a similar proportion of the electorate.

The purpose of this lesson is to view changes to the most recent Electoral boundary map, to investigate why the electoral districts have been drawn the way they have been, and to evaluate if these changes adequately reflect “democratic principles”.

1. Launch AEJEE and navigate to the files ../esri/pei/election/
   Electoral_Boundaries_with_Buffer.shp and ../esri/pei/election/old/
   Elec_District.shp

2. Note changes in electoral districts by checking and un-checking the two map layers in the table of contents. In which districts have the greatest changes occurred? (Alternatively, select “Window” - “New Window”. Minimize each window and display each side-by-side with a different map in each.

3. Identify guidelines or “rules” that had to be adhered to when drawing the new electoral boundaries.

4. Statistics Canada (http://www.statcan.ca/english/Estat/licence.htm) has recent population figures for Prince Edward Island communities. After accessing Estat follow the path below to locate the data:
   - Table of Contents
   - Ensure “Data” (tab) is selected
   - Under “People” select “Population and demography”
   - Under “Census databases” select “Population Characteristics”
   - Under “Census of Population (Provinces, Census Divisions, Municipalities) select 2001 Census of Population: All Tables
     See next page ...
**Lesson Plan: The PEI Electoral Map (2006)**

### Instructions (continued)

- From "**Geography**" select “2001 PEI Census Subdivision” from the list box.
- From "**Characteristics**" select “Total Population 15 years and over by legal marital status - 100% data” from the list box.
- Select "**Output Format**" as "Table area as rows".

The population of most Island communities will be found in the resulting table.

**Alternatively:**

4. 1996 statistics may also be located from the Geography Network server (www.geographynetwork.ca) by using the “Add Data” button in A EJEE and navigating to the file population_DD from within the online geography site. Determine population within the electoral districts that have shown the most significant changes.

5. Add the populations of various communities that fall within a particular “Electoral Boundary”. Are the population figures for electoral districts equal within a particular percentage? (Note that the population figures we are using are from 2001 and include people 15 years old and older. Voting age is 18 years old.)

6. Discuss the merits of the new electoral boundary map. Has the democratic principle of representation by population been adhered to? Are there other ways in which this map may have been drawn?

7. Print a blank PEI map from A EJEE and draw alternative electoral boundaries. Ensure that the guidelines for PEI electoral boundaries are adhered to. Would your new map change the “political influence” landscape of PEI? What might be the political implications of your proposed change?

### Suggestions for Assessment

- Research of electoral boundary population statistics may be a small group activity with each group assigned a different district.
- The merits of the existing electoral boundaries map versus alternatives may be addressed through full class discussion or in debate.
- Use A Tutor discussion forums to present the results of research or to prepare for debate.
- Assess alternative maps/written implications of proposed changes.

---

**Other Activities**

- Examine population and demographic statistics for PEI (2006) from the Estat site. Select an urban and a rural PEI community. Compare various statistics such as: average number of children; male population 15-19 years; unemployment rate; average family income; population of a particular religion; marital status - widowed; education level or trade certificate; occupation category, for example “clerical”; migration; population change from 1996 to 2006. Are there any general trends that may be stated? i.e.: quality of life is better in urban areas of PEI as indicated by ... or vice versa.

---

**Note:** Census data is collected every 5 years.

- Compare particular statistics from a PEI community with that of a similar sized community in Alberta. i.e: average income, education level, number of population male or female in a particular age range; married or divorced; average number of children; labour force activity. Are there any general trends that may be stated? i.e.: quality of life is better in the Alberta area or PEI community as indicated by ... or vice versa.

- Comment upon population movements (rural, urban and mobility) as it relates to PEI from the 1996, 2001 and 2006 census data.
### Lesson Plan: Using GIS in World History

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</tr>
<tr>
<td><strong>History 421:</strong></td>
</tr>
<tr>
<td>History 521:</td>
</tr>
<tr>
<td>History 621A: GL1, GL2 (are sco outcomes numbered?)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity</th>
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<tbody>
<tr>
<td>Examine maps of selected periods from 2000 BC to 1994 AD that display civilizations or country borders. Create point shape files that show the locations of cities, ports, industries, wars, etc. and provides further details in a GIS table (population, exact dates, famous rulers/commanders, etc.). Format, label and print completed map.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ARC Explorer Java Edition for Education (AEJEE) GIS Software</td>
</tr>
<tr>
<td>• Shape files: ../esri/history/[year]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>This resource was supplied through the Geography Network (<a href="http://www.geographynetwork.com">http://www.geographynetwork.com</a>). Students prepared shape files for various historical periods for use in a “WebQuest Competition” in 2000 and are identified as ThinkQuest Team C006628. As part of their submission all shape files were made available for educational use.</td>
</tr>
<tr>
<td>Maps are available for the periods 2000, 1000, 500, 200, 1 BC and AD 400, 600, 800, 1000, 1279, 1492, 1530, 1650, 1715, 1783, 1815, 1880, 1914, 1920, 1938, 1945 and 1994.</td>
</tr>
<tr>
<td>1. Select a map for the time period being studied. Examine the map to ensure that boundaries displayed agree with the curriculum resources being used.</td>
</tr>
<tr>
<td>2. Brainstorm “point shapefile information” that may be added to the map, such as the location of cities, battle locations, or other famous events. (Create separate shape files for each type of information to be presented)</td>
</tr>
<tr>
<td>3. Brainstorm “other information” that would be useful for the selected item above. For example, if “city” were the shape file other information may include year founded, year destroyed, population, present day name, importance, etc. Remember that when creating the attribute table the heading names can not be longer than eight characters in length. Abbreviations such as “founded”, “distroy”, “pop”, “curname”, “impt” would be used.</td>
</tr>
<tr>
<td>4. Use “Notepad” program to key the data from #3 into a “comma separated values” (.csv) file. Do not leave any spaces after comma’s in this file. Headings in the first line can not be longer than 8 characters. Use the following text as an example to test with your map. (Do not press the “Enter” key after “impt” in the first line of data)</td>
</tr>
</tbody>
</table>
Lesson Plan: Using GIS in World History

Instructions (continued)

city,yvalue,xvalue,found,distroy,pop,curname,impt
Ur,29.928,48.119,2030 BC,1950BC,65000,Tell el-Mukayyar,Earliest known civilization in world history

5. Save this file as g:/gis/city.csv (Notepad will save the file as a .txt file unless the “Save as type” field that contains .txt is changed to “All Files” in the “Save As” dialogue box. If the file saves as settlements.csv.txt use the “Maintain Your Files” program to rename it to city.csv)

6. AEJEE cannot create shapefiles of lines or polygons, but can convert .csv files containing X and Y values into point shape files. From the AEJEE menu bar, choose “View” - “Add Event Theme”

7. Navigate to the file “g:/gis/city.csv” and select it. For the “X field” choose “xvalue” and for the “Y field” choose “yvalue”. Choose a shape and colour for the symbol to be displayed. Size of 5 should be acceptable. Click “OK”. A new layer “settlements” will be added to the table of contents in AEJEE.

8. If all has gone well, the symbol chosen should appear on the map. Select the city layer in the table of contents. Use the “identify” tool and click on one of the symbols. Is the information added in the city layer displayed for that particular historic site? Sometimes information from an other layer may display. Try selecting the symbol again if the proper information did not display.

9. Should there be only a few civilizations on the map, they can be separated in the table of contents and given a separate colour. Right-click the feature in the table of contents i.e: cntry 2000bc. Select “Properties” and “Draw feature using” Unique Symbols. Select a colour scheme that clearly shows each civilization.
Lesson Plan: Using GIS in World History

Instructions (continued)

10. Set “Map Tips” to display the name of the civilization or the name of the feature added in the point shape file (city in the example). The name of the feature will display as the mouse passes over it.

A EJEE does not allow the creation of line or polygon shape files. That is, map features such as roadways, rivers or new land shapes (polygons) cannot be created with the educational version. An easy way to show this information on a printed map is to export the map in .jpg format. Use “Paintshop” or “Fireworks” graphic editing programs to draw the feature on the map prior to printing. Arrows to indicate movements or migrations over time may be inserted in this manner.

Prepare the A EJEE map for printing or export:

1. Create an “overview map” that will display the whole world in the layer table of contents as we zoom into various sections of the map. Select “View” - “Overview Map”.

2. A new space will appear at the bottom of the table of contents under “cntry 2000bc”. Right click “cntry 2000bc” and choose “Use in Overview Map” from the menu.

4. Zoom to a region on the map such as Ur (2000 BC example)

5. The overview map shows the zoom location from the main map area. It may also be used to quickly move to different areas of the world map at the same zoom level. Drag the red square to a new location in the overview map. What happens in the main map area? This feature provides an easy way to compare regions on a map.


7. Save your work. g:/gis/civil2000bc.axl
Lesson Plan: Using GIS in World History

Instructions (continued)

1. Zoom to a region on the map such as the Maritime Provinces or Caribbean.
2. Choose “View” - “Layout View”
3. Click “Zoom to whole page” button to see the print size.
4. Drag the “map handles” to resize. The completed page is shown below. Directions will be provided for each section.

5. Right-click the map and choose “Properties”. Select the “Frame” tab and in the border section choose “Solid Line”, Width “2”.
6. Click the map area if it is not already selected. Choose the “Add Map Legend” button. Drag the resulting legend to the right side of the page and resize. Right-click the legend and choose “Properties”. Under the “Frame” tab, set a “solid line” border, width “2”. Set the “Gap X” and “Gap Y” to “6”. Click “O K”.
7. Click the map, again. Choose the “Add Map Scale Bar” button. Choose “Alternating Scale Bar” and click “O K”. Drag the scale to the bottom left area and resize as necessary. Right-click the scale and choose “Properties”. In the “Scale and Units” tab, set “When resizing ..” to “Adjust number of divisions”, and set “Units/Label Position” to “below bar”. Select “O K”. (Make sure units are Kilometers and division value is 500)
8. Click the map, again. Choose the “Add overview Map” button. Drag this to the right as indicated. Resize as necessary.

Note: use the “+” or “-” zoom buttons to resize the page view, if required.
Lesson Plan: Using GIS in World History

<table>
<thead>
<tr>
<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Click on the map, again. Choose the “North Arrow” button and select a symbol. Drag it to the bottom right of the map and resize.</td>
</tr>
<tr>
<td>10. Click any empty space on the page. Select the “Text tool”. Find the graphic and drag it to the title position on the top of the page. Right-click the graphic and choose “Properties”. Key the title of the map in place of “Text”. Choose “Change Properties...” and choose Arial font, size 36, and Bold. Click “OK”. Reposition on the page, if necessary. Repeat for your name. Use a font size of 18.</td>
</tr>
<tr>
<td>11. Resave your file (g:/gis/civil2000bc.axl)</td>
</tr>
<tr>
<td>12. Select “File” - “Export to Image”. Set the resolution with a number from 72 to 300 dots per inch. The image file format may be .bmp, .jpeg or .png. Save the file as g:/gis/civil2000bc.jpeg as this format may be used on the Web or in a Word Perfect document. Open the file in Paintshop Pro or Fireworks.</td>
</tr>
<tr>
<td>13. Use the tools in the graphics program to add rivers, arrows, text or other features to the map. Resave any changes made to the file and save as g:/gis/civil2000bc.jpg</td>
</tr>
<tr>
<td>14. Print the map directly from the graphics program “File” - “Print” or print from within Word Perfect. Use “print preview” if the option is available on your system. The page orientation may need to be changed from “Portrait” to “Landscape”.</td>
</tr>
</tbody>
</table>

![Civilizations 2000 BC](image-url)
**Lesson Plan: Using GIS in World History**

<table>
<thead>
<tr>
<th>Other Activities</th>
<th>Suggestions For Assessment</th>
</tr>
</thead>
</table>
| • export a map from AEJEE in .jpeg format. Open the map in a graphics program. Animate a sequence, such as a migration pattern by showing small changes with arrows on the map. Save numerous files as each arrow drawing becomes longer displaying the eventual outward direction of the migration. (15 files would be sufficient) Files may be saved as mig1.jpg, mig2.jpg, mig3.jpg, etc. Import the .jpg files in order onto the Movie Maker timeline. (found on XP computers). Set a transition duration of 5 seconds. Save the file in .mmv format. This may be displayed on a webpage or from within a slideshow presentation. | • use a checklist. As students enable features on their map check the work from the monitor (map tips, new layer, attribute table, etc.)

• relate the formatting of AEJEE maps to cartographic standards and principles

• ensure map elements are resized and spaced proportionally on the page

• map features have been enhanced through the use of a graphics program

• encourage students to mentor or help others who might be experiencing challenges

• printed graphic map is free from distortion. Text is readable. |
# Lesson Plan: Using GIS In Your School Community

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology:</strong> A3.2, A3.3, B3.3, D2.1</td>
<td>Study the local school and community using GIS. Identify local problems /issues that GIS may help solve.</td>
</tr>
<tr>
<td><strong>Geography 421:</strong> 1.5, 1.6, 1.7</td>
<td><strong>Resources</strong></td>
</tr>
<tr>
<td><strong>Geography 521:</strong></td>
<td>• ARC Explorer Java Edition for Education (AEJEE) GIS Software</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td>• Shape files: ../esri/pei/schools</td>
</tr>
<tr>
<td><strong>Instructions</strong></td>
<td><strong>Instructions</strong></td>
</tr>
<tr>
<td>Polygon shape files are found in the “schools” folder for “school district” and “school unit”. A point shape file called “schools” shows the location of all schools on PEI. Subfolders for each high school contain orthographic data (aerial photographs in TIFF format) for the immediate area surrounding the high school. Orthographic data for all areas of PEI are not provided as this would consume over 12 gigabytes of hard drive or network space. Instructions for configuring layer data in AEJEE will be provided below.</td>
<td></td>
</tr>
<tr>
<td>Students may examine the area surrounding the school and brainstorm uses of GIS or local problems that GIS data may help solve. Data may be collected and added to AEJEE in a point shape file. Several examples of activities will be provided. No detailed instructions will be provided for these suggestions.</td>
<td></td>
</tr>
<tr>
<td>1. Launch AEJEE. Use the “Add Data” button to navigate to the ../esri/pei/schools folder.</td>
<td>1. Launch AEJEE. Use the “Add Data” button to navigate to the ../esri/pei/schools folder.</td>
</tr>
<tr>
<td>2. Add the “school district” or “school unit” polygon shape file. Add the “schools” point shape file.</td>
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</tr>
<tr>
<td>3. Use the “Add Data” button and navigate to the subfolder for your school. Add the “orthomap” TIFF file(s) found in the folder. (Some schools have two orthomaps as the school or community is located at the edge of a particular map)</td>
<td>3. Use the “Add Data” button and navigate to the subfolder for your school. Add the “orthomap” TIFF file(s) found in the folder. (Some schools have two orthomaps as the school or community is located at the edge of a particular map)</td>
</tr>
<tr>
<td>4. Order the layers in the Table of Contents in the following order: top - “schools” point shapefile; middle - “orthomap(s); bottom - “school unit or district” polygon shape file. (Right-click the layer and choose “move layer”)</td>
<td>4. Order the layers in the Table of Contents in the following order: top - “schools” point shapefile; middle - “orthomap(s); bottom - “school unit or district” polygon shape file. (Right-click the layer and choose “move layer”)</td>
</tr>
<tr>
<td>5. Locate the school from the map using the “Identify” tool. Zoom in on this location. The orthographic map will appear when “zoomed in”.</td>
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</tr>
<tr>
<td>6. Other shape files from the PEI data set, such as roads “new_centerline February”, may be added depending upon project/problem.</td>
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</table>
Lesson Plan: Using GIS In Your School Community

**Instructions (continued)**

Some activities that may be considered:

- study distribution of litter found on the school premises and in the community. Locate these areas on the AEJEE orthomap. Create a table in notepad and enter as a theme in AEJEE to produce a point shape file for the most littered areas. (brainstorm other data that might be included in this table) Locate garbage cans in the area. Produce a separate table for garbage cans. Use the buffer tool to study relationships between litter and garbage can deployment. (X and Y co-ordinates for estimated location of litter and garbage cans may be found from the AEJEE map. GPS reading may be used if access exists to a handheld GPS unit. Conversion of “minute” reading will be required to “X” and “Y” co-ordinates. More information on this will be found at the end of this lesson)

- study areas where teenagers congregate to smoke. Enter “X” and “Y” coordinates on in a notepad table and enter as a theme in AEJEE to produce a point shapefile. (brainstorm other data that might be included in this table - i.e.: time of day) Use the buffer tool to determine where the best place for anti-smoking signage to be placed or to study if a relationship may exist between smoking location and retailers. Notepad tables may be produced to show the proposed location of signage or other variables.

- prepare a plan for routing traffic through congested areas near the school. What policies might be put in effect to ease traffic problems when school is commencing in the morning or ending in the afternoon? As an alternative, produce an EMS (emergency measures) plan for the school and community using GIS data.

- record the location of local historic buildings or sites in the community through the use of a notepad table/theme. These can be seen on the orthomap and X, Y coordinates read from AEJEE. Digital photographs of each location may have a HOTLINK to the AEJEE map (brainstorm other data that should be collected and recorded for these sites)

- prepare a “green” or beautification plan for the school or community. Show the location of proposed improvements and “details” in a notepad table/theme.

- interview fisheries, farming or forestry people who use GIS. Ask them to explain how they use their GPS equipment and how it aids them in their work.
# Lesson Plan: Using GIS In Your School Community

## Other Information:
- Geocaching takes treasure hunting one step further by using GPS units to locate hidden treasures. The name of the game is a combination of “Geo” from geography and “Caching” from the action of hiding the cache (or treasure). The term cache is commonly used among hikers and campers to refer to a hidden supply of food or other provisions. Geocaching is also referred to as GPS Stash Hunt. Anyone armed with a GPS unit and a sense of adventure can play. Information is shared through online forums and websites.

## Instructions (continued)
AEJEE software will not convert GPS latitude and longitude readings to decimal X, Y values. The datum or coordinate reference system used in PEI is the North American Datum of 1983 (NAD83). The conversion is based upon sophisticated mathematical calculations of the earth’s surface as an “elliptoid”.

Should the teacher wish to convert latitude and longitude readings taken from a GPS unit to X, Y co-ordinates for use in AEJEE please contact the Senior High Technology Specialist for assistance (902)368-5725.

## Suggestions For Assessment
- concept (brainstorming and problem statement)
- data collection (planning and execution)
- AEJEE map activities (adding theme events)
- written report or presentation of findings

## Links:
Lesson Plan: Using A Global Positioning System Unit

### Outcomes

**Technology:** B1.9, B3.3, B9.8  
**Geography 521:** 1.2, 1.5

### Activity

Use latitude/longitude (lat/long) coordinates to find an object (such as a flag pole, isolated tree, fire hydrant, sports field marker, etc.) located on the school premises.

### Resources

- GPS Unit (Garmin ETrex)
- http://www.edu.pe.ca/journeyon (gps operation)

### Instructions

Two GPS units have been provided to each senior high school conducting classes in Geography 521A. The objective of this lesson is to acquaint students with basic navigation, setting waypoints, and finding waypoints using a consumer class GPS unit. The activity would take place over a period of time e.g.: a week, with students working in groups of 2 or 3.

Prior to the field work activity introduction to Geographic Information Systems (GIS), Global Positioning Systems (GPS) and latitude and longitude coordinates would have been provided. Use the Garmin manual or handouts provided from the JourneyOn site to introduce students to operation and care of the GPS unit. In particular, students must recognize that the GPS receiver uses signals from overhead satellites to calculate position. Therefore, the unit should be held out in front with the top tilted upward. It may not work or provide accurate readings if used indoors, near large objects (such as walls), under the cover of large trees or worn inside clothing. They should also be made aware that the GPS units we are using are only accurate to within 6 meters.

In class:

1. Explain that “waypoints” are latitude and longitude coordinates for locations that are entered into the GPS unit before you navigate to that destination. For example, the coordinates might be provided by someone who has hidden a geocache object or someone who has already visited a site and has provided you with the GPS data to find it.

2. Demonstrate navigation buttons on the GPS unit and how to set waypoints to student groups. Each student group member should practice entering at least one waypoint for a selected community in PEI from the activity sheet #1 provided with this lesson. Other group members can check that the waypoint was entered properly.

3. Set a “waypoint proximity” alarm for 00.01 km for each waypoint.
### Lesson Plan: Using A Global Positioning System Unit

**Instructions (continued)**

3. The teacher or another group should verify that the information was entered correctly. Delete the “waypoints” and “proximity waypoints” after they have been assessed.

4. Student groups that have completed entering “waypoints” and setting “proximity waypoint” alarms may act as mentors for a following group.

**Out of Classroom:**

Student groups will complete activity sheet #2 out-of-doors in the school yard. Generally, they will answer questions regarding information provided by the GPS unit and find 3 “waypoints” that have been set by another group (or by the teacher for the initial two groups).

The teacher will determine if this activity will happen during regular class time or outside of school hours. There are also options regarding how the activity will be conducted:

- what will the waypoint objects be. For example, the waypoint may be a flag pole, tree, fire hydrant, soccer net, etc. Clues may need to be provided for participants to determine the object precisely as the GPS receiver will guide users to within the general vicinity of an object.

- Alternatively, film containers or pill bottles may be used. These are hidden (in plain view) on or around objects and may contain simple prizes to prove that they were located or the GPS coordinates of the next “waypoint”. This is very similar to how a geocache works.

- Once a group has located the three waypoints that they were assigned they must plan three waypoints for a following group. They will provide clues, coordinates or hide containers for the next group to locate. Provide details to the teacher.

- Completed activity sheets are returned to the teacher for verification, assessment and for the waypoint information to be distributed to the next group. The teacher may ask one member of the group to explain how a particular answer was found or to demonstrate the use of the GPS.

- Consideration should be given to numbering/identifying the GPS units and signing them out to an individual within a group. When the assignment sheet is submitted the GPS unit should be returned at the same time.
## Lesson Plan: Using A Global Positioning System Unit

### Other Activities
- create an “unofficial” tourism map of your local area. (i.e.: favorite beaches, hiking trails, places to eat, shop, folklore, etc.) Use GPS unit to establish the location of attractions. Add these sites to a PEI map using AEJEE. (See pg. 78 of this guide)
- establish coordinate location of local history and folklore sites using GPS. Add these points to a PEI map using AEJEE.
- plan a cross country racing route using a GPS
- use the “area feature” to perform calculations of shoreline erosion, water way buffer zones, size of forestry plots, wild flower areas, etc.
- use the GPS to record locations where unusual amounts of roadside garbage are found. Collect data regarding the source of such garbage. Brainstorm innovative ways to solve this problem.
- profile the location of wind turbines. Study online wind maps of PEI. Propose new locations for wind turbines considering elevation and data retrieved from wind maps. (See http://www.gov.pe.ca/envengfor/windatlas/) Note: do not enter private property without permission.

### Suggestions For Assessment
- coordinates for waypoints were entered accurately; members checked each others work
- mentoring / helpfulness to following group
- each member of the group knows how to use the GPS unit and find information (input waypoints, set waypoint proximity alarms and navigate to waypoints)
- objects or geocache items located
- thoughtfulness and accuracy of setting course and waypoints for following groups
- record log / answers provided on activity sheet
Using A Global Positioning System Unit - Activity Sheet #1

Set “Waypoint” coordinates for several locations within Prince Edward Island. Add a “waypoint proximity” alarm of 0.01 km for each waypoint set.

The PEI government has adopted and uses North America Datum established in 1983 (NAD83). A datum is a system of measurements that take into consideration the shape of the earth's surface for a particular area. There are many different datums used around the world that allow the GPS unit to measure location coordinates as accurately as possible.

