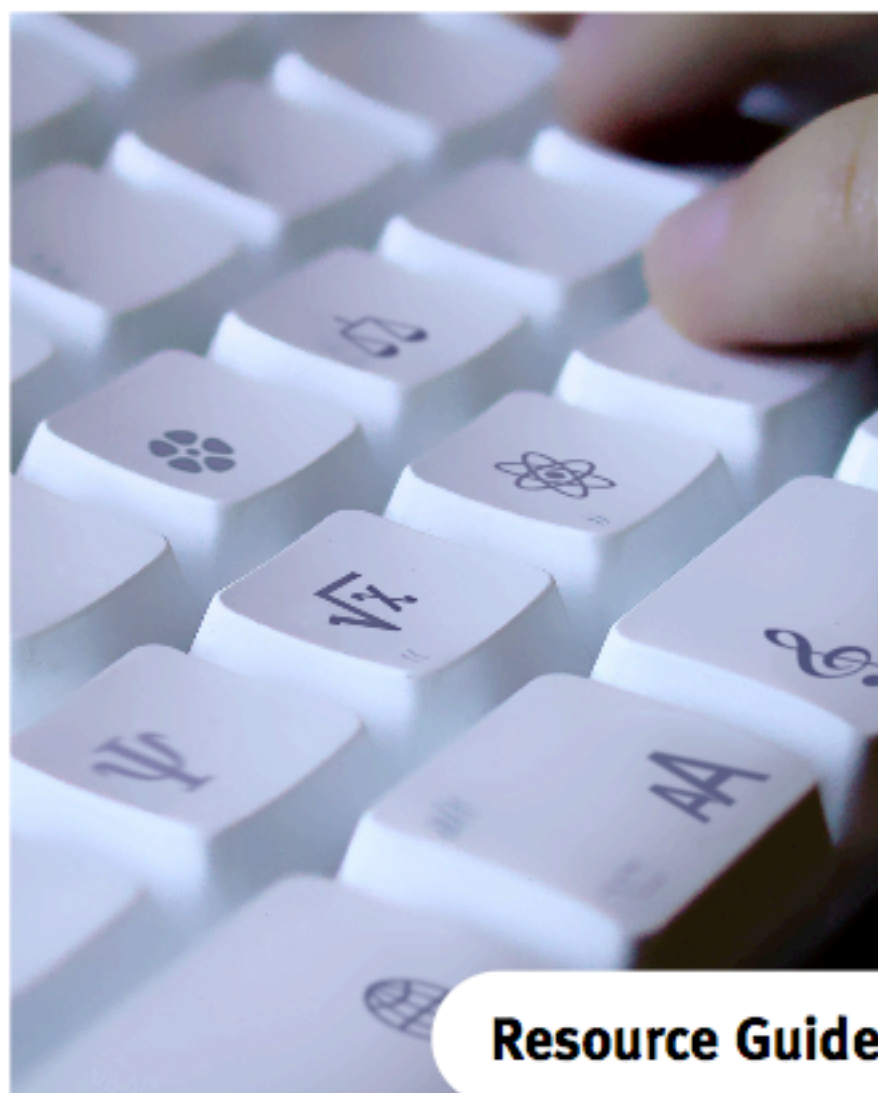


2006



Internet & Education



Resource Guide

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Published by the **Vitrine Technologie-Éducation**

10555, avenue de Bois-de-Boulogne
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Presentation

The *Internet and Education: Resource Guide* has been compiling the best finds from the *Vitrine Technologie-Éducation* since 2001, following a careful review by our local, national and international partners in education and ICT (Information and Communications Technologies). It includes over 500 resources classified by subject, over 100 ready-to-use pedagogical scenarios, and a large number of other resources that provide guidance in the world of new educational technologies.

The Vitrine Technologie-Éducation

The *Vitrine Technologie-Éducation*, formerly the *Vitrine APO (Applications Pédagogiques de l'Ordinateur - Computer Applications in Education)* seeks to promote and support the integration of Information and Communications Technologies (ICT) in Quebec higher education through:

Educational and technological watch

- Intelligence in the area of Information and Communications Technologies (ICT) in education
- Research work on emerging trends in new educational technologies, based on compliance with international standards

Enhancement of a common educational heritage

- Referencing learning resources that help teachers improve their educational practices and foster student learning
- Dissemination of state-of-the-art information on the use of ICT in education in the collegiate network and on the Web

Support for educational institutions

- Support in selecting and acquiring software at the best prices through a collective purchasing group
- Raising awareness in educational institutions as to software copyright compliance

Site Selection

A study conducted in 1999 by the *Vitrine Technologie-Éducation* among college teachers revealed that for 80% of respondents consider that the availability of education resources in their own language is a critical requirement to use ICT in teaching.

The Internet is perceived as a tool in supporting course preparation, facilitating research on a given problem or topic, and fostering the sharing of concrete pedagogical tools. It also helps keep teaching practices up to date and provide additional references to students.