In addition to selecting a datum the GPS receiver allows the user to select from a number of different coordinate formats. Common formats used by the PEI government or found on PEI websites follow:

1. Degree Decimal (DegDec) shown in GPS setup as hddd.ddddd and will display as 46.58022 63.92950
2. Minutes Decimal (MinDec) shown in GPS setup as hddd mm.mmm and displaying 46 34.813 63 55.770
3. Degree Minutes Seconds (DMS) shown in GPS setup as hddd mm ss.s and displaying 46 34 48.8 63 55 46.2

Each of the coordinates displayed above is for the same location. The GPS unit performs a conversion calculation between coordinate formats. A software program must be used to convert these coordinate positions to the full decimal X and Y format used in the AEJEE program.

It does not matter which format a user chooses to adopt. However, should coordinate information be exchanged between users it is important that the GPS unit be setup to recognize the information format supplied.

The Datum and coordinate format is retained by the GPS unit until changed by the user. However, it is important to know how to change these settings.

GPS Function Keys:

Enter key (press down)
Rocker (navigate)
“Go Back” key (cycle to main menu)
On/Off key
Using A Global Positioning System Unit - Activity Sheet #1

1. Turn on GPS Unit, it will try to acquire satellites.

2. As you are in-doors, press the “Menu/Find” key and select “Use With GPS Off” by pressing down on the “Rocker key”.

Check “Setup”. Coordinates are “hddd mm ss.s” format and NAD83 is the selected datum.

3. Press the “Go Back” key until the main menu appears. Use the “Rocker” key to select “Setup” and then “Units”.

4. Check that “Position Format” and “Map Datum” are set as shown below. Use the “Go Back” key to the “Main Menu”.

Set WayPoints. A “waypoint” is used to “Mark” an object or spot that you would like to find your way back to (you are standing there with your GPS unit). Alternatively, a “waypoint” coordinate may be provided by another person so that you can “Find” that place or object (you have never visited that spot). In this exercise you will be creating waypoints by entering co-ordinates provided.

1. PEI Geolinc services uses DMS position format and may be found at [http://eservices.gov.pe.ca/peических/address-locator/maps-search.jsp](http://eservices.gov.pe.ca/peических/address-locator/maps-search.jsp) Enter a community name from the pull-down menu and select “Find”. Click “view map” in the resulting table. Click the map after it loads. Longitude & latitude coordinates appear at the bottom left as you move the mouse around the map. Record the community name and coordinate information for a least one location on PEI.

Alternatively, sample coordinates have been taken from the Internet site listed above and is provided below for this exercise if a computer is not readily available. (Finding a community coordinate could be a homework activity) Which coordinate represents longitude and latitude below?

Tignish 64 1 59.15 W 46 57 3.49 N
Wellington 64 0 12.71 W 46 27 57.63 N
Summerside 63 47 19.05 W 46 23 26.7 N
Tryon 63 32 49.86 W 46 15 3.73 N

Charlottetown 63 9 0.61 W 46 14 18.45 N
Cardigan 62 38 28.77 W 46 14 41.67 N
Souris 62 14 48.74 W 46 21 15.92 N

Using A Global Positioning System Unit - Activity Sheet #1

2. Select “Mark” from the GPS main menu

3. Select the waypoint name box and enter the community name chosen. (Rocker key)

4. Navigate to the “Location” box and enter the coordinates of the community chosen. Note: Use “right arrow symbol” in the display to move to the number position you would like to change.

After pressing “Ok” on the last screen shot you have created a “waypoint” for location “somewhere else” away from where the GPS is sitting. If you were “Marking” a waypoint for where the GPS is now sitting the “location” coordinates would already be correct. You would simply label the “waypoint” and press “OK”.

Finding a “waypoint”:

1. Select “Find” from the main menu and “waypoints” in the “Find” menu

2. Select the community entered from the “waypoint” list.

3. “Go To” can not be selected as the unit is being used with "GPS off". Select “Map” to see location of the community entered. Does the waypoint appear to be in its correct location? If not, recheck the coordinates that were entered. Use the “Zoom” key to view the map area.
Using A Global Positioning System Unit - Activity Sheet #1

Set “Proximity Alarms”. A proximity alarm may be set for a distance around a particular “waypoint”. When the perimeter of a “waypoint” is reached the GPS unit will sound an alarm and provide information about that “waypoint”. The GPS will also sound an alarm as a user leaves a “waypoint” perimeter. This feature may be used to keep out of restricted areas (e.g.: private property) or to stay inside a particular area (e.g.: if searching for a lost object or person).

1. Select “Proximity” from the “Main Menu”
2. Highlight an empty line and press “Enter”
3. Find “Waypoints” and “Select”
4. Select “Use” waypoint
5. Change to 0.01 km
6. Set the alarm by placing a “check mark”

Each group member will have performed the activities found in this activity for at least one community coordinate. Ask your teacher if the waypoints and proximity alarms need to be seen. If not, “Find” the “waypoint” that you set, open it and select “Delete”.

Self Check:
- set “use with GPS off”
- find “Main Menu”
- view GPS setup (NAD83 and location format)
- “Mark” and enter “waypoint” coordinates
- Find “waypoints” that have been set
- view “waypoint” on a map
- zoom map
- add “waypoint” to “proximity alarm”
- enable the “proximity alarm”
- delete a “waypoint”
# Lesson Plan: Country-Centered World (Geo621)

### Outcomes

**Technology:** A3.2, A3.3, B3.3, D2.1  
**Geography 621:** 1.2, 1.3  
**Geography 421:**  
**Geography 521:** 1.4, 1.5, 1.6

### Activity

To look at the map of the world from a different perspective.

### Resources

- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Shape files: ../esri/geo621/countries_1.shp

### Instructions

This lesson is from the teacher resource CD “GIS Activities and Data Disk”. Instructions and data directory information have been provided for AEJEE. The activity relates to Communication Item 8 found on pg. 17 of the text “Global Connections: Canadian and World Issues”.

As Canadians, we are used to seeing the world from one of a few fairly fixed perspectives. For example, on a world map that is centred on the North Atlantic, Canada is shown in the upper left corner. Sometimes we might see a map centred on the Pacific Ocean or on North America, but rarely would we see a map focused on some other part of the world. A GIS program such as AEJEE allows us to create maps that are centred on any location in the world.

Your teacher will assign you a country or let you choose one. It is most interesting to do a country that is in a distant part of the world. Once you know your country, find it in an atlas and record the latitude and longitude of the point that appears to be in your country’s geographic centre. A location accurate to the nearest degree is more than adequate for this purpose.

1. Launch AEJEE. Use the “Add Data” button and navigate to ../esri/geo621/ Select “countries_1.shp” and choose “OK.”

2. Choose “File” and save the project as g:/gis/world_17.axl (remember to save often)

3. Maximize the windows by clicking on the middle button in the upper right corner of both your Project window and your View window so that they fill the entire screen.

4. Right-click the “countries” layer in the table of contents. Select “Properties” and a “colour” from the dropdown menu. The complete map will change to the selected colour.

5. Display country names as the mouse passes over them. Select the “Map Tips” tool. Choose “countries” layer and “NAME”. Click the “Set Map Tips” button. Check that country names are displayed as the cursor moves over the map.
Lesson Plan: Country-Centered World (Geo621)

Instructions (continued)

6. Locate the country selected for the activity. This may be done by passing the mouse over world countries until you locate the one you are looking for. Less well-known countries may be found in two ways:

- select the "Find" tool. Key the name of the country in the "Value" box. e.g.: Afghanistan. Choose "Find" and "Zoom" once the result is returned. Use the "Zoom to full extent" button to return to the full map view. Note that the country is highlighted in a light yellow outline. Use the "Clear All Selection" button to remove the highlight.

- select the “Query Builder” tool. Choose “NAME” field. Answer “Yes” to display all the values. Click the “equal” button and select “Afghanistan” in the values box. Choose the “Execute” button. Should the “Show All Attributes” check box be enabled the fields for the Afghanistan record will be displayed in the window. Click on this line of data if the “Highlight”, “Pan”, and “Zoom” buttons are not enabled. Choose the “Highlight” button to see the location of the country on the map. Select the “Zoom” button to view the country in detail. Close the “Query Builder” tool window.

Change the map projection and center the map on another area of the earth.

1. Choose “Tools” - “Projection”

The projections are centered on the Atlantic Ocean between North America and Europe at the 180th meridian. This view may be changed using a custom projection.

1. Select “Eckert IV” world projection and click “Apply”.

2. In the “Select Co-ordinate System” window click “Custom”

3. Set the central meridian to the meridian value of the longitude line passing through the country you had selected at the beginning of this exercise and the linear units to “kilometers”. Click “OK”. Zoom to full. (For Afghanistan a central meridian of 75 would center the map)
Lesson Plan: Country-Centered World (Geo621)

Instructions (continued)

4. To provide direction and scale to your map, you can add a new layer called “world30.shp” that includes major lines of latitude and longitude. To add this, click on the “Add Data” button at the top of the page (it has a large “+” sign on it) and navigate to esri/data/world folder.

5. The “world30.shp” grid may cover the “countries_1.shp” map. Right-click the “world30.shp” layer in the table of contents. Select “Move Layer” - “Move to bottom” from the pop-up window.

6. Save the project.

   Prepare an overview map in the table of contents:

1. Use the “Find” tool to select the chosen country and to highlight it on the map.

2. Zoom to a region on the map (Afghanistan in this example)

3. Create an “overview map” that will display a larger region in the layer table of contents as we zoom into various sections of the map. Select “View” - “Overview Map”
Lesson Plan: Country-Centered World (Geo621)

Instructions (continued)

4. A new space will appear at the bottom of the table of contents under “World30”. Right click “World30” and choose “Use in Overview Map” from the menu. The colour of the world30 layer will appear with a red border above and below.

5. Right click the “countries” layer and choose “Use in Overview Map”.

6. Zoom into your country on the main map and notice what happens to the overview map.

7. The overview map shows the zoom location from the main map area. It may also be used to quickly move to different areas of the world map at the same zoom level. Drag the red square to a new location in the overview map. What happens in the main map area? This feature provides an easy way to compare regions on a map.

8. Right-click on the label “countries” in the table on contents. Select “Rename” and key “land mass”. Press the enter key. Repeat and rename “world30” to “oceans”.

9. Resave your work g:/gis/world_17.axl

Create a map for printing or export:

1. Zoom to the chosen country (“Find” tool - “Zoom”)

2. Choose “View” - “Layout View”

3. Click “Zoom to whole page” button to see the print size.

4. Drag the “map handles” to resize. The completed page is shown below. Directions will be provided for each element.
Lesson Plan: Country-Centered World (Geo621)

Instructions (continued)

5. Right-click the map and choose “Properties”. Select the “Frame” tab and in the border section choose “Solid Line”, width “2”.

6. Click the map area if it is not already selected. Choose the “Add Map Legend” button. Drag the resulting legend to the right side of the page and resize. Right-click the legend and choose “Properties”. Under the “Frame” tab, set a “solid line” border, width “2”. Set the “Gap X” and “Gap Y” to “6”. Click “OK”.

7. Click the map, again. Choose the “Add Map Scale Bar” button. Choose “Alternating Scale Bar” and click “OK”. Drag the scale to the bottom left area and resize as necessary. Right-click the scale and choose “Properties”. In the “Scale and Units” tab, set “When resizing..” to “Adjust number of divisions”, and set “Units/Label Position” to “below bar”. Select “OK”. (Make sure units are Kilometers and division value is 100 or 200)

8. Click the map, again. Choose the “Add overview map” button. Drag this to the right as indicated. Resize as necessary.

9. Click on the map, again. Choose the “North Arrow” button and select a symbol. Drag it to the bottom right of the map and resize.

10. Click any empty space on the page. Select the “Text tool”. A “text graphic” will automatically appear over the map. Drag it to the title position on the top of the page. Right-click the graphic and choose “Properties”. Key the title of the map in place of “Text”. Choose “Change Properties...” and choose Arial font, size 30, and Bold. Click “OK”. Reposition on the page, if necessary.

Repeat for your name. Use a font size of 18. Repeat for the country name you have chosen and place inside the country boundaries on the map. (See Afghanistan, in the example) Use a suitable size of font.

11. Resave your file (g:/gis/world_17.axl)

12. Select “File” - “Export to Image”. Set the resolution with a number from 72 to 300 dots per inch. The image file format may be .bmp, .jpeg or .png. Save the file as g:/gis/world_17.jpeg as this format may be used on the Web or in a Word Perfect document. View the file in Paintshop Pro or “Insert” into a Word Perfect file.

Note: use the “+” or “-” zoom buttons to resize the page view, if required.
Lesson Plan: Country-Centered World (Geo621)

<table>
<thead>
<tr>
<th>Other Activities</th>
<th>Instructions (continued)</th>
</tr>
</thead>
</table>
| • “Creating Maps Using AEJEE” lesson plan, pg. 68 of this guide. | 13. Print the map directly from AEJEE “File” - “Print” or print from within Word Perfect. Use “print preview” if the option is available on your system. The page orientation may need to be changed from “Portrait” to “Landscape”.

Suggestions For Assessment

• relate the formatting of AEJEE maps to cartographic standards and principles
• ensure map elements are resized and spaced proportionally on the page
• observe map navigation through both the map overview area and the map view
• provide opportunities for students to practice cartographic skills with other data sets
• encourage students to mentor or help others who might be experiencing challenges

• Questions:
  1. Describe how someone in this country would “see” the world compared to how a Canadian would see it.
  2. What factor(s) are changing the way in which people relate to the world?

**Suggested answers to Questions:**

1. The world view that people hold typically consists of their immediate neighbours (whom they know best) and expands selectively outward to lesser-known areas. Furthermore, people of one country usually view the world in a similar way as those living in countries closest to them or in the nearest regional power. This phenomenon can clearly be seen with respect to Canada and the United States; Canada has a world view similar to that of its closest and more powerful neighbour. Countries in southern Africa share South Africa’s view, while countries in Southern and Eastern Asia see the world as do India and China, the two countries that dominate those regions. Students’ answers should point out the influence of the local regional power (e.g., Brazil, Nigeria, and Japan), and show how a country’s relationship with its immediate neighbour(s) colours its view of the world.
<table>
<thead>
<tr>
<th>Lesson Plan: Country-Centered World (Geo621)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suggestions For Assessment (con’t)</td>
</tr>
<tr>
<td>2. Globalization, with its several aspects, is the obvious answer. Instant and widespread communications, multinational business, easier-than-ever-before travel, and the dissemination of popular culture are all contributing to the changing ways in which people relate to the world. Not all people, however, are affected equally by the changes associated with globalization. For example, citizens of Copenhagen, Denmark, are much more affected than farmers in an isolated region of India because they most likely travel and use the Internet, and have television, economic connections to other parts of the world, and a culture that has been influenced by those of North America and Asia. With regard to communication, infrastructure has replaced distance as the key determinant of cost and, hence, accessibility. For example, it is very easy and inexpensive to phone from Ontario to Hong Kong or Australia compared to Paraguay or Albania, where the infrastructure is less developed.</td>
</tr>
</tbody>
</table>
### Lesson Plan: Demographic Transition (Geo621)

<table>
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<tr>
<th>Outcomes</th>
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<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, D2.1</td>
</tr>
<tr>
<td>Geography 621: 2.2, 2.3, 2.7</td>
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</table>

<table>
<thead>
<tr>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>To create a world map showing progress toward demographic transition.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A RC Explorer Java Edition for Education (AEJEE) GIS Software</td>
</tr>
<tr>
<td>• Shape files: ../esri/geo621/countries_1.shp</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>This lesson is from the teacher resource CD “GIS Activities and Data Disk”. Instructions and data directory information have been provided for AEJEE. The activity relates to Communication Item 9 found on pg. 75 of the text “Global Connections: Canadian and World Issues”.</td>
</tr>
</tbody>
</table>

The concept of demographic transition is fundamental to understanding population problems in the world. In this exercise, you will have an opportunity to determine which countries and regions are in which stages of transition.

1. Launch AEJEE. Use the “Add Data” button and navigate to ../esri/geo621/ Select “countries_1.shp” and choose “OK.”

2. Choose “File” and save the project as g:/gis/transition_75.axl (remember to save often)

3. Maximize the windows by clicking on the middle button in the upper right corner of both your Project window and your View window so that they fill the entire screen.

4. Right-click the “countries” layer in the table of contents. Select “Properties” and a “colour” from the dropdown menu. The complete map will change to the selected colour.

5. Display country names as the mouse passes over them. Select the “Map Tips” tool. Choose “countries” layer and “NAME”. Click the “Set Map Tips” button. Check that country names are displayed as the cursor moves over the map.

6. Next, you will identify which countries are in each phase of demographic transition. This will be done by using the Query Builder tool at the top of the page 📊

* make sure the “countries” layer in the table of contents is selected to be able to access the “Query Builder” tool.
Lesson Plan: Demographic Transition (Geo621)

Terminology
- birth rate - 2001 stats. Rate per 1,000 people
- death rate - 2001 stats. Rate per 1,000 people

Instructions (continued)

7. To identify Phase 1 countries, do the following:
   - Under “Fields,” double-click on “[BirthRate].”
   - Next, single-click on the “> =” button.
   - Then, type “35.”
   - Then, single-click on the “and” button.
   - Next, double-click under “Fields” on “[DeathRate].”
   - Single-click on the “> =” button again and type “35.”
   - Finally, choose the “Execute” button.

   Your query should look like this:
   (BirthRate >= 35) and (DeathRate >= 35)

   This step must be precise, as it is easy to get a “Syntax Error.” If you do, it is often easier to start again than to try to identify the problem.

   Not surprisingly, nothing happens—there are no countries still in Phase 1.

8. Repeat the process for countries in Phase 2. To do this, you will query for countries that have a birth rate greater than or equal to 35 and a death rate less than 35.

   Your query should look like this:
   (BirthRate >= 35) and (DeathRate < 35).

   If there are no errors, several countries should appear in yellow on the map.

9. How many countries are Phase 2? (See results in the Query Builder)
Lesson Plan: Demographic Transition (Geo621)

<table>
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<tr>
<th>Instructions (continued)</th>
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<tbody>
<tr>
<td>10. Examine the highlighted countries from the map. List the countries in North America, Central America and South America that are in Phase 2.</td>
</tr>
<tr>
<td>11. Repeat to find Phase 3 countries. In this case, you will be searching for countries with a birth rate less than 35 but more than 18, and a death rate less than 35. ([BirthRate]&lt;35 and [Birth Rate]&gt;18 and [DeathRate]&lt;35)</td>
</tr>
<tr>
<td>12. How many countries are Phase 3? Examine the highlighted countries from the map. List countries in North America and Central America that are Phase 3. (Do not include any Caribbean Islands)</td>
</tr>
<tr>
<td>13. Query Phase 4 countries. Use a birth rate less than 18 but more than 0, and a death rate less than 18 but more than 0.</td>
</tr>
<tr>
<td>14. How many Phase 4 countries were returned? List countries in North America and mainland South America that are Phase 4.</td>
</tr>
<tr>
<td>15. There are some countries for which no data exist. To isolate these, do a query for &quot;birth rate equals -99&quot; or &quot;death rate equals -99.&quot; How many countries do not have data available?</td>
</tr>
<tr>
<td>Construct a map to display birth rate statistics.</td>
</tr>
<tr>
<td>Other Activities</td>
</tr>
<tr>
<td>• prepare a map that displays death rate statistics</td>
</tr>
<tr>
<td>• “AEJEE - Labelling and Classifying Features” lesson plan, pg. 81 of this guide</td>
</tr>
<tr>
<td>1. Right-click the “countries” layer and scroll down to “Properties”.</td>
</tr>
</tbody>
</table>
Lesson Plan: Demographic Transition (Geo621)

Instructions (continued)

2. Enter the following data:
   - “Draw features using” to Graduated Symbols
   - “Field” to BIRTH RATE
   - “Classes” remains at 5
   - “Classified by” to Manual
   - “Colour” - Start - Gray; End - Custom (select colour i.e.: green)

3. As soon as “Manual” is selected, a new window opens for “Class Breaks and Histogram”.
   - Click the “Select Break” pull-down. The two extreme numbers represent the top and bottom of the range and cannot be changed.
   - Only the middle four numbers may be altered. Change these numbers to 0, 10, 20 and 30.
   - To change the numbers choose “Select Break”. From the “Drop Down List” choose the second number from the top (20.744). This number will appear in the “Current” window. Select the number in “Current” and key “30”. Press the “Enter Key”.
   - “Select Break” again and choose the third number from the list (9.192). Go to “Current” and key “20” press “Enter”. Repeat process for 10 and 0. Click “OK”.

4. The numbers found in the “Range” column can not be changed. The “Label” column may be altered by double-clicking a cell. Enter “No Data” for the first cell label. Select “Apply” and “OK”.

5. The Symbols and Labels are added to the Table of Contents under the “countries” layer. Select the “countries” layer in the Table of Contents, right-click and choose “Rename”. Change the layer name to “Birth Rate”.
Lesson Plan: Demographic Transition (Geo621)

Instructions (continued)

7. Resave the file. (g:/gis/transition_75.axl)

Adding new layers in the Table of Contents:

1. Use the “Add Data” button to add “countries.shp” to the map.

2. Right-Click “countries” in the Table of Contents and select “Rename”. Change the name to “Death Rate”.

3. Repeat steps 1-7 in the preceding section to create “Graduated Symbols”. Use divisions of 0, 6, 12 and 18 to classify the data.

4. Use the “Add Data” button to add “world30.shp” to the map. Right-click the world30 layer in the Table of Contents and “Move Layer”. Move it to the bottom so that the map may be seen.

5. Resave the map.

6. Format, Export or Print the Death Rate or Birth Rate, if requested by your teacher.

Suggestions For Assessment

• check data ranges from the student monitor as work progresses

• encourage students to mentor or help others who might be experiencing challenges

• discuss surprising relationships as noted by student. Have them put forward plausible solutions.

Note: world30.shp is found in the folder ..esri/data/world
Lesson Plan: Demographic Transition (Geo621)

Suggestions For Assessment (con’t)

- Questions:

1. What pattern(s) do you see with regard to countries’ demographic transition stages and their location in the world? Suggest reasons for these patterns.

2. Look at the “Attributes” table of “countries.shp”. Name a country that is close to making the transition from Stage 2 to Stage 3, and another from Stage 3 to Stage 4. Include appropriate statistics to support your case.

3. How many countries have negative natural increases (i.e., BR < DR)? Name at least four such countries. What characteristics do they have in common (other than their demography)? Name two additional countries that might be joining this list soon.

4. Should there be a Stage 5 (BR < DR)? Give at least one argument on each side of this question.

**Suggested answers to Questions:**

1. Today there are no countries in the Pre-transition stage. They disappeared in the years after World War II, when various types of foreign development assistance reduced death rates.

Most countries in the Early Transition stage are located in parts of the world with the lowest level of economic and social development. Early Transition countries are located primarily in Africa. Death rates have been reduced owing to medical improvements, but birth rates have remained high for several reasons, including custom and the desire for children to work on family farms, religious beliefs, and a large number of young people in their fertile years.

Most countries in the Late Transition are located in Latin America and Asia, where birth rates are declining. The decline in birth rates is due to several reasons, such as increased use of birth control, reduction in the size of families because of the higher survival rate for children, and increasing participation of women outside the home.

Most countries in the Post-transition (including the former Soviet Union) are located in Europe and North America. Birth and death rates are low in these regions, and people have small families for a variety of reasons (e.g., the high participation of women outside the home, an affluent urban lifestyle, and a large number of older people past their reproductive years).
A pattern may be seen in the relationship between a country’s social and economic development and its transitional stage: countries with higher levels of social and economic development progress through the stages of demographic transition at a quicker pace. An exception to this statement is Islamic countries. Although they may have rates of social and economic development comparable to that of some non-Islamic countries, they tend to have slower rates of demographic transition because of pronatalist attitudes. This situation is evident both in wealthy Islamic countries, such as Saudi Arabia and Kuwait, and in poorer Islamic countries, such as Pakistan and Niger.

2. Two countries close to moving from Stage 2 to Stage 3 are Laos (BR = 37.84) and Equatorial Guinea (BR = 37.72). (Students should be able to find other examples.) Guatemala (BR = 34.61) has just crossed the boundary between Stage 2 and 3. In all cases, death rates are far below 35. Death rates in Laos and Equatorial Guinea are less than 14.

Turkey (BR = 18.31), Brazil (BR = 18.45), and Jamaica (BR = 18.12) are a few of the many countries close to making the transition from Stage 3 to Stage 4. Guyana (BR = 17.90) has just made the transition between Stage 3 and 4. In all these countries, the death rate is much below the boundary value of 18.

Students should be reminded that different books use different values to establish the boundaries of the stages. Some books do not assign specific values because there are often exceptions to the designated values. Students should also be reminded that the dynamic process of transition is more important than the actual values that define the stages.

3. A query of the data provided indicates that there are 18 countries in which the death rate exceeds the birth rate. These include Austria, Germany, Estonia, Czech Republic, Italy, Russia, Sweden, and Ukraine.

These countries have in common the fact that they are developed, are located in Western Europe (with the exception of the Isle of Man) or the former Soviet Union, and have the prevailing attitude that small families are desirable. Furthermore, methods to control fertility are widely available and generally accepted. In the case of the former Soviet Union, poor economic times for more than a decade have deterred people from having children. Moreover, these countries have relatively high death rates, since their populations are much older than those in many other parts of the world. This trend can be seen if Sweden (DR = 10.61), Russia (DR = 13.85), and Czech Republic (DR = 10.81) are compared to Stage 4.
and to Stage 3 countries such as Chile (DR = 5.55) and Egypt (DR = 7.70).

Seven more European countries are very close to joining the group of countries with negative natural increases. Belgium, Finland, Greece, Slovakia, Moldova, Poland, and Spain have natural increases of less than countries such as Canada (DR = 7.47) and the United States (DR = 8.70), 0.1 per cent per year. For the sake of comparison, examine Canada’s birth rate. Since Canada has a natural increase of 0.36 per cent, it is not too far away from having a negative natural increase. In this case, however, slow natural increase is combined with significant net immigration. In virtually all the other countries mentioned here, there is significant net emigration.

4. This is a key question for demographers (and political leaders) in the 21st century. No one can say with certainty that a slow decline in natural increase will be a reality in the years to come. There are arguments to be made on both sides. Those who think that a fifth stage should be identified might say that there has so far been no case in which a country’s birth rate has increased after it has declined. They would suggest that birth rates in the 9 to 11 per thousand range will be the norm, with death rates in the 11 to 13 per thousand range.

Opponents of this view might say that it is premature to suggest that there should be a Stage 5 (BR < DR) because we may be seeing only a temporary blip on the radar scale. They might also say that over a longer period of time (perhaps 50 to 100 years), countries that have gone through demographic transition will have natural increases near zero.

Instruction answers:

• pg. 106 Q . 9 - 47 countries are phase 2 as listed in the Query Builder tool

• pg. 107 Q . 10 - Canada, Belize, Guatemala, Costa Rica, Boliva, Chile are phase 2 countries in North, Central and South Amercia. (mainland)

• Pg. 107 Q . 12 - 84 countries world-wide. Mexico are Nicaragua are phase 3 countries in North and Central Amercia (mainland)

• Pg. 107 Q . 14 - 90 countries world-wide. USA, Argentina, Uruguay, Guyana, French Guiana and Suriname are phase 4 countries in North and South Amercia (mainland)

Pg 109 - Surprising relationships: Algeria experienced a civil war in 1991. The age distribution in Algeria is young - less percent of the population is age 60+. High birth rate and very low death rate exists in Algeria.
Lesson Plan: Internationally Displaced Persons (Geo621)

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<tr>
<th>Outcomes</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, D2.1</td>
<td>Create maps to show the major sources of refugees and countries of asylum for refugees in the world.</td>
</tr>
</tbody>
</table>

Geography 621:

Resources
- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Shape files: ../esri/geo621/countries_1.shp

Instructions

This lesson is from the teacher resource CD “GIS Activities and Data Disk”. Instructions and data directory information have been provided for AEJEE. The activity relates to Communication Item 12 found on pg. 122 of the text “Global Connections: Canadian and World Issues”.

One Article of the UN Universal Declaration of Human Rights requires countries to accept legitimate refugees from other countries. Yet, it is a common occurrence to hear people complaining that Canada accepts too many refugees. In recent years, Australia has even taken the drastic step of putting refugee-status seekers in camps in the Outback or on remote islands. Are countries like Canada and Australia the main destinations for refugees? What are the main sources of refugees?

1. Launch AEJEE. Use the “Add Data” button and navigate to ../esri/geo621/ Select “countries_1.shp” and choose “OK.”

2. Choose “File” and save the project as g:/gis/refugee_122.axl (remember to save often)

3. Maximize the windows by clicking on the middle button in the upper right corner of both your Project window and your View window so that they fill the entire screen.

4. Right-click the “countries” layer in the table of contents. Select “Properties” and a “colour” from the dropdown menu. The complete map will change to the selected colour.

5. Display country names as the mouse passes over them. Select the “Map Tips” tool. Choose “countries” layer and “NAME”. Click the “Set Map Tips” button. Check that country names are displayed as the cursor moves over the map.

Construct a map to display “Refugees by Country of Origin” (Refugeefrm data) and “Refugees by Country of Asylum” (Refugeesto data). This will be done using “Graduated Symbols”, “Classes” and adding layers to the Table of Contents.
**Lesson Plan:** Internationally Displaced Persons (Geo621)

<table>
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<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Refugees of Country of Origin (Refugeefrm) - sources of refugees in the world, expressed in thousands; data for 1999.</td>
<td>1. Right-click the “countries” layer and scroll down to “properties”.</td>
</tr>
<tr>
<td>• Refugees by Country of Asylum (Refugeeto) - destinations of refugees worldwide, expressed in thousands; data for 1999.</td>
<td>2. Enter the following data:</td>
</tr>
<tr>
<td></td>
<td>• “Draw features using” to <strong>Graduated Symbols</strong></td>
</tr>
<tr>
<td></td>
<td>• “Field” to <strong>Refugeefrm</strong></td>
</tr>
<tr>
<td></td>
<td>• “Classes” remains at <strong>5</strong></td>
</tr>
<tr>
<td></td>
<td>• “Classified by” to <strong>Manual</strong></td>
</tr>
<tr>
<td></td>
<td>• “Colour” - Start - Gray; End - Custom (select colour i.e.: green)</td>
</tr>
<tr>
<td>[Alternatively, consider how many numerical classes to have and how the limits of these classes will be determined. The possibilities for the latter are described below:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Equal Area</strong>—as much as possible, puts an equal area in each group</td>
</tr>
<tr>
<td></td>
<td>• <strong>Equal Interval</strong>—takes the range of values from the highest and lowest and divides it evenly among the classes</td>
</tr>
<tr>
<td></td>
<td>• <strong>Natural Breaks</strong>—places class boundaries where there are the largest possible breaks between adjacent values (when sorted)</td>
</tr>
<tr>
<td></td>
<td>• <strong>Quantile</strong>—places an equal number of values (in this case countries) into each class</td>
</tr>
<tr>
<td></td>
<td>• <strong>Standard Deviation</strong>—groups values by the number of standard deviations above or below the mean value (this is often called z-scores in statistics)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a classification method from above. Manual, 5 classes will be shown</td>
</tr>
<tr>
<td></td>
<td>for illustrative purposes.</td>
</tr>
<tr>
<td></td>
<td>3. As soon as “Manual” is selected, a new window opens for “Class Breaks and Histogram”.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Click the “Select Break” pull-down. The two extreme numbers represent the top and bottom of the range and cannot be changed.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Only the middle four numbers may be altered. Change these numbers to 0, 150, 300 and 450.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>To change the numbers choose “Select Break”. From the “Drop Down List” choose the second number from the bottom (26). This number will appear in the “Current” window. Select the number in “Current” and key “0”. Press the “Enter Key”.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Select Break” again and choose the third number from the list (151). Go to “Current” and key “150” press “Enter”. Repeat process for 300 and 450. Click “OK”.</td>
</tr>
</tbody>
</table>
Lesson Plan: Internationally Displaced Persons (Geo621)

Instructions (continued)

4. The numbers found in the “Range” column can not be changed. The “Label” column may be altered by double-clicking a cell. Enter “No Data” for the first cell label. Select “Apply” and “OK”.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Range</th>
<th>Label</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-99.0 - 0.0</td>
<td>No Data</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>0.0 - 150.0</td>
<td>0.0 - 150.0</td>
<td>151</td>
</tr>
<tr>
<td></td>
<td>150.0 - 300.0</td>
<td>150.0 - 300.0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>300.0 - 450.0</td>
<td>300.0 - 450.0</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>450.0 - 525.0</td>
<td>450.0 and Greater</td>
<td>3</td>
</tr>
</tbody>
</table>

5. The Symbols and Labels are added to the Table of Contents under the “countries” layer. Select the “countries” layer in the Table of Contents, right-click and choose “Rename”. Change the layer name to “Refugeesfrom”.

6. Resave the file. (g:/gis/refugee_122.axl)

Adding new layers in the Table of Contents:

1. Use the “Add Data” button to add “countries.shp” to the map.

2. Right-Click “countries” in the Table of Contents and select “Rename”. Change the name to “Refugeesto”.

3. Repeat steps 1-6 in the preceding section to create “Graduated Symbols”. Use divisions of 0, 100, 200 and 300 to classify the data.

4. Use the “Add Data” button to add “world30.shp” to the map. Change the colour of this layer to light screen or transparent. (right-click the world30 layer. Choose “Properties” - “Style” - “Transparent Fill”)

Navigate to the esri/data/world folder to find world30.shp

5. Resave the map.

6. Create a map of “Refugees to” with legend, scale, title and compass rose. Export or print, if requested. (Rather than showing the entire world, show the refugee situation in one region. To do this, “zoom in” to a region in the View)
Lesson Plan: Internationally Displaced Persons (Geo621)

Other Activities

- create a map of internally displaced persons ("Intdisper") to compare the number of people in a country who might move elsewhere within the same country to the number who actually flee the country ("Refugeefrm").

Suggestions For Assessment

- check data ranges from the student monitor as work progresses
- encourage students to mentor or help others who might be experiencing challenges
- discuss surprising relationships as noted by student. Have them put forward plausible solutions.
- alternative classification and mathematically reasonable ranges were constructed.

Questions:

1. What factors determine the number of refugees from a particular country? Could there be refugees from Canada? Why or why not?

2. Is a government’s policy on immigration and refugee status a critical factor in determining the numbers of refugees it accepts?

3. Several countries in the "No Data" category are main sources for refugees. Name them.

4. Why do some Canadians feel that their country accepts too many refugees? Is this a valid judgement? Why or why not?

5. Which countries accept the most refugees? Why is this not a surprise? Are these countries likely to be able to deal effectively with the refugees who arrive? Why or why not?

**Suggested answers to Questions:**

1. The term “refugee” has a variety of different meanings. The UN statistics that the students are mapping are based on the following definition:

   “People who have fled their country because of a well-founded fear of persecution for reasons of their race, religion, nationality, political opinion, or membership in a particular social group, and who cannot or do not want to return.” (UN Development Report, 2001)

   It follows from this definition that the number of refugees is determined in proportion to citizens’ perception of their level of safety in their country. This definition does not include people who have fled for environmental reasons (e.g., a drought) or economic reasons (so-called “economic refugees”).
### Lesson Plan: Internationally Displaced Persons (Geo621)

#### Instructions (continued)

**Suggested answers to Questions:**

It is unlikely that people from Canada would claim refugee status in another country. The UN does not list any refugees from Canada because it is a tolerant country that does not persecute its citizens. There could be, however, exceptional circumstances beyond this statement. Remember, for example, that during World War II, Japanese-Canadians were interned in camps as possible enemies of the state. Today, they would be valid refugee claimants in other countries.

Each year, Canada receives refugee claimants from countries such as the United States and the United Kingdom—countries generally regarded as tolerant of their citizens’ rights. For example, a murderer from the United States entered Canada and sought refugee status because he was subject to the death penalty in the US. He was not granted refugee status, presumably because fleeing murderers can not be defined as a social group.

2. A country’s refugee and immigration policy is an important factor in determining the number of refugees that it will admit. (For example, many Canadians believe that too many refugees are admitted into Canada because the government’s refugee policy is too lax.) However, a government’s refugee and immigration policy may sometimes be less critical in determining the number of refugees entering the country than that country’s proximity to another producing large numbers of refugees. For example, great numbers of Afghans entered Iran during the 1990s as refugees from war not because of the nature of Iran’s immigration policy, but because Afghanistan is located on Iran’s northeastern border. Other examples: the United States has received large numbers of refugees from nearby Cuba and Haiti; Thailand, the Philippines, Malaysia, and Hong Kong took in large numbers of boat people escaping from nearby Vietnam during the 1970s.

3. The most obvious example is Afghanistan, but other significant refugee sources are Cuba, Iraq, and Liberia.

4. While most Canadians have no problem accepting legitimate refugees, many feel that the government does not do a good job keeping out those who are actually economic refugees, and who do not have the right to claim refugee status. Most Canadians probably believe that economic refugees are trying to “jump the queue” ahead of those who legally apply to be immigrants.

Students will undoubtedly argue several points of view, but they must support their statements with reasoned arguments.
Lesson Plan: Internationally Displaced Persons (Geo621)

Instructions (continued)

**Suggested answers to Questions:

5. Countries that accept the most refugees are usually those adjacent to countries and regions experiencing wars and other forms of strife. Another category includes countries that are sought out by refugees, often from a greater distance, because they are seen to be very desirable places to live.

The table below lists the countries with more than 500,000 refugees along with the source(s) of the majority of their refugees. (Canada ranks 24th in the world with 123,000 refugees.) Wealthy countries such as Canada, Germany, and the United States are much better able to deal with refugees than poorer countries such as Iran, Pakistan, Tanzania, Azerbaijan, and Guinea. These countries frequently have vast numbers of people arriving at their borders.

<table>
<thead>
<tr>
<th>Recipient Countries</th>
<th>Source Countries</th>
<th>Number of Refugees, (‘000) 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran</td>
<td>Afghanistan</td>
<td>1836</td>
</tr>
<tr>
<td>Pakistan</td>
<td>Afghanistan</td>
<td>1202</td>
</tr>
<tr>
<td>Germany</td>
<td>Many countries</td>
<td>976</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Congo DR, Burundi, Rwanda</td>
<td>622</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>Russia (Chechnya), Armenia</td>
<td>555</td>
</tr>
<tr>
<td>United States</td>
<td>Many countries</td>
<td>513</td>
</tr>
<tr>
<td>Guinea</td>
<td>Sierra Leone, Liberia</td>
<td>502</td>
</tr>
</tbody>
</table>
Lesson Plan: Food Availability (Geo621)

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, D2.1</td>
<td>Examine the availability of food in the world.</td>
</tr>
<tr>
<td>Geography 621:</td>
<td></td>
</tr>
</tbody>
</table>

**Resources**
- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Shape files: ../esri/geo621/countries_1.shp

**Instructions**
This lesson is from the teacher resource CD “GIS Activities and Data Disk”. Instructions and data directory information have been provided for AEJEE. The activity relates to Communication Item 10 found on pg. 166 of the text “Global Connections: Canadian and World Issues”.

An adequate diet must include a wide range of nutrients. Fundamental to an adequate diet, though, is the availability of energy. Hence, this factor is frequently used to determine whether the overall diet is adequate. On average, people require 10,350 kJ/person/day to meet their energy needs. In warm climates, a little less is needed. Larger people need more, as do those who are very active. In this activity, you will have a chance to learn which people in the world do not have enough energy in their diet (and likely have other deficiencies) and which people have too much. You will divide the countries into four groups: those with much more energy in their diets than they need, somewhat more energy, somewhat less energy, and much less energy.

**Before you begin:**
Choose the class boundaries (in terms of kJ/person/day) you want to use for each group and give a brief descriptive name for each. Remember, you can change these values later if you feel they are not appropriate.

**Terminology**
**Note that when we talk about watching our “calories” we are actually watching our kilocalories. 1 kcal = 4.19 kJ. Accordingly, 10,350 kJ is about 2470 “calories.”**

<table>
<thead>
<tr>
<th>Bottom Value of Class kJ/person/d</th>
<th>Top Value of Class kJ/person/d</th>
<th>Class Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,350</td>
<td>10,350</td>
<td></td>
</tr>
</tbody>
</table>
**Lesson Plan: Food Availability (Geo621)**

<table>
<thead>
<tr>
<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Launch A EJEE. Use the “Add Data” button and navigate to ..\esri\geo621/ Select “countries_1.shp” and choose “O K.”</td>
</tr>
<tr>
<td>2. Choose “File” and save the project as g:/gis/food_166.axl (remember to save often)</td>
</tr>
<tr>
<td>3. Maximize the windows by clicking on the middle button in the upper right corner of both your Project window and your View window so that they fill the entire screen.</td>
</tr>
<tr>
<td>4. Right-click the “countries” layer in the table of contents. Select “Properties” and a “colour” from the dropdown menu. The complete map will change to the selected colour.</td>
</tr>
<tr>
<td>5. Display country names as the mouse passes over them. Select the “Map Tips” tool. Choose “countries” layer and “NAME”. Click the “Set Map Tips” button. Check that country names are displayed as the cursor moves over the map.</td>
</tr>
</tbody>
</table>

Construct a world map to display the “class boundary” intervals as determined in the beginning group activity. (kJ/person/d data). This will be done using “Graduated Symbols”, “Classes” and adding layers to the Table of Contents in A EJEE.

1. Right-click the “countries” layer and scroll down to “properties”.

2. Enter the following data:
   - “Draw features using” to **Graduated Symbols**
   - “Field” to **kJ/persn/d**
   - “Classes” remains at **4**
   - “Classified by” to **Manual**
   - “Colour” - Start - Gray; End - Custom (select colour i.e.: green)

Classes below are shown for illustrative purposes - use the “class boundary” numbers determined in the opening exercise.

3. As soon as “Manual” is selected, a new window opens for “Class Breaks and Histogram”.

   Click the “Select Break” pull-down. The two extreme numbers represent the top and bottom of the range and cannot be changed.

   Only the middle four numbers may be altered. Change these numbers to 0, 10350 and 13075. (Calculation: 15800 top band - 10350 = 5450/2 = 2725; 10350 + 2725 = 13, 075 mid point)
Lesson Plan: Food Availability (Geo621)

Instructions (continued)

To change the numbers choose “Select Break”. From the “Drop Down List” choose the second number from the bottom. This number will appear in the “Current” window. Select the number in “Current” and key “0”. Press the “Enter Key”.

“Select Break” again and choose the third number from the list. Go to “Current” and key “5500” press “Enter”. Repeat process for 11000. Click “OK”.

4. The numbers found in the “Range” column can not be changed. The “Label” column may be altered by double-clicking a cell. Enter “No Data” for the first cell label and “class names” as determined in the beginning exercise. Select “Apply” and “OK”.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Range</th>
<th>Label</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-99.0 - 0.0</td>
<td>No Data</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>0.0 - 10550.0</td>
<td>Waste NGOs</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>13050.0 - 13075.0</td>
<td>Water Watchers</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>13075.0 - 15805.0</td>
<td>Large</td>
<td></td>
</tr>
</tbody>
</table>

5. The Symbols and Labels are added to the Table of Contents under the “countries” layer. Select the “countries” layer in the Table of Contents, right-click and choose “Rename”. Change the layer name to “kj/pern/d”.

6. Resave the file. (g:/gis/food_166.axl)

7. Use the “Add Data” button to add “world30.shp” to the map. Change the colour of this layer to light screen or transparent. (right-click the world30 layer. Choose “Properties” - “Style” - “Transparent Fill”)

8. Create a map of “Food Availability” with legend, scale, title and compass rose. Export or print, if requested. (Rather than showing the entire world, show the refugee situation in one region. To do this, “zoom in” to a region in the View)
Lesson Plan: Food Availability (Geo621)

<table>
<thead>
<tr>
<th>Other Activities</th>
<th>Suggestions For Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• experiment with having three or five classes rather than four. What advantages do these approaches have?</td>
<td>• check data ranges from the student monitor as work progresses</td>
</tr>
<tr>
<td></td>
<td>• encourage students to mentor or help others who might be experiencing challenges</td>
</tr>
<tr>
<td></td>
<td>• discuss surprising relationships as noted by student. Have them put forward plausible solutions.</td>
</tr>
<tr>
<td></td>
<td>• alternative classification and mathematically reasonable ranges were constructed.</td>
</tr>
<tr>
<td></td>
<td>• Questions:</td>
</tr>
<tr>
<td></td>
<td>1. Which countries have the greatest problems with undernutrition? Why do these countries have a great problem providing enough food for their people? (Hint: Consider some of the other statistical categories in this database.)</td>
</tr>
<tr>
<td></td>
<td>2. Which countries have the greatest problems with overnutrition? What is the evidence of overnutrition? What could be done to reduce this problem?</td>
</tr>
<tr>
<td></td>
<td><strong>Suggested answers to Questions:</strong></td>
</tr>
<tr>
<td></td>
<td>1. There is a very strong positive correlation between poverty and undernutrition. Among very poor countries, those experiencing war or internal conflict have the poorest nutrition of all. The countries with the lowest number of kJ/person/d are, in order, Congo DR (Zaire in the table), Afghanistan, Burundi, Somalia, Eritrea, Tajikistan, Comoros, Sierra Leone, and Angola. In 2000, the year in which these data were collected, wars were occurring in the Congo DR, Afghanistan, Burundi, Somalia, Sierra Leone, and Angola. In addition, a war had recently concluded in Eritrea.</td>
</tr>
<tr>
<td></td>
<td>Poor countries have problems providing enough food for several reasons, including those that follow.</td>
</tr>
<tr>
<td></td>
<td>• Most of the agricultural land is held by a small number of landowners, and the productivity on these large holdings is generally smaller than the productivity on small holdings.</td>
</tr>
<tr>
<td></td>
<td>• Some of the best land is used for export crops such as cocoa, coffee, peanuts, and bananas.</td>
</tr>
<tr>
<td></td>
<td>• Poor pest control and inadequate storage facilities result in large losses of food to insects and rodents.</td>
</tr>
</tbody>
</table>
### Lesson Plan: Food Availability (Geo621)

#### Suggestions For Assessment (con’t)

In countries experiencing war or internal conflict, farmland is often mined or damaged, farmers are intimidated by opposing forces, food is confiscated by warring factions, and storage and distribution systems are disrupted.

2. Canada, the United States, European countries, and some North African countries (e.g., Egypt, Libya, and Tunisia) rank high in overnutrition. The evidence is the prevalence of obesity, diet-related diseases (heart disease and stroke, diabetes, hypertension), and a near-obsession with losing weight. Travellers to the United States are frequently struck by the number of seriously obese people they see. Solving the problem of overnutrition is not simple; it requires a virtual lifestyle revolution. Students will suggest many solutions, including eating less but more nutritious food and getting more exercise. They may point out that some fast-food chains are now providing menu choices that have less fat.
Lesson Plan: Human Development Index (Geo621)

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, D2.1</td>
<td>Create one or more maps to show Human Development Index values.</td>
</tr>
<tr>
<td>Geography 621:</td>
<td></td>
</tr>
</tbody>
</table>

**Resources**
- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Shape files: ../esri/geo621/countries_1.shp

**Instructions**

This lesson is from the teacher resource CD “GIS Activities and Data Disk”. Instructions and data directory information have been provided for AEJEE. The activity relates to Communication Item 11 found on pg. 184 of the text “Global Connections: Canadian and World Issues”.