Teachers are looking for sites that meet the following criteria:

- Authority of the individual or organization who authored the site;
- Adequate contents for college students;
- Quality and currency of information;
- Quality of language;
- Accessibility of contents;
- Readability;
- Cultural accessibility;
- Browsing ease on the site.

To meet their requirements, the *Vitrine Technologie-Éducation* has been publishing the *Internet and Education: Resource Guide* since 2001, which provides a selection of general and disciplinary resources based on the above criteria of excellence.

Sharing Resources

Teachers and pedagogical advisors are invited to contribute to the *Internet and Education: Resource Guide* via *Eureka, the Learning Objects Repository* (<http://eureka.ntic.org/>). *Eureka* includes the learning resources of college associations and organizations committed to integrating ICT.

Display your resources to give them greater visibility! To help evaluate the contents of selected Web sites, the following guidelines are provided from our ABCs of Multimedia Training: http://abc.ntic.org/fiche_en.php?q_id=139.

Finally, to be regularly informed about new developments, you can keep up with current ICT issues by subscribing to our newsletter. To register, write to: vitrine@ntic.org.

General Resources

Learning Objects Repositories

CAREO (Campus Alberta Repository of Educational Objects)

CAREO is a Canadian repository, referencing more than 4,000 objects in a wide array of disciplines. CAREO is a product of a consortium of partners including Merlot, the CanCore Protocol (Canadian Core Learning Resource Metadata Protocol), and others. CAREO is both a repository and a referatory, linking to and housing learning objects. Anyone may view the objects contained within CAREO, although members enjoy a greater variety of services. Membership is free and open to anyone.

<http://www.careo.org/>

CLOE (Co-operative Learning Objects Exchange)

CLOE currently consists of 17 university partners in Ontario. Of significance is that CLOE attempts to foster a collaborative model for the development, use, and reuse of learning objects. Fundamental to this is the creation of a virtual market economy whereby virtual credits are awarded for objects that are used and reused the most. Membership in CLOE is closed. You must register to use the services of CLOE.

<http://cloe.on.ca/>

LoLa (Learning Objects Learning Activities)

LoLa is an exchange for facilitating the sharing of high-quality learning objects. It contains materials for use across the curriculum, with a particular focus on modules for Information Literacy.

<http://www.lolaexchange.org/>

MERLOT (Multimedia Educational Resource for Learning and Online Teaching)

Free and open resource designed primarily for faculty and students of higher education but also for colleges. Links to online learning materials are collected here along with annotations such as peer reviews and assignments.

<http://www.merlot.org>

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National Learning Network: Materials

The National Learning Network, a government-supported project based in the UK, was inaugurated in 1999 to encourage the adoption of Information and Learning Technology. The NLN collection, which was launched in 2001, exists in order to provide high quality materials with which to encourage this adoption. This collection is intended to eventually contain a large variety of materials, including lesson plans.

<http://www.nln.ac.uk/materials/>

PBS TeacherSource: Science and Technology

More than 3,000 free lesson plans and activities. "ZOOMsci" offers games and experiment ideas for kids. "Science for the Classroom" not only provides hundreds of lesson plans and activities for preschool through grade 12 but also recommends books and other science links to help teach math and science.

http://www.pbs.org/teachersource/sci_tech.htm

Online Self Learning

Blog Etiquette in the Educational System

Students examine the dos and don'ts of blogging in a school setting. They compare the features of a student blog with those of a classroom community blog. This learning object is particularly designed for teachers. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ETO506

Blogs in Education

Students examine the benefits of using blogs in a school setting and then test their knowledge in two exercises. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ETO706

Copyright

Teachers read about their basic responsibilities for using copyrighted materials in classes. Guidelines for using original prose, poetry, illustrations, music, and multimedia text and images are given. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=TMP83403

Simple Steps to Building a Great Learning Object

This Guide to Learning Object Development Process is from the Wisconsin Technical College System (WTCS) and produced by multimedia technicians. Resource from Wisc-Online: free access but sign-in is mandatory.

<http://www.wisc-online.com/SimpleSteps.ppt>

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Technology in the ITV Classroom

Teachers who will be working in an Interactive Television classroom can use this activity to familiarize themselves with the various equipment options available in these rooms. A matching activity is used as a self-assessment. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ITT203

What Is a Blog?

This learning activity describes the definition, the uses, and the terms associated with a blog. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ETO105

What Is a Wiki?

Students read about the strengths and weaknesses of this Web communication tool. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ETO406

Working vs. Career Portfolios

Students review the concept of portfolio, the characteristics of the two basic types of portfolios, and the benefits of using portfolios for teachers, students, and job seekers. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=AMT403

Assessment

Assessment: Teacher-centered or Learner-centered?