The ultimate “league table,” far more globally important than NHL or English Premier League soccer standings, is the United Nations Human Development Index. Each year, the UN publishes a ranking of the world’s nations based on three factors—standard of living (based on GDP per capita calculated on a PPP basis), a long and healthy life (based on life expectancy at birth), and educational attainment (based on adult literacy rate and enrollment in schools). For six years in a row, Canada had the highest HDI, and Canadians revelled in the belief that Canada was “the best place in the world to live.” Some saw it as a big problem when Canada fell to third place in this rating. This occurred in spite of the fact that our HDI continued to increase, and in spite of the fact that differences in HDI ratings for Australia, Canada, and Sweden (ranked second, third, and fourth in 1999) were evident only at the fourth decimal place (all had an HDI of 0.936).

Clearly, the value of the HDI is to compare nations that are quite different and to assess progress over the years for one country.

1. Launch AEJEE. Use the “Add Data” button and navigate to ../esri/geo621/ Select “countries_1.shp” and choose “OK.”

2. Choose “File” and save the project as g:/gis/development_184.axl (remember to save often)

3. Maximize the windows by clicking on the middle button in the upper right corner of both your Project window and your View window so that they fill the entire screen.

4. Right-click the “countries” layer in the table of contents. Select “Properties” and a “colour” from the dropdown menu. The complete map will change to the selected colour.
## Terminology

- Human Development Index, 1999 measures a country’s achievements in three aspects of human development: longevity, knowledge, and a decent standard of living. Longevity is measured by life expectancy at birth; knowledge is measured by a combination of the adult literacy rate and the combined gross primary, secondary, and tertiary enrolment ratio; standard of living is measured by GDP per capita (PPP US$).

## Instructions (continued)

5. Display country names as the mouse passes over them. Select the “Map Tips” tool. Choose “countries” layer and “CNTRY_NAME”. Click the “Set Map Tips” button. Check that country names are displayed as the cursor moves over the map.

Construct a world map to display the “Human Development Index” intervals. (Hdi1999 data). This will be done using “Graduated Symbols”, “Classes” and adding layers to the Table of Contents in AEJEE.

1. Right-click the “countries” layer and scroll down to “properties”.

2. Enter the following data:
   - “Draw features using” to Graduated Symbols
   - “Field” to Hdi1999
   - “Classes” remains at 5
   - “Classified by” to Manual
   - “Colour” - Start - Gray; End - Custom (select colour i.e.: green)

   [Alternatively, consider how many numerical classes to have and how the limits of these classes will be determined. The possibilities for the latter are described below:
   - Equal Area—as much as possible, puts an equal area in each group
   - Equal Interval—takes the range of values from the highest and lowest and divides it evenly among the classes
   - Natural Breaks—places class boundaries where there are the largest possible breaks between adjacent values (when sorted)
   - Quantile—places an equal number of values (in this case countries) into each class
   - Standard Deviation—groups values by the number of standard deviations above or below the mean value (this is often called z-scores in statistics)]

Select a classification method from above. Manual, 5 classes will be shown for illustrative purposes.

3. As soon as “Manual” is selected, a new window opens for “Class Breaks and Histogram”.

   Click the “Select Break” pull-down. The two extreme numbers represent the top and bottom of the range and cannot be changed. Notice that all of the numbers in the Hdi1999 column are between -.99 and .936

Determine an interval -.99, 0, ?, ?, ?, +.936 to use.
Lesson Plan: Human Development Index (Geo621)

Instructions (continued)

Only the middle four numbers may be altered. Change these numbers to the calculated values (0, .25, .5 and .75 will be used for demonstration purposes).

To change the numbers choose “Select Break”. From the “Drop Down List” choose the second number from the top. This number will appear in the “Current” window. Select the number in “Current” and key “.75”. Press the “Enter Key”.

“Select Break” again and choose the third number from the list. Go to “Current” and key “.5” press “Enter”. Repeat process for .25 and 0. Click “OK”.

4. The numbers found in the “Range” column can not be changed. The “Label” column may be altered by double-clicking a cell. Enter “No Data” for the first cell label. Select “Apply” and “OK”.

5. The Symbols and Labels are added to the Table of Contents under the “countries” layer. Select the “countries” layer in the Table of Contents, right-click and choose “Rename”. Change the layer name to “RefugeeFrm”.

6. Resave the file. (g:/gis/development_184.axl)

7. Use the “Add Data” button to add “world30.shp” to the map. (world30.shp is found in the ..esri/data/world folder). Change the colour of this layer to light screen or transparent. (right-click the world30 layer. Choose “Properties” - “Style” - “Transparent Fill”)

8. Create a map of “Human Development Index Data” with legend, scale, title and compass rose. Export or print, if requested. (Rather than showing the entire world, show the refugee situation in one region. To do this, “zoom in” to a region in the View)
Lesson Plan: Human Development Index (Geo621)

Other Activities

• make maps of a couple of associated fields. One is the HDI for 1975 ("Hdi75").
• create maps of other social, demographic, or economic fields to see how they are related to the HDI pattern

Suggestions For Assessment

• check data ranges from the student monitor as work progresses
• encourage students to mentor or help others who might be experiencing challenges
• discuss surprising relationships as noted by student. Have them put forward plausible solutions.
• alternative classification and mathematically reasonable ranges were constructed.

Questions:

1. Comment on the advantages and disadvantages of using each method of classification for graduated shading.
2. What method of classification and what number of classes did you choose? Why?
3. What patterns do you see on the map(s) that you have created? How would the patterns you have created relate to the patterns for other social and economic data? Why is this not surprising?
4. In the "Attributes" table for “countries.shp,” look at “Hdi1999” and “Hdi75.” Choose three very rich countries, three very poor countries, and three in-between countries for which data are available delete brackets. For which group is HDI growing most quickly? Is this surprising? Is it a good thing?
5. In 1999, such countries as Afghanistan, Liberia, and Somalia were not assigned HDI values. Why did this happen? Suggest what their HDI values might be.

**Suggested answers to Questions:**

1. Students should be aware that it may sometimes be better not to use the "natural breaks" method of classification. The relative advantages (and disadvantages) of each approach are summarized in the table below. Only three classes were used in order to make comparison easier. Note that you cannot directly control the number of classes for the "standard deviation" method.
## Lesson Plan: Human Development Index (Geo621)

### Suggestions For Assessment (con’t)

<table>
<thead>
<tr>
<th>Method of Classification</th>
<th>HDI Values Grouped</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equal Area</strong></td>
<td>0.258–0.342</td>
<td>Produces a middle grouping in which the range is quite small. This result is from the presence of Russia, with its vast area, in the group. The highest grouping contains a number of very large countries (Canada, US, Australia). The result is that a very large range of values (and countries) is included in the lowest grouping.</td>
</tr>
<tr>
<td></td>
<td>0.342–0.790</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.790–0.939</td>
<td></td>
</tr>
<tr>
<td><strong>Equal Interval</strong></td>
<td>0.258–0.458</td>
<td>This analysis does a better job of differentiating countries in the lower two groups, but ends up putting China in the same grouping as Canada.</td>
</tr>
<tr>
<td></td>
<td>0.458–0.712</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.712–0.939</td>
<td></td>
</tr>
<tr>
<td><strong>Natural Breaks</strong></td>
<td>0.258–0.583</td>
<td>Does the best job of preventing countries with similar values from being placed in different groups. Produces an intuitively desirable map because the countries in each group seem to “make sense.”</td>
</tr>
<tr>
<td></td>
<td>0.583–0.803</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.803–0.939</td>
<td></td>
</tr>
<tr>
<td><strong>Quantile</strong></td>
<td>0.258–0.617</td>
<td>Produces results that are similar to those of Natural Breaks.</td>
</tr>
<tr>
<td></td>
<td>0.617–0.775</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.775–0.939</td>
<td></td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td>N/A</td>
<td>Has the advantage of comparing values to the mean. In this case, the result is intuitively satisfying.</td>
</tr>
</tbody>
</table>

**Note that the comments here apply only to this particular data set. Students must learn to quickly do a similar, implicit analysis for any graduated-shading map they create. Also, a result that may be “intuitively satisfying” to the teacher might not occur to a student who lacks a significant knowledge of the characteristics of the countries and regions of the world.**

2. Students should be able to justify their choices on the basis of the effect they are trying to achieve, e.g., fewer classes give a more visual effect, while more classes provide precision.

3. Students will see the “haves,” the “have-nots,” and those countries that are somewhere in between. They will see more detail about the transition from “have-nots” to “haves” if they use a greater number of classes. The patterns will resemble those of most social and economic data sets. This is not surprising, since these measures are the
Lesson Plan: Human Development Index (Geo621)

<table>
<thead>
<tr>
<th>Suggestions For Assessment (con’t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>components of the Human Development Index (wealth, lifespan, and education).</td>
</tr>
</tbody>
</table>

The United Nations classifies countries according to three HDI levels: High, Medium, and Low. Some of the countries included in each of the levels are as follows:

- **High Human Development (HDI 0.800 and above):** 48 countries and areas, including Argentina, Barbados, Canada, Estonia, Finland, Greece, Hungary, Israel, Japan, Republic of Korea (South Korea), Lithuania, Malta, Norway, Poland, Qatar, Slovenia, Uruguay

- **Medium Human Development (HDI 0.500–0.799):** 78 countries and areas, including Albania, Belize, China, Dominican Republic, El Salvador, Fiji, Guyana, Honduras, Iran, Jordan, Kazakhstan, Lesotho, Morocco, Nicaragua, Oman, Papua–New Guinea, Romania, Sri Lanka, Thailand, Uzbekistan, Venezuela, Zimbabwe

- **Low Human Development (HDI below 0.500):** 36 countries and areas, including Angola, Burundi, Chad, Djibouti, Eritrea, Gambia, Haiti, Mozambique, Nepal, Pakistan, Rwanda, Sudan, Togo, Uganda, Yemen, Zambia

4. Depending on which countries they choose, students are likely to find that HDI growth rates are similar between the very rich and the very poor countries. For example, between 1975 and 1999, HDI increased by the following amounts for the highest- and lowest-ranked countries for which data are available for each year:

- **Very rich countries:** Norway +0.083, Australia +0.094, Canada +0.067
- **Very poor countries:** Niger +0.040, Burkina Faso +0.084, Mali +0.127

When students extend their analysis to countries in the middle, they will find a striking difference. The following countries are closest to the mean HDI value of 0.682 (for which 1975 HDIs are available):

- **In-between countries:** Indonesia +0.210, Syria +0.149, Algeria +0.186, Bolivia +0.136

Once the analysis is finished, it becomes obvious that there is a problem in terms of the improvement in HDI values. An argument can be made that the HDIs of the richest countries are growing relatively slowly because they were quite high to start with. This argument obviously cannot apply to the poorest countries. Their low HDIs in 1975 allowed abundant room for improvement, but it didn’t take place.
Suggestions For Assessment (con’t)

It would be desirable if progress in the poorest countries, as measured by the Human Development Index, was occurring at least as quickly as that in the in-between countries, but this clearly is not the case.

5. These countries were not assigned HDI values because reliable data were not available. This situation may occur when there is a conflict in a country or because its government was unable, or unwilling, to provide the data. In the case of Somalia, data did not exist. It is very likely that these countries would have HDI values lower than any of those in the table, i.e., lower than 0.258.
Lesson Plan: Foreign Aid (Geo621)

### Outcomes
- **Technology:** A3.2, A3.3, B3.3, D2.1
- **Geography 621:**

### Activity
Only a few dozen of the world’s nations are rich enough to give development assistance. How generous are these nations? Is their generosity growing? Use GIS to examine world foreign aid.

### Resources
- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Shape files: ../esri/geo621/countries_1.shp

### Instructions
This lesson is from the teacher resource CD “GIS Activities and Data Disk”. Instructions and data directory information have been provided for AEJEE. The activity relates to Communication Item 11 found on pg. 215 of the text “Global Connections: Canadian and World Issues”.

Before he was prime minister, Canada’s Lester Pearson played a key role in establishing the target of 0.7 per cent of GDP as an appropriate minimum in foreign aid that wealthy countries should reach. In the foreign aid data you have, for 1990 and 1999, the highest level of aid reached was 1.17 per cent of GDP by Norway in 1990. Most countries in the world, of course, give 0 per cent, so this is the lowest level.

**Before you begin:**
Choose the class boundaries for the percentage of foreign aid you want to use and give a brief descriptive name for each. You should use the same class boundaries for each map you create.

**Some hints:**
- It makes sense to use 0.7 per cent as a class boundary. Why?
- Use four classes.
- The upper boundary of one class should be the lower boundary of the next class.
- The class names you choose will appear in the legends of your maps. Think about what information you should give the map user.

<table>
<thead>
<tr>
<th>Bottom Value of Class (% of GDP)</th>
<th>Top Value of Class (% of GDP)</th>
<th>Class Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.17</td>
<td></td>
</tr>
</tbody>
</table>
### Lesson Plan: Foreign Aid (Geo621)

#### Terminology
- **Foreign Aid Given as Percentage of GDP, 1990** (Aidgiven90) - lists foreign aid provided by Development Assistance Committee members
- **Foreign Aid Received as Percentage of GDP, 1999** (Aidrdgdp99) - lists foreign aid received from Development Assistance Committee members

#### Instructions (continued)

1. Launch AEJEE. Use the “Add Data” button and navigate to ../esri/geo621/ Select “countries_1.shp” and choose “OK.”

2. Choose “File” and save the project as g:/gis/foreign_aid_215.axl (remember to save often)

3. Maximize the windows by clicking on the middle button in the upper right corner of both your Project window and your View window so that they fill the entire screen.

4. Right-click the “countries” layer in the table of contents. Select “Properties” and a “colour” from the dropdown menu. The complete map will change to the selected colour.

5. Display country names as the mouse passes over them. Select the “Map Tips” tool. Choose “countries” layer and “CNTRY_NAME”. Click the “Set Map Tips” button. Check that country names are displayed as the cursor moves over the map.

Construct a world map to display the “Foreign Aid” given and received layers. (Aidgiven90 and Aidrdgdp99 data) This will be done using “Graduated Symbols”, “Classes” and adding layers to the Table of Contents in AEJEE.

1. Right-click the “countries” layer and scroll down to “properties”.

2. Enter the following data:
   - “Draw features using” to **Graduated Symbols**
   - “Field” to **Aidgiven90**
   - “Classes” change to **4**
   - “Classified by” to **Manual**
   - “Colour” - Start - Gray; End - Custom (select colour i.e.: green)

3. As soon as “Manual” is selected, a new window opens for “Class Breaks and Histogram”.

   Click the “Select Break” pull-down. The two extreme numbers represent the top and bottom of the range and cannot be changed.

   Only the middle four numbers may be altered. Change these numbers to reflect the class boundaries established at the beginning of this exercise.
Lesson Plan: Foreign Aid (Geo621)

Instructions (continued)

To change the numbers choose “Select Break”. From the “Drop Down List” choose the second number from the bottom. This number will appear in the “Current” window. Select the number in “Current” and key “[your new number]”. Press the “Enter Key”. Repeat.

4. The numbers found in the “Range” column can not be changed. The “Label” column may be altered by double-clicking a cell. Enter the “Class Name” as the cell label. Select “Apply” and “OK”.

5. The Symbols and Labels are added to the Table of Contents under the “countries” layer. Select the “countries” layer in the Table of Contents, right-click and choose “Rename”. Change the layer name to “Foreign Aid Given”.

6. Resave the file. (g:/gis/foreign_aid_215.axl)

Adding new layers in the Table of Contents:

1. Use the “Add Data” button to add “countries.shp” to the map.

2. Right-Click “countries” in the Table of Contents and select “Rename”. Change the name to “Foreign Aid Received”.

3. Repeat steps 1-6 in the preceding section to create “Graduated Symbols”. Use the same divisions as in “Foreign Aid Given” to classify the data.

4. Use the “Add Data” button to add “world30.shp” to the map. (world30.shp is found in the ..esri/data/world folder) Change the colour of this layer to light screen or transparent. (right-click the world30 layer. Choose “Properties” - “Style” - “Transparent Fill”)

5. Resave the map.

6. Create a map of “Foreign Aid Given” with legend, scale, title and compass rose. Export or print, if requested. (Rather than showing the entire world, show the refugee situation in one region. To do this, “zoom in” to a region in the View.)
## Lesson Plan: Foreign Aid (Geo621)

### Other Activities
- Create maps showing data for aid reception. The fields that involve this are “Foreign Aid Received Per Capita” ("Aidrecdpc") and “Foreign Aid Received as Percentage of GDP” ("Aidrcdgdp"). Compare those receiving the most aid and those countries that are poorest.

### Suggestions For Assessment
- Check data ranges from the student monitor as work progresses.
- Encourage students to mentor or help others who might be experiencing challenges.
- Discuss surprising relationships as noted by student. Have them put forward plausible solutions.
- Alternative classification and mathematically reasonable ranges were constructed.

### Questions:
1. What countries exceeded the UN target of 0.7 per cent in 1999?
2. What countries increased their aid between 1990 and 1999? What countries decreased their aid?
3. What could cause an increase in aid in the future? What could cause a decrease?

**Suggested answers to Questions:**
1. Only four countries (Denmark 1.01%, Norway 0.91%, Netherlands 0.79%, and Sweden 0.70%) exceeded the UN target.
2. Increased their aid: Denmark +0.07%, Luxembourg +0.45%, Switzerland +0.03%, Japan +0.04%, Ireland +0.15%, New Zealand +0.04%, Portugal +0.02%, Austria +0.01%, Spain +0.03%, Greece +0.15%

   Decreased their aid: Norway –0.26%, Netherlands –0.13%, Sweden –0.21%, France –0.21%, Finland –0.32%, Belgium –0.16%, Canada –0.16%, Germany –0.16%, Australia –0.08%, United Kingdom –0.04%, Italy –0.16%, United States –0.11%

   Students should note that more countries decreased, rather than increased, their aid. The decreases were, on average, much larger than the increases and, with the exception of Japan, the largest economies all had significant decreases.
**Lesson Plan:** Foreign Aid (Geo621)

<table>
<thead>
<tr>
<th>Suggestions For Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Increase in aid could be caused by:</td>
</tr>
<tr>
<td>• governments’ growing rejection of neo-liberal ideas</td>
</tr>
<tr>
<td>• growing wealth in more countries that enables their governments to give more aid</td>
</tr>
<tr>
<td>• governments in developed countries eliminating their deficits, thus freeing up more money for aid</td>
</tr>
<tr>
<td>• the launching of the NEPAD (New Partnerships for African Development) initiative in 2002.</td>
</tr>
</tbody>
</table>

Decrease in aid could be caused by:

• concerns about the ineffectiveness of aid
• donor fatigue.
Lesson Plan: African Debt (Geo621)

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, D2.1</td>
<td>Create a hypothesis about African debt problems and prove it, using one or more maps that you create with AEJEE.</td>
</tr>
</tbody>
</table>

**Resources**

- ARC Explorer Java Edition for Education (AEJEE) GIS Software
- Shape files: `../esri/geo621/countries_1.shp`

**Instructions**

This lesson is from the teacher resource CD “GIS Activities and Data Disk”. Instructions and data directory information have been provided for AEJEE. The activity relates to Communication Item 10 found on pg. 227 of the text “Global Connections: Canadian and World Issues”.

This is not your first GIS experience. By now you should have at least some understanding of AEJEE’s capabilities. Hence, you will not be given detailed, step-by-step instructions to produce one specific map or set of maps. Instead, you will be given a description of the data fields available to you. It will be your job to figure out how you can use some of these data to create one or more maps that prove an important point about the debt crisis in Africa.

Choose to focus entirely on Africa, or, alternatively, compare the African debt situation to that of countries in the rest of the world.

Here are the data fields that are directly related to debt:

- Total Debt Service as Percentage of Exports, 1999 (Tdsexp99)—Indicates the relationship between the cost of the foreign debt that a country has and the amount of foreign currency coming into the country as result of exports.

- Total Debt Service as Percentage of Exports, 1990 (Tdsexp90)

- Total Debt Service as Percentage of GDP, 1999 (Tdsgdp99)—Indicates the relationship between the drain caused by a country’s foreign debt and the entire size of its economy.

- Total Debt Service as Percentage of GDP, 1990 (Tdsgdp90)

- External Debt, Total 1999 (Extdebtot)—Given in billions of US dollars.

- External Debt, Per Capita (Extdebtpercap)—Given in US dollars, for 1999.

- External Debt as Percentage of GDP (Extdebtpct)
Lesson Plan: African Debt (Geo621)

Instructions (continued)

In addition, there are many other economic and social data fields that can be used. These are only examples of this sort of data in the database:

- Population Growth Rate (Popgrrte)
- Total Literacy Rate (Tlllitrrte)
- HIV/AIDS Infection Rate (Hivaidsrte)
- GDP Per Capita on a Purchasing Power Parity Basis (Gdppccpppyr)
- Year Highest Per Capita GDP Reached (Yrhghstgdp)
- Labour Force in Primary Industries (Labforprim)
- Educational Spending as Percentage of GDP (Edspegd)
- Health Care Spending as Percentage of GDP (Hcspgd)
- Human Development Index, 1999 (Hdi1999)

Required:

1. Start by creating a plan for the task. It should include the following parts:
   a) the hypothesis that will be proven
   b) the data fields that will be used
   c) how will the data be used — i.e., what sort of maps will be created.

2. Since the plan is key to being successful with this assignment, have it approved by the teacher before proceeding.

3. Create and print the map(s) you will use.

4. Write a two- to three-paragraph summary explaining what your hypothesis is and how your maps prove it.
Lesson Plan: African Debt (Geo621)

Suggestions For Assessment

Because of the open-ended nature of this activity, it is impossible to give a detailed analysis of what students might produce. When evaluating student work, teachers should ask two questions:

- How strong is the thesis, and how effectively has it been proven? At this point, students should be able to state an effective thesis clearly. (Consult the Independent Study Unit section of the Teacher Resource if you would like to help your students develop and state an effective thesis.) If students have had little experience using graphical materials to prove a thesis, their proofs may not be particularly effective.

- How effective are the maps that students have created? They should be able to use AEJEE to produce effective and attractive maps.
**Lesson Plan:** Ecological Footprint (Geo621)

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, B3.3, D2.1</td>
<td>Create one or more maps to show information related to the concept of the ecological footprint.</td>
</tr>
<tr>
<td>Geography 621:</td>
<td>Resources</td>
</tr>
<tr>
<td></td>
<td>- ARC Explorer Java Edition for Education (AEJEE) GIS Software</td>
</tr>
<tr>
<td></td>
<td>- Shape files: ../esri/geo621/countries_1.shp</td>
</tr>
</tbody>
</table>

**Instructions**

This lesson is from the teacher resource CD “GIS Activities and Data Disk”. Instructions and data directory information have been provided for AEJEE. The activity relates to Communication Item 8 found on pg. 443 of the text “Global Connections: Canadian and World Issues”.

The idea of the ecological footprint (EF) is an attractive one because it is so simple. It helps to relate the impact of human activities to a finite amount of land.

There are three EF-related measures available for mapping in the countries_1.shp file:

- **Ecological Footprint (Ecolftprnt)**—The ecological footprint, expressed in “area units,” is the amount of land needed to support each person in the country with the current standard and style of living in that country. Each unit corresponds to one hectare of biologically productive space with “world average productivity.” Data are for 1996.

- **Available Biological Capacity (Avbiocap)**—Also measured in “area units” for 1996, this is the amount of biologically productive space, per capita, available in a country.

- **Ecological Surplus or Deficit (Ecurdef)**—This is the difference between the ecological footprint of a country and the per capita available biological capacity of the country. A positive value indicates a surplus.

A good approach might be to create two maps to see what relationship can be seen between any two of these measures. The instructions below are assuming the creation of the ecological footprint map. To create a different map, change the field selected.

1. Launch AEJEE. Use the “Add Data” button and navigate to ../esri/geo621/ Select “countries_1.shp” and choose “OK.”
Lesson Plan: Ecological Footprint (Geo621)

Instructions (continued)

2. Choose “File” and save the project as g:/gis/footprint_443.axl (remember to save often)

3. Maximize the windows by clicking on the middle button in the upper right corner of both your Project window and your View window so that they fill the entire screen.

4. Right-click the “countries_1” layer in the table of contents. Select “Properties” and a “colour” from the dropdown menu. The complete map will change to the selected colour.

5. Display country names as the mouse passes over them. Select the “Map Tips” tool. Choose “countries” layer and “NAME”. Click the “Set Map Tips” button. Check that country names are displayed as the cursor moves over the map.

Construct a map to display “Ecological Footprint” (Ecolftprint data) and “Available Biological Capacity” (Avbiocap data). This will be done using “Graduated Symbols”, “Classes” and adding layers to the Table of Contents.

1. Right-click the “countries” layer and scroll down to “properties”.

2. Enter the following data:
   - “Draw features using” to Graduated Symbols
   - “Field” to Ecolftprint
   - “Classes” remains at 5
   - “Classified by” to Manual
   - “Colour” - Start - Gray; End - Custom (select colour i.e.: green)

[Alternatively, consider how many numerical classes to have and how the limits of these classes will be determined. The possibilities for the latter are described below:

- Equal Area—as much as possible, puts an equal area in each group
- Equal Interval—takes the range of values from the highest and lowest and divides it evenly among the classes
- Natural Breaks—places class boundaries where there are the largest possible breaks between adjacent values (when sorted)
- Quantile—places an equal number of values (in this case countries) into each class
- Standard Deviation—groups values by the number of standard deviations above or below the mean value (this is often called z-scores in statistics)]
Lesson Plan: Ecological Footprint (Geo621)

Instructions (continued)

Select a classification method from the previous page. Manual, 5 classes will be shown for illustrative purposes.

3. As soon as “Manual” is selected, a new window opens for “Class Breaks and Histogram”.

   Click the “Select Break” pull-down. The two extreme numbers represent the top and bottom of the range and cannot be changed.

   Examine the ratios found in the “Attribute Table” Ecolftprint column. (right-click on the “countries” layer in the table of contents) In which ranges do most of the values lie?

   To change the numbers choose “Select Break”. From the “Drop Down List” choose the second number from the bottom. This number will appear in the “Current” window. Select the number in “Current” and key “3”. Press the “Enter Key”.

   “Select Break” again and choose the third number from the list. Go to “Current” and key “2” press “Enter”. Repeat process for “1” and “0”. Click “OK”.

4. The numbers found in the “Range” column can not be changed. The “Label” column may be altered by double-clicking a cell. Enter “No Data” for the first cell label. Select “Apply” and “OK”.

5. The Symbols and Labels are added to the Table of Contents under the “countries” layer. Select the “countries” layer in the Table of Contents, right-click and choose “Rename”. Change the layer name to “Ecological Footprint”.

6. Resave the file. (g:/gis/footprint_443.axl)

Adding new layers in the Table of Contents:

1. Use the “Add Data” button to add “countries_1.shp” to the map.

2. Right-Click “countries” in the Table of Contents and select “Rename”. Change the name to “Biological Capacity”.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Range</th>
<th>Label</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-99.0 - 0.0</td>
<td>No Data</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>0.0 - 1.0</td>
<td>0.0 - 1.0</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>1.0 - 2.0</td>
<td>1.0 - 2.0</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>2.0 - 3.0</td>
<td>2.0 - 3.0</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>3.0 - 12</td>
<td>3.0 and Greater</td>
<td>52</td>
</tr>
</tbody>
</table>
### Lesson Plan: Ecological Footprint (Geo621)

#### Instructions (continued)

3. Repeat steps 1-6 in the preceding section to create “Graduated Symbols”. Use divisions of 0, 1, 2 and 3 to classify the data.

4. Use the “Add Data” button to add “world30.shp” to the map (found in esri/data/world). Change the colour of this layer to light screen or transparent. (right-click the world30 layer. Choose “Properties” - “Style” - “Transparent Fill”)

5. Create a map of “Ecological Footprint” with legend, scale, title and compass rose. Export or print, if requested. (Rather than showing the entire world, show the ecological situation in one region. To do this, “zoom in” to a region in the View)

#### Suggestions For Assessment

- check data ranges from the student monitor as work progresses
- encourage students to mentor or help others who might be experiencing challenges
- discuss surprising relationships as noted by student. Have them put forward plausible solutions.
- alternative classification and mathematically reasonable ranges were constructed.

#### Questions:

1. Comment on the advantages and disadvantages of using each method of classification for graduated shading. (hint: examine data from the “range” cells when changing the “Classified by” field)

2. What method of classification and what number of classes did you choose? Why?

3. What type(s) of countries have the following characteristics? Ask classmates for help with the field(s) you did not map:
   - a) High ecological footprints
   - b) Low ecological footprints
   - c) High available biological capacity
   - d) Low available biological capacity
   - e) Significant ecological surpluses
   - f) Significant ecological deficits

4. What will happen to the values shown on your maps over the next 25 years? Why? How can this outcome be prevented?
Lesson Plan: Ecological Footprint (Geo621)

Suggestions For Assessment

1. Students should be aware that it may sometimes be better not to use the “natural breaks” method of classification. The relative advantages (and disadvantages) of each approach are summarized in the table below. Only three classes were used in order to make comparison easier. Note that you cannot directly control the number of classes for the “standard deviation” method.

<table>
<thead>
<tr>
<th>Method of Classification</th>
<th>EF Values Grouped</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal Areas</td>
<td>0.47-2.12, 2.12-4.49, 4.49-12.33</td>
<td>Works well because there is a significant number of large areas in each grouping. A well-balanced, effective choice.</td>
</tr>
<tr>
<td>Equal Intervals</td>
<td>0.47-4.43, 4.43-8.39, 8.39-12.33</td>
<td>Most countries end up in the lowest grouping. This choice is very effective in portraying the idea that only a few countries have a very large EF. This would be an excellent choice if you were trying to persuade Americans or Canadians that they have to do something to reduce their carbon footprints.</td>
</tr>
<tr>
<td>Natural Breaks</td>
<td>0.47-2.12, 2.12-4.49, 4.49-12.33</td>
<td>Similar to Equal Areas for this data set. A good choice.</td>
</tr>
<tr>
<td>Quarter</td>
<td>0.47-1.17, 1.17-3.07, 3.07-12.33</td>
<td>Puts many countries into the highest group. Would be an effective choice if a North American were trying to convince someone that many countries have a large environmental impact.</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>N/A</td>
<td>Has the advantage of assigning values to the means. Standard deviation test works because all countries below the mean of 2.0 have a standard deviation of the mean. Shows differences in EF effectively for countries above the mean. For example, Canada is placed in a different category from the US.</td>
</tr>
</tbody>
</table>

Note that the comments here apply only to this particular data set. Students must learn to quickly do a similar, implicit analysis for any graduated shading map they create. Also, a result that is “intuitively satisfying” to the teacher might not occur to a student who lacks significant knowledge of the characteristics of the countries and regions of the world.

2. Students should be able to justify their choices on the basis of the effect they are trying to achieve—e.g., fewer classes give a more visual effect, while more classes provide precision.
Lesson Plan: Ecological Footprint (Geo621)

Suggestions For Assessment

3. High ecological footprints - Wealthy countries that have, or can buy, abundant resources. The highest values are found in Singapore and the United Arab Emirates—countries that have limited land areas. Next highest are in large countries such as the United States and Canada. Wealthy countries have high ecological footprints.

Low ecological footprints - Very poor nations such as Mozambique, Burundi, Bangladesh. Countries with low HDI values.

High available biological capacity - Countries with low population densities and large amounts of productive land, e.g., New Zealand, Australia, Canada, Papua–New Guinea, Finland.

Low available biological capacity - A few possibilities here: countries with high population density (e.g., Singapore and Bangladesh), countries with much non-productive land (e.g., Jordan and Iraq), and countries with high population density as well as much non-productive land (e.g., Taiwan and Pakistan).

Significant ecological surpluses - In general, countries with high biological capacity rather than low ecological footprints, e.g., New Zealand, Australia, Canada, Papua–New Guinea.

Significant ecological deficits - These are countries that have somewhat limited biological capacity combined with large ecological footprints, e.g., Singapore, United States, Japan.

4. The ecological footprint of every country will almost certainly go up. In the case of countries such as China and India, the EF will go up quite dramatically. At the same time, the biological capacity of every country is likely to decline as populations increase and as land is damaged by pollution and overuse. The result will be a dramatic decline in the number of countries with ecological surpluses, as well as in the size of these surpluses. More countries will have ecological deficits, and the size of deficits will be larger than today.

It is very unlikely that this outcome can be prevented. A slowing population growth, and even a decline, in some countries will reduce the rate of deterioration, but will not stop the problem. A significant replacement of non-renewable energy sources would be needed. Finally, and most importantly, there would have to be a revolutionary change in people's attitudes towards consumption and conservation.
## Lesson Plan: Six Essential Elements of Geography

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology:</strong> E2.9, A8.3, A11.3, B11.4, B11.5, E11.1</td>
<td>Create a web site to document the six essential elements of geography for a particular geographic area.</td>
</tr>
<tr>
<td><strong>Geography 421:</strong> Geography 521: 1.2, 1.5</td>
<td>Resources</td>
</tr>
<tr>
<td></td>
<td>• HTML Editor (Dreamweaver or FrontPage 2000)</td>
</tr>
<tr>
<td></td>
<td>• Graphics Editor (Paintshop Pro or Fireworks)</td>
</tr>
<tr>
<td></td>
<td>• Inspiration 7.5</td>
</tr>
<tr>
<td></td>
<td>• Optional: ATutor Groups - File Storage tool (file sharing)  <a href="http://atutor.edu.pe.ca/atutor">http://atutor.edu.pe.ca/atutor</a></td>
</tr>
</tbody>
</table>

### Instructions

Examine a geographic area according to the six elements of geography: The world in spatial terms; places and regions; physical systems; human systems; environment and society; and the uses of geography. Present this information in a well-organized, thoughtful and original manner in the form of a website.

The use of an ATutor file storage workspace will allow student groups to access and update files from any Internet connected computer. The use of the discussion forum tool would be helpful for recording information from various sources so that all group members have access to all data. If discussion forum were used for this activity it is suggested to organize each theme into a separate "discussion thread".

1. Select, obtain approval, and research information for a geographic area.
2. Design a webpage layout or use a predefined template supplied with the HTML editor. Some templates make use of special features such as cascading style sheets or frames to ensure that information is presented consistently. In the design process, consider the World Wide Web Consortium (W3C) guidelines found at [http://www.w3c.org](http://www.w3c.org) for the creation of online content.
3. Organize the information into sections of the website according to geographic theme. Inspiration 7.5 or other concept mapping software will aid in this process.
4. Create a separate folder to hold images or other files such as .pdf, .wmv, etc. The top level or root of the folder should contain only .htm files. Remember that the first page to be loaded into the browser should be called “home.htm”.

---

*Journey On - P.E.I. Department of Education, 2007*
### Lesson Plan: Six Essential Elements of Geography

#### Other Activities
- Prepare a map of the selected geographic region using the lesson plan "Creating Maps Using AEJEE" on page 62 of this manual. Export this map in .jpeg format to use in the website.
- Prepare a thesis statement on a topic from within a major theme within a curriculum. E.g.: Globalization; Development; Governance; Sovereignty; and Justice. Support arguments through the medium of a website.
- Prepare a current events journal of a chosen region and document in electronic format. Provide links to online references that provide further information or clarification. E.g.: http://www.worldnewspapers.com.

#### Instructions (continued)
5. Provide links to web sites to reference information found from the Internet. Also link or embed any material that has been created to support the presentation of information on the website. E.g.: photographs, hand-drawn sketches, animation, audio or video commentary, shock-wave presentation files, etc. Indicate on the website the file size and estimated download time of multimedia content. Create multimedia content in streaming format so that the user does not need to wait until the entire file downloads before starting to view it.

6. The completed web site may be housed on a CD, memory stick, or the teacher M: drive for viewing within the classroom. For presentation on the Internet the files will need to be uploaded to the Education Webserver by the school webmaster.

Note: Customers with Sympatico Internet Access have free personal webspace (within size limits) that is associated with their account. Students, with parental approval, may wish to FTP the website files to their personal home webspace.

7. Online sites, such as BraveNet “http://bravenet.com” have several tools such as “Guest book”, “Hit Counter”, and “Interactive Calendar” that can be activated and code downloaded and inserted into the web pages that were created. Information is recorded on the Bravenet server and displayed from Internet connected computers.

#### Suggestions For Assessment
- Prepare a rubric that identifies curriculum outcomes and expectations for exemplary (level 4), admirable (level 3), acceptable (level 2) and unacceptable (level 1) relating to a website (an example rubric is provided on the facing page).
- Visit ATutor file share or discussion forum areas to monitor progress and member contributions. Require a written progress report.
- Engage students in discussion about their chosen topics and any challenges that have been encountered.
- Participants assess their own and other group members’ contribution to the successful completion of the assignment.
- Peer assessment of completed websites.
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding</td>
<td>facts and issues are not clearly defined</td>
<td>some facts and issues are clearly defined</td>
<td>many facts and issues are clearly defined</td>
<td>most facts and issues are clearly defined</td>
</tr>
<tr>
<td>Inquiry</td>
<td>provides little explanation or analysis</td>
<td>provides some explanation or analysis</td>
<td>provides considerable explanation or analysis</td>
<td>provides thorough explanation or analysis</td>
</tr>
<tr>
<td>Communication</td>
<td>limited use of structure, grammar and spelling</td>
<td>some use of structure, grammar and spelling</td>
<td>structure, grammar and spelling is mostly correct</td>
<td>exemplary</td>
</tr>
<tr>
<td>Visual Aids</td>
<td>limited use and are not creative/appropriate</td>
<td>some aids are effective or creative</td>
<td>many aids further the website 'message'</td>
<td>visuals fully supported the website content</td>
</tr>
<tr>
<td>References</td>
<td>information sources not referenced or incorrect</td>
<td>some information referenced, some errors</td>
<td>most information referenced; error free</td>
<td>all instances referenced correctly</td>
</tr>
<tr>
<td>Website</td>
<td>links, file management and navigation not effective</td>
<td>some problems with links, file management or navigation encountered</td>
<td>good use of file management and navigation</td>
<td>effective use of file management and navigation</td>
</tr>
</tbody>
</table>

Lesson Plan: Six Essential Elements of Geography

Suggestions For Assessment
# Lesson Plan: Exploring The Ancient World

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
</table>

## History 421:

### Resources
- HTML Editor (Dreamweaver or FrontPage 2000)
- Graphics Editor (Paintshop Pro or Fireworks)
- Inspiration 7.5
- Optional: ATutor Groups - File Storage tool (file sharing) [http://atutor.edu.pe.ca/atutor](http://atutor.edu.pe.ca/atutor)

### Instructions

Select an ancient civilization such as the early river valleys, Persia, India, China, Athens/Sparta or Rome. Decide upon a research question to focus the presentation. The following are broad themes of Ancient and Medieval history and may be used as idea generators:

- evaluate the development of social, political and economic patterns of early civilizations (characteristics of citizenship, the relationship to "human rights" slavery and the status of women; were the governments of ancient Greece and Rome "democracies" in our sense of the term?; role of military conquest in economic well-being; Ancient Greek and Roman societies ceased to exist. Identify the factors that contributed to the demise of these governmental systems. Are there implications for our modern day governmental systems? The development of ancient civilization was largely due to favourable environmental conditions. Are societies still dependent upon environmental conditions? If so, what will be the effect of modifying or destroying environmental features?)

- analyze trends in human migration and cultural interactions (reasons for migration - wars, famine, trade and commerce, religious freedom, growth of technology; relate to modern globalization and electronic communications; influence of geography on migrations; development/importance of major trading routes; spread of major religions - Judaism, Hinduism, Buddhism, Islam, Christianity, etc.; archaeological discoveries are changing knowledge of early people - e.g.: land bridge theory to America; African migration)

- analyze the contributions of the Greeks or Romans in drama, poetry, history, sculpture, architecture, science, medicine, mathematics, technology, religion and law. (What does culture tell about a people? Is it important to support "the arts" as a society?)
**Lesson Plan: Exploring The Ancient World**

**Instructions (continued)**

1. Discuss the requirements of a good research question and thesis statement.

2. Provide topics upon which thesis statements may be developed. Carry out research and submit a “resources list” of material located.

3. Use Inspiration concept mapping software to identify the thesis statement and supporting argument sections. Obtain approval to begin writing website materials.

4. Design a webpage layout or use a predefined template supplied with the HTML editor. Some templates make use of special features such as cascading style sheets or frames to ensure that information is presented consistently. In the design process, consider the World Wide Web Consortium (W3C) guidelines found at http://www.w3c.org for the creation of online content.

5. Create a separate folder to hold images or other files such as .pdf, .wmv, etc. The top level or root of the folder should contain only .htm files. Remember that the first page to be loaded into the browser should be called “index.htm”.

6. Provide links to web sites to reference information found from the Internet within the body text of the site. Also, provide a separate “Works Cited” reference page.

7. Link or embed any material that has been created to support the presentation of information on the website. e.g.: photographs, hand-drawn sketches, animation, audio or video commentary, shock-wave presentation files, etc.

8. The completed web site may be housed on a CD, memory stick, or the teacher M: drive for viewing within the classroom. For presentation on the Internet the files will need to be uploaded to the Education Webserver by the school webmaster.

**Note:** Customers with Sympatico Internet Access have free personal webspace (within size limits) that is associated with their account. Students, with parental approval, may wish to FTP the website files to their personal home webspace.

7. Online sites, such as BraveNet “http://bravenet.com” have several tools such as “Guest book”, “Hit Counter”, and “Interactive Calendar” that can be activated and code downloaded and inserted into the web pages that were created. Information is recorded on the Bravenet server and displayed from Internet connected computers.
## Lesson Plan: Exploring The Ancient World

### Other Activities
- Prepare a map of the selected civilization using the lesson plan “Using GIS in World History” from page 89 of this manual. Export this map in .jpeg format to use in the website.
- Create an animation displaying migration, changing political boundaries, etc. (See page 93 of this guide). Embed the animation within the website.
- Prepare a video documentary segment on an aspect of an ancient civilization. Embed the video segment within a web page. e.g: plight of slaves, religious practices, military life, economic infrastructure programs - Great Wall of China, Pyramid Construction, Irrigation Canal Construction, etc.

### Suggestions For Assessment
- Prepare a rubric that identifies curriculum outcomes and expectations for exemplary (level 4), admirable (level 3), acceptable (level 2) and unacceptable (level 1) relating to the assignment and website components.
- Provide assignment details. Determine a reasonable length of time for research and development of possible thesis statements. Submit resource list to ensure that ample resources were found to adequately support a position.
- Approve thesis statement and Inspiration concept map
- Engage students in discussion about their chosen topics and any challenges that have been encountered
- Peer review of completed websites (ATutor Test & Survey tool may be used to evaluate websites based upon rubric criteria)
Lesson Plan: **PEI Trivia - 25 Questions Game**

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology:</strong></td>
<td>Select categories and brainstorm questions for a PEI geographical trivia</td>
</tr>
<tr>
<td>A10.1</td>
<td>quiz. Organize questions into the chosen categories and enter into a</td>
</tr>
<tr>
<td><strong>Geography 421:</strong></td>
<td>Corel Presentation 25 questions game template. Play the game to</td>
</tr>
<tr>
<td>All Areas:</td>
<td>introduce or reinforce PEI geographical concepts.</td>
</tr>
<tr>
<td>Assessment of</td>
<td></td>
</tr>
<tr>
<td>knowledge outcomes</td>
<td></td>
</tr>
</tbody>
</table>

**Resources**

- Internet
- Class Notes
- Corel Presentations
- 25 Questions Game Template file (available for download [link](http://www.edu.pe.ca/journeyon/resources_pages/lesson_plans/social_studies/socialstudies.htm))

**Instructions**

During the game, competitors are given a clue in the form of an answer. To be awared points they must give a response in the form of a question.

1. Select unit outcomes or theme categories. (The five themes of geography was selected for this example)

2. Assign student groups to develop questions for each category. (Question sharing may be facilitated through the use of ATutor group discussion forum tool or ATutor group file storage tool.)
Lesson Plan: PEI Trivia - 25 Questions Game

<table>
<thead>
<tr>
<th>Other Activities</th>
<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• review knowledge outcomes within any social studies unit in preparation for a quiz</td>
<td>3. Reference the source of all questions so that the validity of any information may be reviewed. Check information that appears unreasonable or incorrect to a second source.</td>
</tr>
<tr>
<td></td>
<td>4. Suggested Internet research sites include the Prince Edward Island government website (<a href="http://www.gov.pe.ca">www.gov.pe.ca</a>) and Statistics Canada (<a href="http://www.statcan.ca">http://www.statcan.ca</a>) or Estat (<a href="http://www.statcan.ca/english/Estat/licence.htm">http://www.statcan.ca/english/Estat/licence.htm</a>)</td>
</tr>
<tr>
<td></td>
<td>5. Rank questions according to difficulty level. 1pt - easiest, 5pt - most difficult level.</td>
</tr>
<tr>
<td></td>
<td>6. Enter questions into the Corel Presentations template file.</td>
</tr>
<tr>
<td></td>
<td>7. In-class each group will administer the Trivia game to the rest of the class. Divide the class into teams to play the PEI Trivia - 25 questions game.</td>
</tr>
<tr>
<td></td>
<td>8. The hosting group will designate a “Host” and “Judge” regarding the acceptability of a phrase that is used as “The Question”.</td>
</tr>
<tr>
<td></td>
<td>9. Record team scores. Points are awarded based upon question value - 1pt, 2pts, 3 pts, etc. Declare a winner. (Often token prizes are awarded to the members of a winning team. e.g.: jelly beans to share, etc.)</td>
</tr>
</tbody>
</table>

Suggestions For Assessment

• note participation of team members. (If A Tutor tools are used each members' contribution may be viewed)
  
• students may assess peer group members and their own contribution to the development of the activity
  
• develop a rubric with the class to help students determine “good” questions and the level to which each should be assigned
  
• question information is valid and referenced (if challenged)
  
• re-phrase questions that were found to be ambiguous and change in the presentation file
  
• archive for use with other classes or to share with colleagues
Lesson Plan: Using Discussion Forums For Research

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology:</strong> A.3.2, A.10.1, B.10.10, E.3.1</td>
<td>Post findings from research in a threaded discussion forum. Read the findings of group members and prepare a response.</td>
</tr>
</tbody>
</table>

**Resources**
- Internet or Text Resources
- Threaded Discussion Forum (ATutor - http://atutor.edu.pe.ca/atutor)
- Word Processor

**Instructions**
There are a number of strategies that may be employed to encourage discussion forum participants to interact with content and to engage one another. Examples of two common approaches are provided below:

**Clarifying Position:**
- read article or investigate the issue(s)
- post a summary/personal reaction to the content
- read other group members posts and points-of-view
- contribute a response, reflection, feedback, or request for more information to one post that holds interest or personal significance

**Jigsaw Activity - Investigating New Material:**
- research an assigned topic or read an article from within a given area of study (each participant researches a separate piece of content)
- post summary of findings
- read summaries of all others in group. Incorporate information into own understanding. Ask for further information or clarification, if required.
- write a summary of the overall topic, individually, that will be submitted for assessment

**Clarifying Position - example:**
1. Assign student groups a topic to research. Open ended topics are best where the students must research, discuss, judge and evaluate. e.g.: What was the most important legacy of the Industrial Revolution? Justify your choice. The Industrial Revolution’s effect on the family was poverty, sub-standard education, child labor, disease and work related injuries/death. Do you agree or disagree? Fully support your answer.