Users complete a self-inventory to determine if their approach to assessment is teacher-centered or learner-centered. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=AMT103

Building Core Abilities During Student Learning Through Formative and Summative Assessment

This learning object gives teachers an opportunity to review the definitions of formative and summative assessment and list examples of the evaluations they use. In a drag-and-drop exercise, they classify a variety of assessment tools as either formative or summative. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=AMT503

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Effective Assessment

Users view effective and ineffective methods of assessing a task. Flight training is used as an example of an area that needs authentic assessment. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=AMT703

FAST: Free Assessment Summary Tool

FAST is a user-friendly online assessment tool that allows students to anonymously submit feedback about their course and/or teacher. The data goes directly and only to individual teachers. It allows teachers to open an active, ongoing dialogue with their students about the course, content, instruction and learning process. FAST allows a teacher to easily and quickly develop an online assessment questionnaire. Teachers can ask up to 20 questions (and change them whenever they want) to determine how students are finding their teaching and the course. Students access the questionnaire over the Internet and can complete the surveys at any time. The software automatically summarizes and consolidates student comments on line, in real-time, or into a Microsoft Excel spreadsheet which is downloaded by the teacher.

<https://www.getfast.ca/>

Focused Student Evaluation Questions

Students read about the kinds of questions that are most effective to use on student questionnaires evaluating instruction. Generic evaluations are less helpful than evaluations focused on the specific types of instruction and learning expected in a content area. Sample questions are provided. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=AMT203

Standards-Based Assessment: A Model

This resource guide provides a model that can be used as a basis for planning rich, relevant assessment tasks that allow students to demonstrate their learning, and teachers to evaluate and report more accurately on student progress. This model can be applied to all disciplines and grade levels. Planning templates are included along with samples of how to complete them.

<http://www.curriculum.org/tcf/teachers/projects/assessment.pdf>

Office Automation

Add and Format Text (Excel)

This learning object will take you through the process of adding and formatting worksheets text in Excel.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52061058373674>

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Add and Group Objects (PowerPoint)

This learning object will take you through the process of adding and grouping objects for animation in PowerPoint XP.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52381058466738>

Add Formulas (Excel)

This learning object will take you through the process of adding and formatting formulas in an Excel worksheet.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52081058443707>

Back up Files Using a CD

This learning object will take you through the process of backing up all necessary files and folders by burning them to a CD.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52261058452322>

Calculate Marks (Excel)

The learning object will take you through the process of calculating marks in Excel.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52101058444166>

Convert a Clipart Image to a JPEG (FrontPage)

This learning object will take you through the process of converting a clipart image into a jpeg or gif file in FrontPage.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52731058884251>

Create and Import Webs in FrontPage

This learning object will take you through the process of creating and importing Webs into FrontPage.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52741058884828>

Create a Form (FrontPage)

This learning object will take you through the process of creating a form for a survey using FrontPage.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52571058812680>

Insert a Clipart Image (PowerPoint)

This learning object will take you through the process of inserting a clipart image into your PowerPoint presentation.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52411058467180>

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Insert Bulleted Text (PowerPoint)

This learning object will take you through the process of inserting bulleted text into a PowerPoint presentation.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52391058466861>

Obtain Text from Another VBA Box (Excel)

This learning object will take you through the process of accessing cells in Excel from another worksheet or within another VBA box.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52091058443993>

PowerPoint in the Classroom

This eight-unit tutorial shows teachers how to use PowerPoint to present many different forms of information. It contains basics on using PowerPoint's toolbars, laying out information, saving, moving information, etc. The tutorial includes a quiz question at the end of each new section. You will also get a kick out of the Cool For School page, which gives you extra tips and tricks for using PowerPoint in the classroom.

<http://www.actden.com/pp/>

Use References (Absolute and Relative) Locking Cell References

This will take you through the process of using absolute and relative cell referencing in Excel.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52071058443416>

Video and Sound (PowerPoint)

This learning object will take you through the process of adding video and sound to your PowerPoint presentation.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52561058812450>

Searching on the Internet

A Basic Guide to the Internet

This site provides a brief discussion of the Internet and its components.

<http://library.albany.edu/internet/internet.html>

Boolean Searching on the Internet

On Internet search engines, the options for constructing logical relationships among search terms extend beyond the traditional practice of Boolean searching. This presentation explains how individuals can use Boolean logic to increase the relevancy of their Internet searches.

<http://library.albany.edu/internet/boolean.html>

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Conducting Research on the Internet

Advice on using e-mail discussion groups, Usenet news, and basic recommendations on the use of subject directories and search engines with tips on conducting searches.

<http://library.albany.edu/internet/research.html>

Evaluating Internet Resources

Strategies for evaluating resources found on the Internet.

<http://library.albany.edu/internet/evaluate.html>

Second-Generation Searching on the Web

This tutorial covers some of the more innovative search engine services on the Web. It includes a group of search services that make use of technology that organizes search results by peer ranking, or clusters results by concept, site or domain. This is in contrast to the more long-standing method of term relevancy ranking. The newer type of results ranking usually works in addition to term ranking and looks at "off the page" information to determine the retrieval and order of search results. Search engines that employ this alternative may be thought of as second-generation search services.