2. Use various tools and strategies necessary to carry out research. Critically evaluate information and its source (authority, purpose, coverage, currency, objectivity and accuracy)
**Lesson Plan:** Using Discussion Forums For Research

### Other Activities

- Directions, Internet links and electronic articles may be provided from within ATutor.
- Have an expert or mentor accept and answer questions through discussion forum.
- Provide links to primary sources from the Internet. Have students relate these to the period of history being studied. E.g.: photo collage of images from the Industrial Revolution era (Search “industrial revolution photographs” or a famous photographer of the time “Dorothea Lange photographs”). Provide comments through discussion forum.
- Link the historical time period to literary works e.g.: Charles Dickens. Use forums to discuss references to social issues, life styles, etc.
- “Great Unsolved Mysteries in Canadian History” (http://www.canadianmysteries.ca/indexen.html) provides six lesson plans relating to events that have conflicting accounts. Read personal accounts, court documents and newspaper reports of the incidents. Use discussion forum to help clarify issues.

### Instructions (continued)

3. Adhere to timelines for posting and response. Ensure that postings demonstrate thoughtful process, reflection and precise writing technique. Compose all material using a word processor before posting.

**Jigsaw Activity - example:**

**Topic:** What is the importance of the Industrial Revolution to our lives today? (or in what ways may history have turned out differently without the industrial revolution)

- Use ATutor group discussion forums to establish small work groups.
- Each group member researches an area of the Industrial Revolution.
  - Scientific, technological, industrial developments
  - Emergence of capitalism (reaction Socialism & Communism)
  - Links to imperialism and nationalism
  - Effects on the environment
  - Changes in society (urbanization, nature of work, status of women, effect on families, child labour, poverty, disease, labour movement, education, health care)
- The above areas may also be subdivided by country (England, United States and Canada)
- Post a summary of findings in the discussion forum; answer questions from others.
- Read posts of all group members and write an individual summary that will be submitted for evaluation (paper copy, assignment hand-in tool in ATutor, or e-mail).

### Suggestions For Assessment

- Stress quality of posts over quantity. Posts should be composed and edited “off line” in a word processor prior to sharing. Social or “off topic” posts should not be tolerated. Convey an expectation of individual “excellence”.
- Ensure that students have critically evaluated the information and source on which they are relying. (Authority, purpose, coverage, currency, objectivity and accuracy)
- Provide clear timelines for initial post and response. Follow up immediately with those who do not adhere to deadlines as they prevent others from completing their activity. If the activity is “out-of-class” ensure that those who do not have Internet access at home have an opportunity to gain access at school. (Before classes commence, during lunch, after school, etc.)
<table>
<thead>
<tr>
<th>Lesson Plan: Using Discussion Forums For Research</th>
</tr>
</thead>
</table>

**Suggestions For Assessment (con’t)**

- teacher must not engage in student discussion unless further direction or clarification is required.

- provide individual written feedback to participants after initial post and/or at the end of the activity. This is essential for ongoing student engagement in the online learning environment.

- do not repeat the exercise or discussion in the face-to-face classroom. Provide closure, clarification or take comments. Move along to higher order learning activities using the acquired content or begin a new topic area.
## Lesson Plan: Preparing For Debate Using Discussion Forum

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A10.1, B10.10, E3.1</td>
<td></td>
</tr>
<tr>
<td>Politics 521:</td>
<td></td>
</tr>
<tr>
<td>Geography 521: 2.4, 3.8</td>
<td></td>
</tr>
<tr>
<td>History 521:</td>
<td></td>
</tr>
<tr>
<td>Law 521: 1.1, 2.1, 2.17, 3.5</td>
<td></td>
</tr>
<tr>
<td>CAS401: 2.5</td>
<td></td>
</tr>
<tr>
<td>Research a topic from Politics 521 where multiple perspectives influence a decision or issue. Prepare arguments supporting (pro) or against (con) a particular issue using a threaded discussion forum. Debate the issue in the face-to-face classroom.</td>
<td></td>
</tr>
</tbody>
</table>

### Resources
- Internet
- Threaded Discussion Forum (ATutor - http://atutor.edu.pe.ca/atutor)
- Word Perfect

### Instructions
Various opportunities for debate are suggested within the Politics 521 curriculum. Examples may include:

- “Distinct Society” claim by Quebec
- future of the Canadian Senate
- division of Federal and Provincial powers
- aboriginal peoples movement towards unique status
- protection of regional and minority rights
- impact of the Charter of Rights and Freedoms
- future of monarchy's role in the Canadian Governmental system
- electoral boundaries map (PEI)

1. Present a topic for debate and assign groups
2. Use various tools and strategies necessary to carry out research
3. Critically evaluate information and its source (authority, purpose, coverage, currency, objectivity and accuracy).
4. Organize group issues, points and arguments through the use of the ATutor threaded discussion forum. (Small group discussion forum. This activity may occur outside of class time)
5. Cut and paste each person's debate points into a Word Perfect document to produce a printed copy. Individuals will use this copy to stay focused during the face-to-face debate.
6. Conduct the debate in the face-to-face classroom.
### Lesson Plan: Preparing For Debate Using Discussion Forum

#### Other Activities
- create visuals or chart data to support positions
- prepare a "balanced" video documentary (newscast) on the topic instead of an oral debate (original graphics, animations and still pictures may be created to help deliver a message)

#### Instructions (continued)


A lesson plan from this site “Canada’s Constitutional Debate: What Makes A Nation?” suggests the following debate activity -

“Patriation of the constitution and enactment of the Charter of Rights have improved Canadian Society.”

Teacher and student guides and evaluation rubrics are provided for each lesson. Modify instructions so that group members prepare for the debate by recording findings and arguments in a discussion forum.

#### Suggestions For Assessment
- visit discussion forum to examine the collaboration and contribution of members. Has there been an attempt to collaborate evidence concerning a point that is surprising or appears biased?
- prepare a rubric (e.g. addresses the issue, supports arguments with facts, persuasiveness, organization, participation, respect, oration skill)
# Lesson Plan: The Social Studies Blog

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A10.1, E2.9, E3.1</td>
<td>Maintain a legal case study journal using a blog.</td>
</tr>
<tr>
<td>Law 521: 2.2, 2.3, 2.5, 3.5</td>
<td></td>
</tr>
<tr>
<td>History 621A: (identify these individuals, events, or symbols.. etc)</td>
<td></td>
</tr>
<tr>
<td>CAS401: 2.4, 2.5</td>
<td></td>
</tr>
</tbody>
</table>

## Resources
- Blog (ATutor tool - http://atutor.edu.pe.ca/atutor)
- Internet

## Instructions
A weblog, (Blog) is a website where regular entries are made and presented in reverse chronological order. A Blog may combine text, images, and links to other blogs, web pages, or media content. An advantage of a Blog over a regular website is that the “author” does not need extensive HTML coding and formatting knowledge. Further, FTP programs are not required when transferring files to a Blog or file hosting site.

Within all social science curriculum documents under the section “Tasks for Instruction and/or Assessment” there are numerous instances where students demonstrate learning, provide feedback or provide their own perceptions on a particular topic through the use of a journal entry.

Examples include: course feedback at the beginning/middle/end of specific units, preferred learning style, personal interests related to a topic, identifying particularly meaningful information provided by a guest speaker or from a field trip, career exploration commentaries, etc. The blog is a useful forum for presenting writing and reflection activities that may be shared with classmates or presented only to the teacher.

There are numerous blog services on the Internet that are provide for free. The ATutor blog is recommended as public blog sites may contain advertisements and links to unsavory materials. Further, public blogs introduce the possibility of students interacting with “unknown” individuals from the Internet.

1. Set up an ATutor Blog by selecting “Manage” and “Groups” with the class workspace. Select “Create Groups” and “Create Multiple Groups Automatically”.

2. Key a “Group Type” of “Law Journals” and a “Group Prefix” of “Journal”. Enter “1” in the “Number of Students per Group” and select “Blogs” under “Tools”.

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Lesson Plan: The Social Studies Blog

<table>
<thead>
<tr>
<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. A separate group will be created for each student in the class. This will provide each student with his/her own blog space.</td>
</tr>
<tr>
<td>4. Provide students with the blog name to which they have been assigned by ATutor. i.e.: Journal 1, Journal 2, etc. A student may only “Add” or create a blog from within the group to which they belong. The last post will always appear at the top of the blog while the others are placed below in chronological order by date posted.</td>
</tr>
<tr>
<td>5. Students may post a blog so all others may read the material entered or they may check “Private” before posting so that the information may only be accessed by the instructor.</td>
</tr>
<tr>
<td>6. Posts that have not been checked as “Private” may be read by all other students in the class. Students may “Comment” on any individual post.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suggestions For Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• the first Blog entry may be of a more social nature so that students have an opportunity to use the composition tools. For example, the first post may consist of a paragraph on “Why are you taking Law?” and “What do you hope to learn this semester?”.</td>
</tr>
<tr>
<td>• Have students provide links to online sources of law articles. (Journal Pioneer, MacLean’s Magazine, etc. These may be accessed through EBSCO Host <a href="http://search.ebscohost.com">http://search.ebscohost.com</a> or by using a search engine)</td>
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<tr>
<td>• Prepare a formal online entry “reflective” post about articles. (This work may be completed outside of class time.)</td>
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<td>• Provide a date when particular entries must be complete and available.</td>
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<td>• Online journals may be easily checked at any point in time. Immediate feedback is important to participants in online environments. It also provides assessment to students so that they may improve the quality of work that is being prepared.</td>
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<tr>
<td>• Provide general positive feedback such as “You have made an interesting observation” or “You have covered all the aspects of the problem well”. If an assessment or correctional comment is needed, this should be done personally in the face to face classroom or through a private email message.</td>
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</tbody>
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<tr>
<th>Other Activities</th>
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<tbody>
<tr>
<td>• Create a teacher Blog workspace (See step #1) Select “Create a Single Group Manually”. “Group Type” may be set to “Teacher” and “Title” to “Class Information”. Check mark “Blogs”.</td>
</tr>
<tr>
<td>• Should you create a Blog, your own workspace may contain assignment information, notes, etc. and be a “class resource page”. This would be especially useful for students who are absent for a particular class.</td>
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<td>• Blogs allows peers to enter comments relating to each post. Consider opportunities for students to write for their peers and provide opinions. Class mates may commend on points raised and ask for clarification.</td>
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<td>• Other Activities</td>
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Lesson Plan: Analyzing Crime Rate Statistics

<table>
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<tr>
<th>Outcomes</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Law 521: 2.5, 2.14, 2.15</td>
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**Resources**
- Internet
- Quattro Pro Spreadsheet
- Paintshop Pro

**Instructions**
Visit the Statistic Canada EStat website at http://estat.statcan.ca. PEI high schools have a subscription to EStat. (You will not be able to access the site from home)

From the “Table of Contents” on the introductory page choose “Justice” and “Crime and Offenses” on the next screen. A choice of 57 separate tables appear on the screen. Choose table 252-0015 adults and/ or 252-0014 for youth.

**Geography** (13 items)
- Nova Scotia
- New Brunswick
- Quebec
- Ontario
- Saskatchewan

**Decisions** (5 items)
- Total decisions
  - Guilty
  - Acquitted
  - Stay
  - Other decisions

**Offences** (40 items)
- Disturbing the peace
  - Residual Criminal Code
  - Criminal Code traffic
  - Impaired driving
  - Other Criminal Code traffic
Lesson Plan: Analyzing Crime Rate Statistics

**Other Activities**

Note trend variations for the following:

- analyze the median length of sentences over the 1994+ time range
- review length of youth detention, by crime for 1994+
- review legal aid applications by province and type of case (criminal vs. civil)
- investigate the sex of offender compared to the type of crime by province
- investigate the age of the offender by type of crime committed
- investigate the elapsed time from first to last court appearance, by province and by offence
- identify other useful information that may be obtained from the EStat Justice area.
- discuss if the databases found at Statistics Canada are “Flat” or “Relational”.

**Instructions (continued)**

1. Group class members. Divide data by province, decision, and type of offense within groups.

2. Select data range of 1994 to 2003 (or the latest year provided). Note that data for some provinces is available only for 2001 and after.

3. Prepare an overview summary of crime in Canada for the time period 1994 to the last year reported. Which crimes are rising? Which are falling? Have the number of people found guilty versus acquitted changed for particular crimes? May this be due to a change in law? Are the incidents of particular crime different in Eastern, Central, West and Northern Canada? Are rates different for youth versus adults?

4. Use the graphing functions found within the EStat site or Quattro Pro to illustrate significant changes in crime rates. Use the capture feature in Paintshop Pro and include these charts with the summary.

5. Report findings to the class and discuss any surprising results, i.e.: a rise in particular crime rates in high economic growth areas of the country.

**Suggestions For Assessment**

- participants assess their own and other group members’ contribution to the successful completion of the assignment.
- require each group member to be responsible for presenting part of the findings and for answering questions.
- prepare a rubric for or with the class to outline expectations. (number of different offences; from different regions; trends described; insight shown; significant trends shown on charts; charts clearly labelled; correct grammar used; group worked effectively together, etc.)
Lesson Plan: Canada’s Court System: An Island Perspective

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, A8.4, A10.1</td>
<td>Research the Prince Edward Island Court System to provide an Island perspective to Canada’s Criminal Court System.</td>
</tr>
<tr>
<td>Law 521: 1.4, 1.5, 1.6, 2.9</td>
<td>Resources</td>
</tr>
<tr>
<td></td>
<td>• Internet</td>
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<tr>
<td></td>
<td>• Word Perfect</td>
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<td></td>
<td>• ATutor (<a href="http://atutor.edu.pe.ca/atutor">http://atutor.edu.pe.ca/atutor</a>) or</td>
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<tr>
<td></td>
<td>• Corel Presentations and 25 Questions Game Template file</td>
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</tbody>
</table>

Instructions

Research the Prince Edward Island Court System by answering the questions provided. Record the answers and source in Word Perfect. Prepare a “25 Questions Game” presentations file or submit questions to be used in an ATutor online review quiz.

The PEI Government website (http://www.gov.pe.ca/law) and The Department of Justice Canada (http://www.doj.ca/en/jl/index.html) will be helpful for obtaining information.

1. What level of government has explicit jurisdiction over the administration of justice in the provinces including the constitution, organization and maintenance of the provincial courts, both civil and criminal, and civil procedure in those courts?

2. What level of government has the exclusive authority to appoint and pay the judges of the superior courts in the provinces?

3. What level of government has the authority to establish a general court of appeal and courts for the better administration of the laws of Canada?

4. It [#3] has used this authority to create what three courts?

5. What level of government has, as part of its criminal-law power, exclusive authority over the procedure in courts of criminal jurisdiction?

6. In Prince Edward Island, what court is the lower or “inferior” court?

7. What Island court is the “superior” court?

8. In Alberta, what is the name of the “superior” court?

9. What level of government appoints judges at the Provincial Court level?

10. The Provincial Court of P.E.I. has how many judges?

11. Who is it Chief Justice?
## Lesson Plan: Canada’s Court System: An Island Perspective

### Other Activities
- Trace a case - real or fictitious - from Provincial Court to the Supreme Court of Canada
- Trace a case from the Supreme Court of PEI, Trial Division, to the Supreme Court of Canada
- Search and read a case under “Supreme Court - Reasons For Judgement” (PEI Supreme Court)
- Read an issue of the “Unofficial Royal Gazette” found on the PEI Government Website. List four types of information provided.
- Create an interactive crossword puzzle for a webpage. (Visit [http://www.halfbakedsoftware.com](http://www.halfbakedsoftware.com) to download the “Hot Potatoes” software)
- Visit the PEI Law Societies website. Summarize how to become a lawyer on PEI. Alternatively, if in need of a lawyer how might a person select and prepare to work with a particular lawyer.

### Instructions (continued)

12. In what locales does the Court sit?

13. Explain the Court’s jurisdiction.

14. What Island Court has jurisdiction over Young Offenders?

15. Identify the two divisions of The Supreme Court of P.E.I., and the number of judges in each.

16. Identify the Chief Justice for each division.

17. What are the responsibilities of each division.

18. Define “protho notary.”

19. Explain the responsibilities of the Island’s prothonotary.

20. List and explain (where necessary) the five principal responsibilities of the Sheriff.

21. What is meant by the expression, "The Supreme Court of Canada hears appeals from the court of last resort."

22. The Supreme Court of Canada (SCC) hears appeals from three sources. Identify.

23. The Supreme Court of Canada stands at the apex of the Canadian judicial system

### Suggestions For Assessment

- Check that question answers (with references) have been completed.
- A 25 Questions Game, ATutor quiz questions or Hot Potatoes crossword puzzle has been completed.
- Class members play trivia game, take ATutor quiz or play webpage crossword.
- Identify words or phrases that are unclear. Suggest improvements.
**Lesson Plan:** CBC Archives Lesson Plans

<table>
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<td><strong>Technology:</strong> Lesson Dependent</td>
<td>The CBC Archives website provides lesson plans relating to various social studies topics that reference newscast media primary sources. (<a href="http://archives.cbc.ca/for_teachers">http://archives.cbc.ca/for_teachers</a>) Available April, 2007.</td>
</tr>
<tr>
<td><strong>Law 521:</strong> Lesson Dependent</td>
<td>Lesson plan topics relating to law:</td>
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<tr>
<td><strong>Economics 621:</strong> Lesson Dependent</td>
<td>• Asbestos: Magic Mineral or Deadly Dust. Class Action.</td>
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<tr>
<td><strong>Geography 421:</strong> Lesson Dependent</td>
<td>• Artists Busted: Censorship in Canada.</td>
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<td>• Boat People: A Refugee Crisis.</td>
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<td>• Death Penalty Debate.</td>
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<td>• Dr. Henry Morgentaler: Fighting Canada’s Abortion Laws.</td>
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<td>• Equality First: The Royal Commission on the Status of Women.</td>
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<td>• George Erasmus: Native Rights Crusader.</td>
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<td>• Pot and Politics: Canada and the Marijuana Debate.</td>
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<td>• Religion in the Classroom.</td>
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<td>• Relocation to Redress: The Internment of the Japanese Canadians.</td>
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<td>• Sue Rodriguez and the Right-To-Die Debate.</td>
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<td>• The Battle for Aboriginal Treaty Rights.</td>
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<td>• The Montreal Massacre.</td>
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<td>• The Oka Crisis.</td>
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<td>• The October Crisis: Civil Liberties Suspended.</td>
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<td>Lesson plan topics relating to economics:</td>
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<td>• At Loggerheads: The Canada-US Softwood Lumber Dispute.</td>
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<td>• Canada-US Free Trade Agreement.</td>
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<td>• Concentration to Convergence: Media Ownership in Canada.</td>
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<td>• Fished Out: The Rise and Fall of the Cod Fishery.</td>
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<td>• Pelts, Pups and Protests: The Atlantic Seal Hunt.</td>
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<td>• The Auto Pact: En Route to Free Trade.</td>
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<td>Lesson plan topics relating to geography:</td>
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<td>• Acid Rain: Pollution and Politics.</td>
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<td>• Clearcutting and Logging: The War of the Woods.</td>
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<td>• Hydro Electricity: The Power of Water.</td>
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<td>• James Bay Project and the Cree.</td>
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<td>• So Long City. Hello Suburbs!</td>
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<td>• Striking Oil in Alberta.</td>
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<td>• The St. Lawrence Seaway: Gateway to the World.</td>
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<td>• Trans-Canada Highway: Bridging the Distance.</td>
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<td>• Devastating Dry Spells: Drought on the Prairies.</td>
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<td>• The Confederation Bridge: PEI Connects.</td>
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Lesson Plan: CBC Archives Lesson Plans

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<td><strong>History 621:</strong> Lesson Dependent</td>
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<tr>
<td><strong>Political Studies 621:</strong> Lesson Dependent</td>
<td>Lesson plan topics relating to History and Political Studies:</td>
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<td>• 1939-1945: A Soldier’s War.</td>
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<td>• A Lost Heritage: Canada’s Residential Schools.</td>
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<td>• Canada’s Constitutional Debate: What Makes a Nation?</td>
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<td>• Canada’s New Queen.</td>
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<td>• Charting the Future: Canada’s New Constitution.</td>
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<td>• Cold War Culture: The Nuclear Fear of the 1950s and 1960s.</td>
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<td>• Comrade Bethune: A Controversial Hero.</td>
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<td>• Constitutional Discord: Meech Lake.</td>
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<td>• Creation of Nunavut.</td>
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<td>• Dief the Chief.</td>
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<td>• Forgotten Heros: Canada and the Korean War.</td>
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<td>• From Cheers to Jeers: The Mulroney Years.</td>
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<td>• Has Confederation Been Good For Newfoundland.</td>
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<td>• Hippie Society: The Youth Rebellion.</td>
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<td></td>
<td>• Jean Chretien: From Pool Hall to Parliament Hill.</td>
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<td>• Lester B. Pearson: From Peace-Maker to Prime Minister.</td>
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<td></td>
<td>• Life After Auschwitz.</td>
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<td>• Mr. President Goes to Ottawa.</td>
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<td></td>
<td>• Peacekeepers and Peace Makers: Canada’s Diplomatic Contribution.</td>
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<td>• Rene Levesque’s Separatist Fight.</td>
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<td>• Rethinking Riel.</td>
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<td>• Robert Bourassa: Political Survivor.</td>
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<td>• Ruling The Airwaves: The CRTC and Canadian Content.</td>
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<td>• Sir John A. Macdonald: Architect of Modern Canada.</td>
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<td>• The 1991 Gulf War.</td>
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<td>• The Avro Arrow: Canada’s Broken Dream.</td>
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<td>• The Berger Pipeline Inquiry.</td>
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<td>• The Birth of Medicare.</td>
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<td>• The Great Canadian Flag Debate.</td>
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<td>• The Halifax Explosion.</td>
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<td>• The Road to Bilingualism.</td>
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<td>• The “Other Revolution”: Louis Robichaud’s New Brunswick.</td>
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<td>• Tommy Douglas and the NDP.</td>
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<td>• Trudeau’s Omnibus Bill: Challenging Canadian Taboos.</td>
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<td>• Trudeauamania: A Swinger For Prime Minister.</td>
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**Lesson Plan: Let's Review**

<table>
<thead>
<tr>
<th><strong>Outcomes</strong></th>
<th><strong>Activity</strong></th>
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</thead>
<tbody>
<tr>
<td>Technology: A10.1, B10.10</td>
<td>Prepare unit questions, with study prompts, for the ATutor test bank database. Write an online quiz, with immediate feedback option set, as a review for an in-class assessment.</td>
</tr>
<tr>
<td>All Areas: Assessment of knowledge outcomes</td>
<td></td>
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</table>

**Resources**

- ATutor “Tests & Surveys” tool
- Class Notes and Text Book

**Instructions**

The ATutor “Tests & Survey” tool allows instructors to create objective and open-ended questions. Once created these questions are categorized and added to a “question database”. Quizzes are created by selecting specific questions from this database. The software will immediately “grade” and provide “study prompts” for wrong objective question answers. Open-ended questions must be assessed by a person.

1. Agree with students that a percentage of questions for an upcoming assessment will be taken from student submitted questions.

2. E-mail or submit questions and answers through discussion forum for inclusion in the question database. Instructors may enter these questions or assign rights to particular individuals to do this task on behalf of the class.

3. Select questions from the database for inclusion in an online review quiz. Ensure that values are assigned for each question and that “Release Results: Once quiz has been submitted” is selected.

4. Select a time period for the quiz to become available. Complete the review quiz, noting the “study prompts” for wrong answers. (These could be “See diagram on pg. 23” or might take the form of a direct explanation or hint)

5. Instructor read and provide feedback on any open-ended questions that may be included in the online review.

6. Select questions to be included on the in-class assessment. (The in-class assessment may be traditional or written online through ATutor. Select “Random Questions” so that each user is given the quiz questions in a different order. This will discourage “looking at a classmates computer screen”.)
<table>
<thead>
<tr>
<th>Other Activities</th>
<th>Suggestions For Assessment</th>
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</thead>
<tbody>
<tr>
<td>• conduct online surveys using ATutor. (Assign only the survey tool and direct participants to login as “guest” to complete the survey.) Law 521: 2.17</td>
<td>• review questions for clarity. Ensure that there is only one correct answer per question.</td>
</tr>
<tr>
<td>• use ATutor “Poll” feature to gather information about class attitudes towards a particular issue. It might be interesting to perform a pre and post poll on the issue to see if class activities changed student perceptions.</td>
<td>• check that all students submitted questions for the database. Is there evidence of thoughtfulness and appropriateness?</td>
</tr>
<tr>
<td>• build the “question database” from semester to semester. Questions may be selected to create quizzes for students who miss class tests or for end of term reviews.</td>
<td>• check the online review results. Are there particular questions with which all students are experiencing difficulty? Follow up problem areas in-class or with individual students.</td>
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<td></td>
<td>• provide opportunity for students to seek help or clarification of review content before administering the unit assessment.</td>
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</tbody>
</table>
Lesson Plan: Detecting Bias in Primary & Secondary Sources

<table>
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<tr>
<th>Outcomes</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td><strong>Technology:</strong> A3.2, A3.3, B3.3, E2.9, E3.1</td>
<td>Analyze primary and/or secondary historical documents for evidence of bias. Consider two or more sources on the same topic to arrive at a comparative analysis of author bias and point of view in creating the document.</td>
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<tr>
<th>History 521:</th>
<th>Resources</th>
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<tbody>
<tr>
<td>History 421:</td>
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</tr>
<tr>
<td>History 621:</td>
<td>• Word Perfect</td>
</tr>
<tr>
<td>Political Studies 521:</td>
<td>• Corel Presentations/ATutor Blog/Dreamweaver</td>
</tr>
</tbody>
</table>

**Instructions**

Examine strategies for identifying bias in historical text or images. Clarify the distinction between primary and secondary sources. Discuss the importance of language used, purpose of the document or image, author background and inclusion or exclusion of information. The Media Awareness Network (http://www.media-awareness.ca/english/resources/educational/lessons/primary/broadcast_news/bw_bias_in_the_news_lesson.cfm) and Library and Archives Canada - Learning Center (http://www.collectionscanada.ca/education/008-3000-e.html) have excellent resources relating to bias. (Available March 2007)

The “Evidence Web” found on the Library and Archives Canada site (http://www.collectionscanada.ca/education/sources/index-e.html) or search for “Dorothea Lange photographs” will provide examples of primary/secondary documents and images.

Research a historical figure or event. Record information relevant to bias, especially the source of the document or image, author information and details about the event. e.g.: The Cold War / Fidel Castro (Cuba) or Japanese Internment Camps in Canada during the second world war.

Compile results by identifying bias or point of view in each document, then compare points of view. Remind students that bias may be relatively positive, negative or neutral and is usually evident in all material.

Create a slide show presentation, web page, blog or written report describing findings. Rewrite the account of the event or biography of the historical figure that eliminates bias. Provide an opportunity for class discussion.
### Lesson Plan: Detecting Bias in Primary & Secondary Sources

#### Other Activities

- debate a historical issue reflecting differing points of view
- create a media work (audio, video, animation, etc.) that reflects bias (to persuade, propaganda, etc.)
- analyze radio or television documentaries for bias (see "For Teachers" [http://archives.cbc.ca](http://archives.cbc.ca)) Example lessons include: Identifying Bias and Stereotyping; Exploring Media; The Environment: Issues and Politics; The Constitutional Debate; Tommy Douglas; Depicting Canadian Identity: World War II effort at home; etc.
- study political speeches, cartoons or court decisions from a particular time period or concerning a particular event. e.g.: Louis Riel
- link a historical time period to literary works e.g.: Charles Dickens, commentary on the negative aspects of the Industrial Revolution and capitalism

#### Suggestions For Assessment

- provide or create a rubric with the class that clearly identifies the research, analysis and reporting assessment criteria relating to bias (generic rubric masters found in the Prentice Hall - “Law in Action” or Glencoe - “World Geography” teacher resources would be helpful for the particular reporting activity selected i.e.: Current Events; Debate; Photo Analysis; Letter to the Editor; Oral or Slide Show Presentation, etc.)
- accomplish tasks with small groups; peer discussion during analysis of documents promotes critical analysis and thinking skills.
- provide an opportunity for class discussion of results. This will reinforce learning and foster possible debate.
- rewriting an account of the event, a biography or creating media will provide an opportunity for students to exhibit understanding.
# Lesson Plan: Documenting Local History

## Outcomes

**Technology:** A3.2, A8.4, B5.3, B8.2, B8.4, C2.1

**PEI History 621B:**

**Geography 421:**

**Geography 521:**

**Law 521:**

**History 621A:**

**Political Studies 521:**

**Political Studies 621:**

**CAS401:** 2.4, 3.1, 4.6, 4.7, 5.4, 5.5

## Activity

Conduct primary research of local history. Communicate the results of this inquiry through writing and multimedia.

## Resources

- Word Processor
- Internet Connection

Multimedia resources chosen will vary:

- Slide show (Corel Presentations)
- Web Editor (Dreamweaver or Front Page)
- Video Editor (Movie Maker XP)
- Audio Editor (Audacity)
- Animation (Stop Motion Animator)
- Scanner, microphone, web camera, digital camera or video camera

## Instructions

Research and document an aspect of local history. Examples may include interviews concerning personal experiences, or recollections of events, industries or buildings in a community. Other documentation may be found in histories, diaries, maps, newspaper articles, photographs and from visits to local museums.

Specific example topics might include life during the depression; the World War II experience at home; fox farming; farm implements & practices; the railroad; local architecture; historical entrepreneurs; education prior to 1965, etc.

Describe the subject of the research, procedures and findings in a short report. Prepare a multimedia presentation that will document the primary research. E.g.: slide show, web page, animation or Movie Maker XP video that will house one or more of the following media: audio, video, text or image. (i.e.: interviews, artifacts or documents used, digital pictures of current location, etc). Should a video medium be selected, a documentary or newscast presentation is an effective format.

Quality of the multimedia may be enhanced with the use of lighting. Shoot outdoors whenever possible. Indirect natural light from windows may be used when it is impossible to go outside. An external microphone must be used with a video camera unless the subject is within 2-3 meters of the camera and there is little background noise. Storyboard the shot sequences, prepare and rehearse the script or questions for an interview. Perform a short test on location to ensure that lighting and sound quality are acceptable.
**Lesson Plan:** Documenting Local History

<table>
<thead>
<tr>
<th>Other Activities</th>
<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The Canada's History Society “Governor Generals Award for the Teaching of History” has many lesson plan ideas for making local history come alive. <a href="http://www.historysociety.ca/gga.asp?subsection=pas">http://www.historysociety.ca/gga.asp?subsection=pas</a> (Available March, 2007)</td>
<td>The final electronic projects may be archived to CD or DVD so that they may be presented to classmates and preserved for future reference. Release forms must be signed indicating that the information may be used for educational purposes and to protect the rights of the authors.</td>
</tr>
<tr>
<td>• Library and Archives Canada lesson plan “Lest We Forget”. Students investigate records of service people found from the local Cenotaph. <a href="http://www.collectionscanada.ca/05/0541/054101_e.html">http://www.collectionscanada.ca/05/0541/054101_e.html</a> (Available March, 2007)</td>
<td>“Talent” release forms should also be completed by those participating in audio or video interviews so that they know how the footage will be used by others. (See sample forms in the appendix of this document)</td>
</tr>
<tr>
<td>• create a “PEI Vignette” video dramatizing an event or interview. (Similar to “Canada Vignettes” published by the National Film Board).</td>
<td><strong>Suggestions For Assessment</strong></td>
</tr>
<tr>
<td>• create a role play to illustrate one of the rights contained within the Canadian Charter of Rights and Freedoms</td>
<td>• provide or create a rubric with the class that clearly identifies the research, analysis and reporting assessment criteria</td>
</tr>
<tr>
<td></td>
<td>• approve the topic chosen</td>
</tr>
<tr>
<td></td>
<td>• provide feedback regarding planning, interview questions, release forms, storyboard/ script, etc.</td>
</tr>
<tr>
<td></td>
<td>• provide an opportunity for presentation of work to the class. Allow for peer assessment and questions</td>
</tr>
<tr>
<td></td>
<td>• write a short summary of “What you would do differently if there were more time or the research was to be done again”. Describe problems that needed to be solved to complete the project</td>
</tr>
</tbody>
</table>
# Lesson Plan: The Family Heritage Scrapbook

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A8.4, B5.3, B8.2, E3.1</td>
<td>Research family history and create an electronic “Family Heritage Scrapbook”.</td>
</tr>
</tbody>
</table>

**PEI History 621B:**

**Resources**

- Word Processor
- Internet Connection
- Web Editor (Dreamweaver or Front Page)

Multimedia resource chosen will vary:

- Video Editor (Movie Maker XP)
- Audio Editor (Audacity)
- Scanner, microphone, web camera, digital camera or video camera

**Instructions**

Use Inspiration 7.5 to construct a family tree for the electronic scrapbook. Content may include family origins, early circumstances/hardships, important decisions, house/life/neighbors, military service, education, family traditions or heirlooms, civic activities (politics, service clubs, church life, etc.), special hobbies, interests, talents or accomplishments of ancestors. Interview family seniors concerning changes during lifetime, historical event memories, local folklore, etc. Include family stories, photographs, milestones or examples of talent such as poems, songs, short stories, pictures of quilts, paintings, hooked rugs, etc.

Several excellent online resources exist that provide helpful suggestions for researching and compiling family genealogical information. There are also online indexes and databases that will provide information about relatives that lived in the late 1800’s or in other parts of the world.

The PEI Community and Cultural Affairs website (http://www.edu.pe.ca/paro/default.asp) provides a link to “Tracing Your Family History” under the general heading of “Genealogical Research”. The PEI Genealogical Society (http://www.peigs.ca/) and The Island Register (http://www.islandregister.com/) provide links to various indexes and flat databases containing local historical data. The PEI Archival Information Network (http://www.archives.pe.ca/peiain/default.asp) provides access to a database providing descriptions, and location “access points” for documents and artifacts found in the PEI archives.

The Canadian Genealogical Centre (http://www.collectionscanada.ca/genealogy/index-e.html) provides pamphlet “Tracing Your Ancestors in Canada” and provides access to several flat and relational databases.
Lesson Plan: The Family Heritage Scrapbook

<table>
<thead>
<tr>
<th>Other Activities</th>
<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• investigate the career path of database administrator</td>
<td>from across Canada. (A flat database is one, such as MS-Works, that houses data in a single table i.e.: name, lot number, birthdate, death date, religion. This type of database is good for recording simple data. If more complex information is required a relational database would be used to link related data from several tables. i.e: Table 1 - id number, first name, last name, address, gender, picture; Table 2 - id number, story id number, story, date, description; Table 3 - id number, relationship - son, daughter, brother, sister, mother, father. etc. Table 2 is required as one person can have many stories or events associated with them. Table 3 is required as each person has many roles in the family in that they can be son, brother or father depending upon the person being referenced. Many other tables are required to keep the varied information that would be found within a “family tree” database. A database administrator designs and maintains relational databases in large organizations such as universities and hospitals.)</td>
</tr>
<tr>
<td>• search for “free family tree templates” or “family scrapbook templates”. These can provide ideas for format.</td>
<td></td>
</tr>
<tr>
<td>• visit commercial family tree or genealogical websites to view their products, online information and helpful documents. (Be aware that any information that is contributed to online databases found on these sites become their “property”. There are also privacy concerns with posting personal data to public sites.)</td>
<td></td>
</tr>
<tr>
<td>• allow adventuresome students to search for “free genealogical software”. They install the software at home and are responsible for learning how it works. Complete the “Family Heritage Assignment” using the selected software. (Before commencing the task, determine that material can be exported or presented to the teacher or class; also ensure that the student and guardians understand that downloading and installation of software on their home computer is at their own risk.)</td>
<td></td>
</tr>
</tbody>
</table>

Suggestions For Assessment

• provide or create a rubric with the class that clearly identifies the research, analysis and reporting assessment criteria. (Ensure that there is a common understanding of the formality or informality of the expected “scrapbook”)

• provide feedback regarding planning outline, family tree, privacy considerations, etc.

• provide an opportunity for presentation of work to the class. Allow time for questions.

• write a short summary of “What you would do differently if there were more time or the research was to be done again”. Describe problems that needed to be solved to complete the project.
Lesson Plan: The Church Yard Project

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: B5.4, B9.6, B9.8</td>
<td>Collect data from grave markers in a local cemetery. Enter this data into a flat database and analyze the information.</td>
</tr>
<tr>
<td>PEI History 621B: CAS401: 5.4</td>
<td></td>
</tr>
</tbody>
</table>

**Resources**
- Word Processor
- Internet Connection
- MS-Works Database (Available in CIT lab)

**Extension activity:**
- Web Editor (Dreamweaver or Front Page)
- Digital camera

**Instructions**
Design a flat database using MS-Works to record information obtained from local cemeteries. Carefully consider field names that will be required as this will impact search queries and overall database flexibility. For example, break a name into “first name”, “middle name”, and “surname”.

Sketch the cemetery and assign individuals to collect data from particular monuments. Stress the need for accuracy in spelling of names and dates found when collecting and keying data. As an extension of this assignment ask that digital photographs be taken to document the data collected.

Enter the data collected into the class database. After the database is complete analyze the data. Are there surnames that are no longer found in the area? Are there time periods when there have been an unusually high number of deaths in the community? Are there child deaths? What might be the reason(s)? Calculate the average age of death for a male or female for various time periods. e.g.: for people who were buried in X cemetery between 1930 and 1940 the average age for males was 56 years and 66 years for females.

Query the database and print reports based upon surnames, sex and age at death. i.e.: all males, with last name from A to M who died as teenagers? Discuss findings and attempt to collaborate any unexpected general trends.

Prepare individual summaries of information found from the above activity. Include a commentary on community health care and the treatment of disease prior to the discovery of “miracle drugs”. Do seniors remember “old home remedies” and cures? What happened if
Lesson Plan: The Church Yard Project

Other Activities

- prepare a web page that displays the layout of the yard with the plots identified. Design so that the digital image of the marker will display when the plot is selected.

- create a diary entry in a time period identified from the database when there was a community sickness. (from the point of view of a neighbour, spouse, parent or sibling in the time period 1860 - 1960)

- enter data obtained through database queries into a spreadsheet to create charts. e.g.: pie chart displaying age categories of persons buried between the years 1930 and 1940.

Instructions (continued)

someone had a non-treatable contagious communicable disease? Do there appear to be “risky” occupations in the community during a particular era?

Suggestions For Assessment

- ensure that timelines for data collection and entry are understood. The success of the activity will depend upon all data being collected and ready for use.

- encourage students to generate their own queries from the database that will provide useful information.

- share community stories from individual summaries regarding home remedies, care of the sick and elderly and what was done when there was an outbreak of a communicable disease, such as smallpox or tuberculosis.
Lesson Plan: Do You Have An Issue With That?

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A8.4, A8.5, B8.2, B8.4, E3.1</td>
<td>Present information and influence perspectives on social activist causes in the form of a public service announcement.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Political Studies 621:</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geography 621:</td>
<td>• Web Cam or camcorder</td>
</tr>
<tr>
<td>Geography 521: 3.8</td>
<td>• Movie Maker XP or Corel Presentations</td>
</tr>
<tr>
<td>Economics 621:</td>
<td>• Microphone</td>
</tr>
<tr>
<td>Law 521: 1.7, 1.9, 2.17, 3.4</td>
<td>• Internet</td>
</tr>
<tr>
<td>CAS401: 6.3, 6.8</td>
<td>Instructions</td>
</tr>
</tbody>
</table>

In this assignment, students research an issue from the “Economic Dimensions of Politics” or “Policy Issues” from the Political Studies 621 curriculum. They will plan and produce a public service announcement that will deliver a short, clear message on the topic selected. Example topics may include Amnesty International, Doctors Without Borders, International Red Cross, Foster Parents Plan, Green Peace, World Health Organization, National Wildlife Federation, Rainforest Action, United Nations Aids, International Campaign to Ban Landmines, UNICEF, Childrens Rights, Woman’s Alliance for Peace, etc. The purpose of the public service announcement is to educate people about an issue and have them support “positive action”.

1. Identity issues that we should be concerned about as a society. Discuss why these problems exist. What can be done to solve these problems? Does the general public have the information they need to make an informed decision about the issue? Would all “the public” feel the same way about the issue?

2. Select a particular issue for research. Determine the target audience (age group, rural, urban, male, female, etc.) that can influence positive change. How will the information or “message” be best presented in order to get the attention of this group?

3. Research information relating to the issue using the Internet and other sources. Develop a storyboard that will include the information that should be presented, the target audience and the manner in which the information will be presented to have maximum effect on this audience.

This assignment may be as simple as collecting educational friendly images and audio files from the Internet on a topic such as “Save the Rainforest”. These resources would be assembled in Movie Maker XP along with titles and transitions to effect the emotions of the viewer. The type of music and the speed at which images are displayed will be
Lesson Plan: Do You Have An Issue With That?

Other Activities

• host a newscast showcasing research of local issues such as poverty, education, health care, family issues, violence, crime, justice, aging population, West migration, the environment, politics, etc.

• create a documentary from research regarding the many aspects of globalization. Be sure to identify effects of globalization on Canada, the Atlantic region or Prince Edward Island, specifically. To ensure different perspectives student groups may be asked to present a Pro or Con globalization viewpoint.

• assign student pairs to introduce a curriculum topic to their peers during the semester. Use a slideshow presentation and/or multimedia content to enhance the presentation.

Instructions (continued)

dependent upon the “target audience”. More elaborate productions might have students discussing the issue on-camera and include student created artwork or drama. The music track may be student performed/created.

4. Use Movie Maker XP or Corel Presentations to assemble resources as indicated in the storyboard. Include titles, video footage, still images and audio files.

5. View the public service announcements. Have students indicate any obstacles that had to be overcome and answer questions. Provide the opportunity for classmates to provide positive feedback on the work or ask questions.

Suggestions For Assessment

• approve the topic selected, help students narrow the focus
• check the storyboard plan prior to production work commencing
• prepare a rubric for the activity considering the specific curriculum outcomes. An example is provided below.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Below Exp. - 1</th>
<th>Meets Exp. - 2</th>
<th>Exceeds Exp. - 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concepts/Understanding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• information from various print and electronic sources or from several parts of the same source were integrated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• multiple perspectives that influence a science related decision or issue were identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• a position or course of action, based on findings, was developed/presented/or defended</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• presentation contained multiple elements such as text, graphics, and sound</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• graphics and audio clips were acquired from educational friendly sites and credit for source provided</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• design elements such as contrast between text and background, graphics and video are not intrusive and enhance the presentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• creativity was used in the design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• presentation flowed from beginning to end</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• storyboard used to enhance product quality and to anticipate project needs/obstacles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• titles, transitions, voice-overs and special effects were technically correct</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• medium selected supported the “message”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• target audience was identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• message was clear and effective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• presentation to class, questions answered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• deadlines met/timely task</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• participated and made significant input into idea, planning and presentation design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• all materials were cared for and stored properly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• all members were helpful and respectful to each other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To ensure different perspectives student groups may be asked to present a Pro or Con globalization viewpoint.

• host a newscast showcasing research of local issues such as poverty, education, health care, family issues, violence, crime, justice, aging population, West migration, the environment, politics, etc.

• create a documentary from research regarding the many aspects of globalization. Be sure to identify effects of globalization on Canada, the Atlantic region or Prince Edward Island, specifically. To ensure different perspectives student groups may be asked to present a Pro or Con globalization viewpoint.

• assign student pairs to introduce a curriculum topic to their peers during the semester. Use a slideshow presentation and/or multimedia content to enhance the presentation.


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Lesson Plan: Tourist Destination?

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, A8.4, B5.4, B8.2</td>
<td>Research a curriculum location that has historical, eco (environmental), cultural, or recreational appeal for tourism. Create a multimedia presentation about that city or region.</td>
</tr>
<tr>
<td>Geography 621:</td>
<td></td>
</tr>
<tr>
<td>Geography 521:</td>
<td></td>
</tr>
<tr>
<td>Geography 421:</td>
<td></td>
</tr>
<tr>
<td>History 421:</td>
<td></td>
</tr>
</tbody>
</table>

**Resources**

- Internet
- Paintshop Pro or Fireworks graphics editors
- Inspiration 7.5
- Movie Maker XP or Corel Presentations

**Instructions**

You are part of a team that has been asked by a large travel agency to locate possible destinations for PEI tourists. Research the most important attractions, indicate historical significance, culture, economy, landforms, climate and statistics for a destination. How do you get there? Is the area shown on an Internet interactive map? What currency is used? Are hotels and food expensive? Is there good health care and are “shots” required before visiting? Is there crime or possibility of war or terrorist attack? Dangerous animals or insects? Are there other details to help a first time visitor?

Research a Canadian city, American State, South American region, or current day historical city such as Rome or Athens depending upon the curriculum being studied. Create a slide show or video segment to provide information to the travel agency executives. Who would be most likely to visit this site and do you recommend it as a destination?

Reference and cite sources for all key materials found.

1. Select and obtain approval for a particular research location.
2. Divide the research topics. Record notes in Word Perfect and be sure to reference the source of information and images.
3. Organize the information collected. Inspiration 7.5 will aid in this process.
4. Consider the design of the slide show or video segment. It should support the area that will be presented. e.g.: pictures of snow, wind or dark blue colour may not be appropriate for portraying a warm climate. Should the design be business-like or informal?
# Lesson Plan: Tourist Destination?

<table>
<thead>
<tr>
<th>Other Activities</th>
<th>Instructions (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• create a tourism brochure using Freehand or Word Perfect to display the research</td>
<td>5. Refer to an online article regarding “quality presentations”, “slideshows” or “powerpoints”. (Suggestions would apply equally to video segments)</td>
</tr>
<tr>
<td>• design a website using Dreamweaver or Front Page to display the research</td>
<td>6. Use a graphics program to resize or crop images that will appear in the presentation.</td>
</tr>
<tr>
<td></td>
<td>7. Orally present the information obtained and answer questions.</td>
</tr>
</tbody>
</table>

## Suggestions For Assessment

- prepare a rubric that identifies curriculum outcomes and expectations relating to presentations. (generic presentation rubrics may be found on the Internet or in the masters found in the Prentice Hall - “Law in Action” or Glencoe - “World Geography” teacher resources)
- submit an outline or Inspiration file to indicate planning and research
- engage students in informal discussion about their chosen topics
- participants assess their own and other group members’ contribution to the successful completion of the assignment
- peer assessment of completed presentation and provide time for questions
## Lesson Plan: The Laws of Supply and Demand

### Outcomes

**Technology:** A3.2, B5.4, B8.2, E3.1  
**Economics 621:** 3.1-3.13, 6.4

### Activity

Research how the laws of supply and demand affect prices in particular sectors of the economy. Prepare a class presentation of findings.