<http://library.albany.edu/internet/second.html>

Web Creation

Create a Web Page with FrontPage Express

How to insert an image, an active link. Presentation with screen captures.

<http://academic.brooklyn.cuny.edu/modlang/carasi/fpmanual/frontpageexpress.htm>

Insert a Video Clip onto a Web Page

This learning object will take you through the process of inserting a video clip onto a webpage using FrontPage.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52801058890501>

Post a Web Site

This learning object will take you through the process of posting a site or page to the Web.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=52781058885545>

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WYSIWYG Tool

The WYSIWYG tool is designed for the purpose of easy access to an online "What You See Is What You Get" Web package. This tool enables users to easily set up Web space and create Web pages without much knowledge in web structure and applications such as Dreamweaver. The tool comes in two parts: - WYSIWYG editor interface - mini file management interface
Features: Web space registration, account management, Web-based WYSIWYG editor, easy access file compiling
Examples of usage: Based on their course material, teachers can quickly assemble a game series for students to play with; Users can quickly set up Web-based presentations on the go (no more limitation of domain name registration, Web hosting and file transferring); Students may collaborate on a Web-based term project using this tool, which is easily initiated and managed by the teacher. A simple last-minute course design.

<http://www.learningtools.arts.ubc.ca/wysiwyg.htm>

Resources by Discipline

Anthropology, Archaeology

Babatha's Scroll

Have a close look at one of the 35 papyrus scrolls in the Babatha archive — a registration of land dating from the year 127 — by translating a 2,000-year-old cave document from ancient Greek into English, and get an inkling of what life was like for a well-to-do Jewish woman living under Roman rule in the second century.

<http://www.pbs.org/wgbh/nova/scrolls/babatha.html>

Casts of Characters

Using fully rotatable 360° photography, compare casts of two famous skulls: the La Chapelle-aux-Saints Neanderthal and Cro Magnon I.

http://www.pbs.org/wgbh/nova/neanderthals/skul_vrs.html

Common Visions, Common Voices

Trace similar motifs in the artwork and folklore of India, Africa, the Maya, and Native Americans.

http://edsitement.neh.gov/view_lesson_plan.asp?id=285

Dig and Deduce

Uncover bone fragments and artefacts at three Neanderthal excavation sites, and then step into the morass known as archaeological interpretation.

<http://www.pbs.org/wgbh/nova/neanderthals/dig.html>

Identifying Remains with DNA

Using an interactive family tree, find out why mitochondrial DNA (mtDNA) is so useful to forensic scientists.

<http://www.pbs.org/wgbh/nova/bomber/mtdna.html>

In Old Pompeii

Take a virtual field trip to the ruins of Pompeii to learn about everyday life in Roman times.

http://edsitement.neh.gov/view_lesson_plan.asp?id=271

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(<http://www.ntic.org/internetguide.pdf>)

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Investigating our Past: Where Did Humans Come From?

In this lesson plan, students will understand: 1. The ways in which certain conditions facilitate the process of evolution; 2. Some basic facts about three hominid groups; 3. The arguments involved in both sides of the out-of-Africa versus multiregional debate.

<http://school.discovery.com/lessonplans/programs/humans/>

Kennewick Man: Science and Sacred Rights

Explore the controversy sparked by the discovery of a prehistoric skeleton.

http://edsitement.neh.gov/view_lesson_plan.asp?id=268

Meet Kennewick Man

Learn how scientists and artists collaborated to produce a reproduction of Kennewick Man's appearance from excavated remains.

<http://www.pbs.org/wgbh/nova/first/kennewick.html>

Reading Maya Hieroglyphs

The Maya invented a writing system so elaborate that experts have yet to completely decipher it. See if you can interpret some classic Maya hieroglyphs.

<http://www.pbs.org/wgbh/nova/maya/glyphs.html>

Stone Age Toolkit

In this interactive matching game, consider what roles ten different kinds of primitive artefacts from Europe and North America played for our earliest ancestors.

<http://www.pbs.org/wgbh/nova/stoneage/toolkit.html>

The Ice Age

In this lesson plan, students will: 1. Understand the difference between the terms ice age and Ice Age; 2. Understand what causes ice ages; 3. Learn about some plants and animals that lived during the Ice Age; and 4. Understand why certain Ice Age animals became extinct.

<http://school.discovery.com/lessonplans/programs/iceage/>

The Scientific Method in Undersea Archaeology

In this Xpeditions lesson, students discuss how the scientific method was used in studies of the Black Sea. Current theory says that during the Ice Age, the Black Sea was an isolated freshwater lake surrounded by farmland that was eventually flooded. Students diagram the steps scientists took to test one of their hypotheses concerning the flooding and then outline two other hypotheses and the steps that were taken to test them. Students conclude by writing a research plan for future studies.

<http://www.nationalgeographic.com/xpeditions/lessons/17/g912/methods.html>

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Timeline Tool

The Timeline Tool is a Web-based learning object template, which allows teachers to quickly construct an interactive timeline with audio and visual effects. The finished timeline can serve as a reusable learning object, which can be easily distributed and shared over the web. This learning object template is built in Flash, PHP and XML. Features: XML-based content organizer, media player on-the-fly, build-in file uploader, customized editing interface, interactive presentation interface. Examples of usage: timelines, course outline, navigational system, scientific process design, project phase plan, visual gallery index, multimedia file organizer.

<http://www.learningtools.arts.ubc.ca/timeline.htm>

You're an Archaeologist

You're an archaeologist, and your job is to learn about humans who lived long ago by unearthing the objects they once used. This pile of potshards has just come in from the field. Your assignment? Reassemble the pot to its former glory.

<http://www.pbs.org/wgbh/nova/laventa/tryit.html>

Architecture

ArchitectStudio3D: Design a House with Frank Lloyd Wright

On this Web site, students can design a house, walk through it in 3D, and then share it with the world. They can also learn more about architecture, past and present, and explore Frank Lloyd Wright's life and work. The interactive experience enhances students' understanding of spatial relations and the process of design, while at the same time gaining practice in skills related to national education standards in math, social studies, language arts, and fine art. And state-of-the-art 3D modeling technology allows them to enter their creation to personally experience the space. Addressing various learning styles and demands of curriculum, ArchitectStudio3D.org is a teaching tool that is both challenging and satisfying.

<http://www.architectstudio3d.org/AS3d/home.html>

Asian Historical Architecture: A Photographic Survey

This digital image gallery contains over 9,000 photos of Asia's diverse architectural heritage (595 sites in eighteen countries as in March 2006). The geographical parameters of the site are limited to areas heavily influenced by Buddhism, Confucianism, or Hinduism. Visitors can click on any one of the countries covered here to look for various items of interest.

<http://www.orientalarchitecture.com/>

Build a Bridge

Learn about the four major types of bridges and match the right bridge to the right location.

<http://www.pbs.org/wgbh/nova/bridge/build.html>

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Common Drawing Types

This animation explains isometric drawings, including cavalier drawings, cabinet drawings, one and two-point perspective drawings, horizon line, vanishing point, normal, bird's eye view, worm's eye view.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/DES1060AE.mov>

Construct an Aqueduct

In "Construct an Aqueduct", the Roman Emperor hires you as Chief Water Engineer. Your job: to build an aqueduct that will supply the Roman city of Aqueductis with clean water to private homes, public baths and glorious fountains. Succeed, and citizens of Aqueductis will drink clean water and bathe happily. Fail, and there's no telling what your countrymen will do.

<http://www.pbs.org/wgbh/nova/lostempires/roman/aqueduct.html>

Dimension and Orthographic Drawing

This video demonstrates how to dimension an orthographic drawing, including drawing extension and dimension lines, arrowhead shapes, and rules for placing dimensions.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/DES2050AE.mov>

Paris Mapping Project Prototype

This prototype provides a chronological context for major religious architectural structures using an interactive map of Paris. Students are able to explore the religious architecture of Paris through the ages (from 100 to 1500).

http://ccnmtl.columbia.edu/projects/paris_map/

Properties of Metal

This video discusses three important properties of metal: tensile strength, ductility, and hardness. It includes a demonstration of the Rockwell hardness test being done on aluminium and steel.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/CON1010E.mov>

Technical Drawing Applications

This video demonstrates detail views, assembly views, sectional views, auxiliary views, and exploded views in technical drawings. It also includes the reason for using each drawing type.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/DES2050BE.mov>

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The Construction of Floors

This video shows the steps involved in constructing floors. It includes information about beam construction, joist positioning, and sub-floor installation. Fasteners and glues are briefly discussed.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/CON2040E.mov>

The Great Buildings

Great Buildings is a database of information about architects and their buildings. Over 800 buildings are featured from 40 countries. There aren't images of every building, but many buildings shown have multiple views. Virtual Reality (VR) versions of some building are available, although you need to download a free software package for viewing VR. This gateway to architecture around the world and across history documents a thousand buildings and hundreds of leading architects, with 3D models, photographic images and architectural drawings, commentaries, bibliographies, Web links, and more, for famous designers and structures of all kinds.