### Resources

- Internet  
- Inspiration 7.5  
- Quattro Pro  
- Paintshop Pro or Fireworks  
- Corel Presentations or Movie Maker XP

### Instructions

Research a specific sector of the Canadian economy with a view to determining whether the laws of supply and demand affect prices in that sector. Organize findings using Inspiration software and prepare a multimedia or newscast video presentation.

- “the market” and historical and current prices  
- the factors that affect supply for the product/service  
- the factors that affect demand for the product/service  
- political or international influences  
- illustrate historical data and price changes using supply/demand graphs  
- predict the price of the product in one year's time. Support this prediction by referencing changes in factors outlined above

### Suggestions For Assessment

- prepare a rubric for or with the class (clear market identification and description; factors of demand and supply identified for the specific product; external influences; graph provided, labelled, concepts correct; prediction reasonably based upon factors; presentation; ability to answer questions)  
- approve topics. Ensure that a variety of sectors are represented.  
- engage students in discussion about data obtained as they do research.  
- review the Inspiration document. Do they understand the assignment? Are they able to locate the data required? Are there aspects that they have not considered. Provide feedback.
Lesson Plan: The Consumer Price Index

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology: A3.2, A3.3, B8.2, B9.8</td>
<td>Research the consumer price index (CPI) and identify changes in Canadians’ spending power over the last twenty-five years.</td>
</tr>
<tr>
<td>Economics 621: 8.9, 13.1, 13.4</td>
<td></td>
</tr>
<tr>
<td>CAS 401: 4.2, 4.3</td>
<td></td>
</tr>
</tbody>
</table>

Resources

- Internet
- Quattro Pro
- Paintshop Pro or Fireworks
- Corel Presentations

Instructions

Visit the Statistic Canada EStat website at http://estat.statcan.ca. PEI high schools have a subscription to EStat. (You will not be able to access the site from home)


1. From the “Table of Contents” on the introductory page under “Economy” choose “Prices and Price Indexes” followed by “Consumer Price Index” from the resulting list.

## Lesson Plan: The Consumer Price Index

### Instructions (continued)

The annual CPI statistics are available for Canada and each of the Provinces. Select “All Items” and the reference period to provide 25 years of data.

3. Calculate percentage changes in the CPI over time i.e. \( \frac{(2005 \text{ index} - 2000 \text{ index})}{2005 \text{ index}} \). Perform these calculations for each 5 year period to note periods of higher inflation.

4. Use the graphing features found within the EStat site or Quattro Pro to chart the CPI index over the 25 year period.

Salary and Wages data are available from 1991 to 2005. Compare salary increases for selected occupational groups during this time period to the CPI index increases for the same time period. How might the findings be explained?

1. From the ESTAT Table of Contents choose “People” - “Labour” and “Salaries and Wages”.

2. Choose table 281-0030 “Average hourly earnings for employees paid by the hour (SEPH), unadjusted for seasonal variation, for selected industries classified using the North American Industry Classification System (NAICS), annual (dollars), 1991 to 2005”


4. Calculate percentage changes in wages for that industry classification, in five year intervals. i.e.: 1996 compared to 1991; 2001 compared to 1996; 2005 compared to 2000.

5. Use the graphing features found within the EStat site or Quattro Pro to chart the wages from 1991 to 2005.

5. Compare the percentage changes in CPI to wage increase for the time period 1991 to 2005.
<table>
<thead>
<tr>
<th>Lesson Plan: The Consumer Price Index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Other Activities</strong></td>
</tr>
<tr>
<td>• compare CPI in various regions of Canada</td>
</tr>
<tr>
<td>• compare CPI in selected other countries over a given time (table 387-00007)</td>
</tr>
<tr>
<td>• research statistics relating to GDP increases over 25 years</td>
</tr>
<tr>
<td>• analyze statistics relating to unemployment rates. Is there a relationship between the inflation rates as shown in the CPI index and unemployment rates over the last 25 years?</td>
</tr>
<tr>
<td>• analyze statistics relating to poverty, education, and earnings in various regions</td>
</tr>
<tr>
<td>• research trends in regional migration and population</td>
</tr>
<tr>
<td>• the CPI was set to 1992=100; items included in “the basket of goods” also changed over the years. Comment on the validity of the items included in the current “basket of goods” used to calculate the CPI. Does this basket reflect the true costs of an average Canadian family? Does it capture the full effects of inflation on Canadians?</td>
</tr>
<tr>
<td>• discuss if the databases found at Statistics Canada are “Flat” or “Relational”.</td>
</tr>
<tr>
<td><strong>Instructions (continued)</strong></td>
</tr>
<tr>
<td>Describe graphically and in written form, how CPI has affected Canadians spending power in the past twenty five years. Relate wage gains from 1991 to the present in your analysis.</td>
</tr>
<tr>
<td><strong>Suggestions For Assessment</strong></td>
</tr>
<tr>
<td>• perform research and analysis in groups</td>
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<tr>
<td>• each student prepares a summary of the findings</td>
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<tr>
<td>• ensure calculations are correct</td>
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<tr>
<td>• graphs are labeled and accurate</td>
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WHAT CAN I DO TO ADAPT THE COMPUTER TO MEET THE NEEDS OF ALL STUDENTS?

Listed below are some quick, easy, no cost strategies that teachers can use to make the computer more accessible to students of all needs. Most of the suggestions below are options that are available through Windows, the computer’s operating system. Teachers may request the assistance of the School Technical Contact or your school’s technician to implement these strategies. The following strategies have been divided into four areas for clarification; however, they may apply to many situations.

Most of the strategies listed below are available on Windows XP, while only some of them are available on Windows 98. In Windows XP, the strategies can be activated through the Accessibility Wizard (Start-Programs-Accessories-Accessibility-Accessibility Wizard). In Windows 98, they can be activated through the Control Panel: the Mouse, Keyboard and Display icons.

It is important to note that if any of the following strategies are implemented on a particular computer, these settings will be enabled for all users of that computer.

**Visual**

- Windows Magnifier - Windows XP
- Increase size of monitor (17 inch or larger)
- Lower the screen resolution (ex. 800 x 600) - Windows XP and 98
- Enlarge icons - Windows XP and 98
- Enlarge the mouse, change its color, and assign mouse pointer trails - Windows XP and 98
- Change the speed of the mouse pointer - Windows XP and 98
- Slow down the cursor blink rate - Windows XP and 98
- Customize the size of font on desktop and menu bars - Windows XP
- Maximize the window to fill the screen - Windows XP and 98
- Customize the colour of screen, font and window title bars - Windows XP and 98
- Increase the size of the scroll bars and window borders - Windows XP

**Hearing**

- Display captions for speech and sounds - Windows XP
- Play sounds when you press CAPS lock, NUM lock or SCROLL lock. - Windows XP
- Make sure all students are facing you when giving instructions in the computer lab
- Use of personal headphones
Mobility

- Changing the response rate of the keyboard so that letters will not be repeated if the student holds down too long on a key - Windows XP and 98

- Ensure that the mouse is on the appropriate side of the computer depending on the dominant hand of the student. For left handed users, change the left and right mouse click buttons so that it matches with the students left hand. - Windows XP and 98

- On Screen keyboard - Windows XP

- Use sticky keys - this enables a user to press key combinations like CTRL+ALT+DEL that usually have to be held down at the same time to press them one keystroke at a time. - Windows XP

- Use keystrokes to perform mouse functions ie. use the numeric keypad to move the mouse up and down and to the left and right. - Windows XP

Other

- Develop peer support programs or buddy systems that involve classmates helping classmates, students with disabilities can play role of helper as well.

- Colour code the keyboard using small dot stickers. For example, right of centre is green, left of centre is red. Small stickers can be placed on the back of the student’s hand, corresponding to the side of the keyboard.

- Use a slant board to position the keyboard (1" or 2" binders can be used as slant boards)

- Seat the student facing the computer monitor with keyboard and computer monitor at the appropriate height.

- Identify specific function keys such as Spacebar, Enter, Backspace, Tab and Shift, etc. with coloured dot stickers to highlight their position on the keyboard.

- Some software such as Ultimate Writing and Creativity Center, Inspiration 7.5, Understanding Numeration, ATutor have accessibility features. Check the help section of these programs to determine how to access available.
The Ergonomic Workstation

Ceiling Lights
- filters to disperse light
- locate to side of monitor

Environment
- reduce noise
- flat paint on walls (non-glare)

Window(s)
- blinds reduce glare to side of monitor

Task Light

Document Holder
- moveable/adjustable

Computer Monitor
- adjustable position
- adjust brightness & contrast

Keyboard
- thin, detached & moveable

Chair
- swivel
- stable base
- adjustable seat
- adjustable back seat
- cloth fabric on seat
- arm rest
- contoured front edge of seat

Arm Rest

Foot Rest

Wrist Rest

Work Station
- adjustable desk height
- adjustable keyboard height
Glossary

**Abbycat**: PEI Public library database system

**Absolute**: a cell reference that remains constant in a formula. Dollar signs are used to force the spreadsheet to keep the cell reference in a formula the same when it is copied. (i.e. when the formula = A6/$B$6 is copied the numerator A6 will change to A7, A8, etc. while the denominator $B$6 will stay the same)

**APA**: abbreviation of American Psychological Association. The APA standard is used for quoting references for the sciences.

**Applet**: An application, written in Java, that can run inside a web page but is not limited by the functionality of HTML. Java applet and Java script differ that a Java applet needs to be downloaded. Java script is incorporated in a web page with HTML tags.

**Application sharing**: a program that is installed on the server computer which allow all computers on the network to have access to that software.

**Assignment drop box**: a mechanism for uploading electronic assignment files for an instructor using an online content management system such as WebCT or ATutor.

**Attachment**: file that is attached to an email

**Auto fill data**: spreadsheet feature that will complete a series of entries such as the “days of the week” or “months of the year”. (i.e. enter January, February and select the corresponding cells with the mouse and select “auto fill”. The remaining 10 months will be automatically entered)

**Automated text**: database input form feature that will automatically fill a field with a predetermined value (i.e. current year, telephone area code, etc.)

**Background**: display behind graphics and text on a web page. A background can be a colour or a tiled graphic.

**Bitmap**: pixel (picture element) representation of a graphic. The image is made by small dots (pixels) of different colors.

**Bookmark (Favorite)**: a saved link to a specific place on the Internet.

**Boolean operators**: logic system that returns “true or false”, “yes or no”, “AND”, “OR”, “NOT”. These terms are used to set parameters for searching.

**Browser**: a program that accesses and displays files and other data available on the Internet and other networks. (i.e. Internet Explorer, Netscape)

**Bullets**: a symbol appearing before items in a list.

**Button bar**: a bar of graphical buttons found in a program that contain “short cuts” for commonly used tasks.

**Cascading style sheet (CSS)**: a feature of HTML that allows users to create style templates (sheets) that specifies how different text elements (paragraphs, headings, hyperlinks, etc.) appear throughout a website.
**Cell address:** coordinate of a cell. It is represented by a letter and a number such as A2.

**Cell:** the area in a spreadsheet where rows and columns intersect. Data and formulas are placed in cells. Cells are identified by the alphabetical column and numeric row i.e. A1.

**Clone brush:** a graphics tool used to copy all or part of an image.

**CMYK:** a subtractive color model used in color printing. This color model is based on mixing pigments of cyan, magenta, yellow and black in order to make other colors.

**CODEC:** abbreviation for **CO**mpression/ **DE**compression. Software or hardware that compresses and decompresses audio and video data streams into smaller sizes while maintaining the quality. (.wmv, .ra, SVCD, MPEG, mp3, etc.)

**Cold boot:** powering off the computer completely and restarting it.

**Column:** vertical section of a spreadsheet, identified by a letter.

**Commercial ware:** commercial software which requires purchase and registration.

**Compatibility:** whether or not hardware or software will work on a computer.

**Compression:** process of encoding data, video, or audio in order to reduce its size (.zip, .jpg).

**Connection line type:** how a computer is linked to a network (i.e. T3, modem, DSL, etc.)

**Connection speed:** the speed of information transfer among networked devices.

**Cursor (Pointer):** the symbol used to represent the movement of the mouse. (i.e. arrow)

**Data entry bar:** space in the spreadsheet to enter the cell data or formulas.

**Database report:** data from fields specified in a search query sorted into a particular order. Calculations and formatting may be applied to the reports generated.

**Database:** collection of structured, searchable electronic data (i.e. search engines are data bases)

**Decompression:** process of decoding or reading encoded data.

**Desktop publishing:** combination of text, images and graphics to produce publications such as newsletters, posters and brochures.

**Display format:** the way the files and folders are being displayed in the windows (i.e. thumbnails, icons, details, etc.)

**Distribution list:** a list of email addresses that are grouped together so that one email message may be sent to all members of the group. (i.e. all students in a class, all teachers on a particular committee)
**Download / Upload**: refers to the transfer of information between computers. The person/computer sending the information refers to the transfer as an upload, while the person/computer receiving the information refers to it as a download.

**Drive**: name that refer to a storage location such as C:, G:, or A:

**Dynex**: PEI (French) school library database system

**Effect**: graphical manipulation that applies special effects to objects (i.e. chrome, neon).

**Embed object**: objects (audio, video, animation, etc.) that load with the HTML tags when the page is visited. Those items will be downloaded and run automatically.

**Ergonomic**: workplace designed for maximum comfort, efficiency, safety, and ease of use.

**Error checking routine**: features in a database input form that checks to see that entered data corresponds to some pre-defined criteria (i.e. ticket number must fall within the range of 1-500, and no two records may have the same ticket number).

**Export**: to transfer information to another format for use in a different program.

**Field types**: identifies the type of information that is to be entered into a field in a database (i.e. date, numeric, text).

**Fields**: different categories in a database (i.e. first name, middle initial, last name, street).

**File extension**: alphanumeric characters located after the period at the end of a filename. This identifies the type of software than can open the file (i.e. mp3, .wpd, .gif, .html, etc.)

**File management**: process of organizing files into folders and sub-folders and selecting storage medium (i.e. hard disk, floppy disk, CD).

**File properties**: detailed information on the file. (i.e. size, date, extension).

**File size**: storage space taken by a file in the computer system (i.e. kilobytes - kb, megabytes - mb, gigabytes - gb).

**Filter (graphic)**: graphical manipulation that applies special effects to images (i.e. blur, sharpen).

**Filters**: search criteria that allow particular emails to be located. Filters may be set with “rules” that provide directions on tasks to perform with selected emails.

**Fixed/locked titles**: feature in spreadsheet program to keep certain cells showing (i.e. headings) while scrolling.

**Flash**: developed by Macromedia. Flash is a software used to create web content that interacts with the users by providing animations, audio, games, etc.

**Flat database**: is a single database table structure (i.e. Appleworks, MS Works). Searches can be performed within this table but it is not capable of organizing complex applications.
Folder (Directory): an electronic storage area that can contain a group of files and/or other directories.

Font: the style of text characters. (Times New Roman, Arial, Garamond, etc.)

Footer: text placed automatically at the bottom of each page in a document

Frame: a webpage that has separate divisions (windows) within the web browser. The content for each frame area comes from a different .html file.

Freeware: software distributed by the creator free of charge under certain conditions.

Functions: pre-defined mathematical rules that are available in spreadsheet programs i.e. mean, round, standard deviation, exponents, payment amount, etc.

Graphics in layers: objects placed over other objects to create one image. This allows for easier editing and manipulation.

Group file sharing: a specific network folder that a workgroup member can share

Grouping: creating one single object made up of several other objects. This allows for resizing the object as a whole.

Hardware: all physical parts of a computer (i.e. monitor, mouse, keyboard, etc.).

Header: text placed automatically at the top of each page in a document

Hexadecimal: a numbering system with base of 16 includes only the digits 0 through 9 and the letters A, B, C, D, E, and F. Used to identify large numbers accurately i.e. identify colors, network addresses.

Hosting service: service that companies provide to store data on their server

HTML tags: Hypertext Markup Language tags are instructions within brackets < > that tell the web browser how to display the page information.

Image map: an alternative navigational structure whereby an image on a webpage has “programmed coordinates” that allow the user to navigate the site intuitively, using the mouse.

Import: to bring in external information

Insertion point: the insertion point is where the next character typed from the keyboard will appear. (i.e. "I beam")

Interactive syllabus: an electronic course outline

Java Script: a scripting language developed by Netscape to enhance the capability of HTML language

Justification: adjustment of text to ensure that margins will align throughout the document (i.e. left, center, right)

Layer: visualized as electronic “transparencies” which allow users to display and manipulate information separately.

Link (Hyperlink): a clickable link to another file (i.e. web page).
Lock cell: locking a cell will prevent any changes on its content. It doesn’t hide the content of the cell.

Logical operators: used to compare variables such as greater (>), greater or equal (≥), equal (==), less or equal (≤) and less (<).

Macro: a group of repeated commands that are recorded and saved for later use.

Mail merge: a word processing feature that allows a user to create a “data records” database to record information about a number of people, and a form letter template. Based upon a search criteria, names, addresses and other recorded data are combined with fields found in the form letter. Completed forms may be displayed on the screen or sent directly to a printer.

Menu bar: a horizontal bar at the top of a window, below the title bar, that contains drop-down menus.

Microcat: PEI (English) school library database system

MLA: abbreviation of Modern Language Association. The MLA standard is used for quoting references for the humanities.

Multimedia: the use of several media to convey information (text, audio, graphics, animation, video).

Multiple logins: simultaneously logging into multiple computers on the same network using the same username.

Network: a communication system connecting two or more computers

Notebook: another name for an individual spreadsheet.

Object alignment: positioning of an object with respect to other objects.

Panorama: a series of picture “stitched” together using software to create a picture wider than what the camera is normally capable of capturing. Some panorama can offer user a 360 degree view.

Plug-in: an auxiliary program that works within a browser to enhance its capability. The plug-in can be a third party product. (adobe reader for .pdf, Real Audio, Shockwave, etc.)

Pop-up ads: a form of online advertising that open a new window automatically to display advertisements.

Principles of design: five universally recognized principles are contrast, unity, pattern, movement, and rhythm. Used in combination these principles create aesthetically pleasing product.

Print queues: set of printing tasks waiting to be processed.

Publishing etiquette: acceptable guidelines for publishing. (i.e. non-biased, inclusive language).

Record: all fields relating to one “object” in a database (i.e. all information regarding one student)

Relational database: the creation of multiple tables linked to each other through a common “key” such as a customer number. (i.e. a travel agency may have customer contact information in one table, airline reservations in a second, hotel and car reservations in a third. If any piece of information changes only one table needs to be updated.)
<table>
<thead>
<tr>
<th><strong>Relative</strong></th>
<th>a cell reference that will automatically update itself in a formula when it is copied. (i.e. a formula =A6/B6 will update itself to =A7/B7, =A8/B8, etc. as it is copied downward in a column)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rename</strong></td>
<td>change the name of the file or folder to another name.</td>
</tr>
<tr>
<td><strong>RGB</strong></td>
<td>a color model that utilizes the additive model in which red, green, and blue light are combined in various ways to create other colors (i.e. pixels on a computer monitor). Colours created on the computer monitor sometimes may not be able to be reproduced when printed.</td>
</tr>
<tr>
<td><strong>Rollover (mouse over)</strong></td>
<td>a “change of state” when the mouse is positioned above an object. (i.e. colour changes, cursor changes, image changes)</td>
</tr>
<tr>
<td><strong>Row</strong></td>
<td>horizontal section of a spreadsheet, identified by a number</td>
</tr>
<tr>
<td><strong>Rule</strong></td>
<td>a task to perform on emails that meet a particular criteria. (i.e. send a return message for all incoming emails, such as “on vacation until ..”, delete message from particular sources, or automatically place mail in a particular folder)</td>
</tr>
<tr>
<td><strong>Save as</strong></td>
<td>same as “Save” but allows user to save a copy of current file under a new name or location.</td>
</tr>
<tr>
<td><strong>Save</strong></td>
<td>permanently record data to a storage medium such as a floppy disk or hard disk.</td>
</tr>
<tr>
<td><strong>Screen capture</strong></td>
<td>saving a portion of the current screen as an image file to be inserted into a document. Paintshop Pro includes a screen capture utility.</td>
</tr>
<tr>
<td><strong>Search engine</strong></td>
<td>a program designed to help find information on the Internet. (i.e. Google, Ask Jeeves, Yahooligans)</td>
</tr>
<tr>
<td><strong>Server</strong></td>
<td>the central computer in a network. (i.e. contains shared data, programs, etc.)</td>
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<tr>
<td><strong>Shareware</strong></td>
<td>trial version of any commercial software (i.e. 30 days) Shareware is also known as demoware, trialware and many other names.</td>
</tr>
<tr>
<td><strong>Signature</strong></td>
<td>text added automatically at the end of an email (i.e. name, position, return address, phone/ fax number, email address)</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td>program or application that runs on a computer.</td>
</tr>
<tr>
<td><strong>SPAM</strong></td>
<td>acronym of the words: Stupid Pointless Annoying Messages. These messages are often advertising emails sent out massively on the internet.</td>
</tr>
<tr>
<td><strong>Spreadsheet</strong></td>
<td>a grid which helps you organize data in rows and columns. Calculations may be performed by inserting formulas. Charts or graphs may be generated from the data.</td>
</tr>
<tr>
<td><strong>Spyware</strong></td>
<td>computer software that gathers and reports information about the computer usage without the user’s knowledge or consent.</td>
</tr>
<tr>
<td><strong>Streaming video and audio</strong></td>
<td>refers to a technique of transferring media over the Internet to the user’s computer so that it is available without having to download the whole file. The media will begin to play once a predetermined amount of data is transferred to the computer “buffer”</td>
</tr>
</tbody>
</table>
Tab rulers: guides found in word processors allowing the user to graphically set and delete tab indents.

Text art: tool found in Word Perfect that allows the user to create text in 2D and 3D formats in a variety of shapes.

Text wrap: word processing feature that automatically places the text on the next line.

Touch keyboarding: the ability to type without looking at the keyboard.

Un-grouping: separating objects that were previously grouped.

Unlock cell: this allows modification to be performed on cells that were previously “locked.”

Vector: mathematical representation of a graphic. The image is made from mathematical equations that represent the curves, lines, area, color, etc. This form of representation allows for small file sizes while maintaining detail when increasing picture size.

Virtual reality: an artificial environment created with computer technology.

Virus: a virus is a program or piece of code that causes an unexpected, usually negative, event.

W3C accessibility guidelines: World Wide Web Consortium organization that provides standards for web page creation. These include accessibility issues (challenged users, slow line speeds, older processing equipment) and equipment compatibility.

Warm boot: restarting the computer using reset button, Ctrl+Alt+Del, etc.

Watermark: a graphic or text appearing in the background of a page (i.e. the word “Draft” or a graphic of a soldier in a Remembrance Day poem).

Web Server: a computer that stores data (i.e.: web sites) for the world wide web.

Whiteboard: a whiteboard is a shared electronic workspace. Each participant can add text, make drawings or paste pictures on the whiteboard. Other participants can immediately see the result on their workstation.

Wireless connection: connection to another device without physically connecting a wire.

WYSIWYG: A acronym for “What You See Is What You Get”. WYSIWYG is used to describe applications that let you see what documents will look like.