<http://www.greatbuildings.com/>

Vectors and Supporting Structures

This video discusses the use of vectors in the design of bridges and structures such as the Calgary Saddledome. The video shows how vectors are used to calculate the load on the structures at various points.

http://www.learnalberta.ca/content/meamr/movieLauncher.html?asset=Movies/legam_vectorsand_supp.mov

Arts Studies

A Brush with Wildlife: Create a Composition with Carl Rungius

This online art lesson draws from the proficiency of acclaimed wildlife artist Carl Rungius to demonstrate the concepts and principles involved in creating a visual composition. There are three main components of this program. The **Art Principles Animated** brings the artwork of Carl Rungius to life by representing the art principles in dramatic graphics and innovative sound effects. In the **Composition Studio**, students learn to effectively use each principle while developing a composition of their own as they follow a step-by-step tutorial. Finally, these compositions can be submitted to the museum's online **Critique Gallery**. Students benefit from the opportunity to have their art published online and reviewed.

<http://www.wildlifeart.org/Rungius/index.html>

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Common Drawing Types

This animation explains isometric drawings, including cavalier drawings, cabinet drawings, one and two-point perspective drawings, horizon line, vanishing point, normal, bird's eye view, and worm's eye view.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/DES1060AE.mov>

Coordinate System Transformations

This applet teaches several concepts. The first is how a transformation applied to a coordinate system affects the axes of that coordinate system. Second, this applet shows how looking at only a very small portion of any curve produces a straight line (linear approximation) of that curve. Finally, this applet shows how a transformation of the coordinate system affects any objects within that coordinate system.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/coordinateTransformations/coordinate_transformations_guide.html

Cylindrical Texture Mapping

The Cylindrical Texture Mapping applet shows the graphical ramifications of the mathematics used to wrap a flat image around a cylindrical model. The applet allows the user to designate a point on the cylinder and displays the corresponding sample point on the image, which is represented on a unit plane. Both numerical and graphical representations of each point are present in hopes that the user will thereby gain a more intuitive understanding of the correlation between them.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/textureMapping/cylindrical_texture_mapping_guide.html

Introduction to Sampling

Pixels are samples at specific points of continuous mathematical functions. To demonstrate this, the Introduction to Sampling applet uses an image on screen to represent a continuous function. In addition to introducing the concept of sampling, this applet also demonstrates and helps develop intuition about scanlines, which we use throughout the later applets.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/sampling/introduction_to_sampling_guide.html

Reflection 2D

The 2D Reflection applet is an interactive illustration letting users reposition a light source and automatically recalculate the reflection vector. The standard equation is used with N , L and R for, respectively, the surface normal, normalized direction to a light source, and normalized reflection of L off of a surface. All equations are automatically updated with a user's changes to the illustration. A series of tips/concept explanations are available. This applet helps enhance complete understanding of essential tasks.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/reflection2D/reflection_2d_guide.html

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Scenegraph Builder

This applet allows users to construct their own scene graph and observe how each transformation affects all others below it on the scene graph.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/scenegraphBuilder/scenegraph_builder_guide.html

Spherical Texture Mapping

The Spherical Texture Mapping applet uses Java3D to show the graphical ramifications of the mathematics used to wrap a flat image around a sphere model. The applet allows the user to designate a point on the sphere and displays the corresponding point on the image, which is represented on a unit plane. Both numerical and graphical representations of each point are present in hopes that the user will thereby gain a more intuitive understanding of the correlation between them.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/textureMapping/spherical_texture_mapping_guide.html

Tiled Planar Texture Mapping

The Tiled Planar Texture Mapping applet uses Java3D to show the graphical ramifications of the mathematics used to tile an image on to a 3D plane. The applet allows the user to designate a point on the plane and displays the corresponding point on the image, which is represented on a unit plane. Both numerical and graphical representations of each point are present in hopes that the user will thereby gain a more intuitive understanding of the correlation between them.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/textureMapping/tiled_planar_texture_mapping_guide.html

Transformation Game

This applet introduces the user to the usage and mathematics of two-dimensional transformations using a fun, interactive play space.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/transformationGame/transformation_game_guide.html

Biology, Biotechnology

Access Excellence: The Site for Health and Bioscience Teachers and Learners

This national educational program puts high school biology teachers in touch with other teachers and scientists. There is a bulletin board for posting messages, a "What's News" section as well as a variety of other resources for teachers and others interested in biology and biotechnology.

<http://www.accessexcellence.org/>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Agarose Gel Electrophoresis

These videos and transcriptions explain the agarose gel electrophoresis lab experiment and include an interactive simulation of gel electrophoresis to experimentally determine the size of various DNA fragments. Agarose gel electrophoresis is a convenient method of separating DNA fragments since their electrophoretic mobility through agarose gels is a smooth function of the length of the DNA.

<http://www.queensu.ca/cloe/projects/public/AGE/index.php>

Anatomy Labelling Exercises

This is a series of "drag & drop" labelling exercises for self-testing human anatomical knowledge. These cadaver-based exercises have been developed from the Visible Human Dissector program, using LessonBuilder by SoftChalk. Students can work through a virtual human dissection and then test their mastery using these exercises. The clientele is primarily pre-nursing students engaged in a two-semester lower division anatomy and physiology curriculum. Includes: skeletal system, muscular system, nervous system, endocrine system, cardiovascular system, lymphatic system, respiratory system, digestive system, urinary system, and reproductive system.

<http://zircon.mcli.dist.maricopa.edu/mlx/warehouse/01701-01800/01785/MLXLabelingExercises.htm>

Anatomy of the Cochlea

This animation demonstrates how hearing happens in the ear with a 3D anatomical model of the cochlea. It includes audio narration.

http://www.hhmi.org/biointeractive/animations/cochlea/coc_frames.htm

Angiogenesis

A cancer tumour forms in a bed of healthy cells. This animation shows how the tumour recruits blood vessels and how metastasis occurs. It includes audio narration.

http://www.hhmi.org/biointeractive/animations/angiogenesis/angio_mov.htm

http://www.hhmi.org/biointeractive/animations/angiogenesis/angio_frames.htm

http://www.hhmi.org/biointeractive/animations/angiogenesis/angio_wmv.htm

Blood Collection Tubes: What's in Them?

In this interactive object, students review descriptions of various blood collection tube additives. They then test their knowledge by matching the different tubes to their corresponding additives. Resource from Wisc-Online: free access but sign-in is mandatory.

<http://www.wisc-online.com/objects/objectmailspec.asp?objid=MEA4604#>

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Bugscope

The Bugscope project is an educational outreach program for classrooms. Students can view bugs under a scanning electron microscope via the World Wide Web by applying to the program and describing the type of project they want to do. The project provides a resource to classrooms so that they may remotely operate a scanning electron microscope to image "bugs" at high magnification. The microscope is remotely controlled in real time from a classroom computer over the Internet using a Web browser. A Virtual Microscope that allows for Bugscope-type viewing (without an Internet connection) from pre-captured high-resolution image datasets has been recently developed. At the same time, both a Virtual Scanning Electron Microscope (Virtual SEM or VSEM) and a Virtual Light Microscope (VLM) have also been built.

<http://bugscope.beckman.uiuc.edu>

Cancer: Gleevec

Gleevec is a drug designed to interfere with the stimulation of growth in leukemia cells. This 3D animation shows how this is achieved.

http://www.hhmi.org/biointeractive/animations/gleevec/gleevec_mov.htm

http://www.hhmi.org/biointeractive/animations/gleevec/gleevec_frames.htm

http://www.hhmi.org/biointeractive/animations/gleevec/gleevec_wmv.htm

Cell Biology Animation

This site shows motions and interactions of molecules, atoms and cells: glycolysis, Golgi apparatus, meiosis, mitosis, photosynthesis, etc. These animations are created by John Kyrk "a biologist by education (master's degree in Biology from Harvard) and an artist by disposition".

<http://www.johnkyrk.com/mitosis.html>

Cerebral Commando

In Cerebral Commando you are in charge of recycling dopamine at the synapse. Seems easy, but watch out! Can you keep up when drugs are added?

<http://gslc.genetics.utah.edu/units/addiction/drugs/cerebral.cfm>

Chemical Genetics: Cell Screen

Researchers, looking for intriguing interactions between cells and small molecules, use techniques to expose large numbers of diverse compounds to treated cells. This 3D animation illustrates one of these techniques. In this example, the objective is to screen small molecules for ones that interact with the glucose sensing protein network. Each well in the 384-well plate contains a small number of cells. The cells have been put into a "diabetic-like" state through the use of the small molecule rapamycin.

http://www.hhmi.org/biointeractive/animations/cellscreen/cell_frames.htm

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Chromatography and Gel Electrophoresis

This animated review shows how to cut DNA for gel electrophoresis, and how molecules can be sorted by size using a gel or not.

<http://www.lewport.wnyric.org/jwanamaker/animations/Chrom%26Elpho.html>

Cloning an Army of T Cells for Immune Defence

This animation shows how one type of immune cell—the helper T cell—interprets a message presented at the surface of the cell membrane.

http://www.hhmi.org/biointeractive/animations/tcell/tcell_frames.htm

Cloning in Focus

In this module, students will find out how cloning is done, try it themselves in the mouse cloning laboratory, test their cloning savvy with an interactive quiz, examine potential uses for cloning technologies and explore related ethical, legal and social issues.

<http://gslc.genetics.utah.edu/units/cloning/index.cfm>

Cow's Eye Dissection

Watch the dissection as you go through the process, learning about parts of the eye and their functions. Then, do it yourself (instructions include an eye diagram, a glossary, and color photos for each step).

http://www.exploratorium.edu/learning_studio/cow_eye/index.html

Crossing the Divide: How Neurons Talk to Each Other

Check out a synapse in action.

<http://gslc.genetics.utah.edu/units/addiction/reward/neurontalk.cfm>

Disease Outbreak Simulation (Epiville)

Students play the role of an epidemiologist, gathering facts and deciding actions to curb an outbreak that has struck the fictitious town of "Epiville". The case study uses digital video newscasts and interviews, and municipal Web sites provide information about commerce and diseases in an attempt to mirror real-life situations. Different modules map onto various types of epidemiology study designs: case control, ecological, and cohort studies. Another module explores the topic of infectious diseases. Interactive visuals and multiple-choice questions allow students to test hypotheses about these cases.

<http://cnmtl.columbia.edu/projects/epiville/>

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DNA Microarray

DNA microarray analysis is one of the fastest-growing new technologies in the field of genetic research. Scientists are using DNA microarrays to investigate everything from cancer to pest control. Now you can do your own DNA microarray experiment! Here you will use a DNA microarray to investigate the differences between a healthy cell and a cancer cell.

<http://gslc.genetics.utah.edu/units/biotech/microarray/>

DNA Replication

This animated review explains DNA replication, the process that a cell uses to copy chromosomes, which takes place in a cell's nucleus before division. Short version available.

<http://www.lewport.wnyric.org/jwanamaker/animations/DNA%20Replication%20-%20long%20.html>

DNA Structure, Replication, Transcription, and Protein Synthesis

This site contains a tutorial on the basic aspects of DNA, DNA replication, the genetic code, transcription, and translation. Each portion contains a text-based tutorial. Includes Shockwave animations of the DNA structure, practice problems, and tests.

<http://www.ncc.gmu.edu/dna/>

Electric Heart

This program tells the story of the pursuit of a practical artificial heart. Here's what you'll find online: 1) Map of the Human Heart: how the human heart works with an automatically changing color graphic of a heart in cross-section; 2) Amazing Heart Facts; 3) Artificial Human; 4) Pioneering Surgeon: O. H. Frazier, who has done more heart transplants than anyone else alive, well over 700. He talks about his work, his thoughts, and his hopes; 5) Operation: Heart Transplant: try your hand as a heart-transplant surgeon in this simplified online procedure; 6) Additional Resources.

<http://www.pbs.org/wgbh/nova/eheart/>

Enzyme Activity

These animated reviews explore concepts related to enzyme activity: difference in a reaction with or without enzymes, enzymes' specificness, enzymes' reusability, and enzymes heated or placed in acid.

<http://www.lewport.wnyric.org/jwanamaker/animations/Enzyme%20activity.html>

Evolution of the Y Chromosome

The Y chromosome has suffered many changes throughout its long history. This animation charts its evolution along a cladogram, with diagrams showing when significant deletions and inversions took place.

http://www.hhmi.org/biointeractive/animations/y_evolution_frames.htm

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Gene Therapy: Molecular Bandage?

This module engages students in learning about gene therapy. They will see how it works, follow a gene therapy treatment from the lab to the clinic, design and test gene therapy treatments with ailing aliens, examine its possible uses and consider some of the major obstacles to success.

<http://gslc.genetics.utah.edu/units/genetherapy/index.cfm>

Guess What's Coming to Dinner?

Click on a table full of genetically modified foods and find out how biotechnology is changing what we eat.

<http://www.pbs.org/wgbh/harvest/coming/>

How a Heart Attack Occurs

This 3D animation shows how plaques form in a blood vessel, leading to blockage and a heart attack.

http://www.hhmi.org/biointeractive/animations/atherosclerosis/atherosclerosis_mov.htm

http://www.hhmi.org/biointeractive/animations/atherosclerosis/atherosclerosis_frames.htm

http://www.hhmi.org/biointeractive/animations/atherosclerosis/atherosclerosis_wmv.htm

Location of the Hypothalamus

This 3D animation shows the location of the hypothalamus in a mouse's brain.

http://www.hhmi.org/biointeractive/animations/hypothalamus/hypothalamus_mov.htm

http://www.hhmi.org/biointeractive/animations/hypothalamus/hypothalamus_frames.htm

http://www.hhmi.org/biointeractive/animations/hypothalamus/hypothalamus_wmv.htm

Make a Mad, Mad, Mad, Neuron

Make your own neuron with Dr Dendristein!

<http://gslc.genetics.utah.edu/units/addiction/reward/madneuron.cfm>

Medi-centre

Classroom activities based on the resources of the Canadian Medical Hall of Fame.

<http://www.museevirtuel.ca/Exhibitions/Medicentre/en/>

Meiosis

This animated review explains the meiosis concept.

<http://www.lewport.wnyric.org/jwanamaker/animations/meiosis.html>

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(<http://www.ntic.org/internetguide.pdf>)

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Mitosis

This animated review shows mitotic cell division in a simple cell with only 6 chromosomes.

<http://www.lewport.wnyric.org/jwanamaker/animations/mitosis.html>

Mouse Party

A look inside the brains of mice to see how various drugs disrupt the synapse. Mouse Party is designed to provide a small glimpse into the chemical interactions at the synaptic level that cause the drug user to feel 'high'.

<http://gslc.genetics.utah.edu/units/addiction/drugs/mouse.cfm>

Pharmacogenomics: Drugs Designed for You

This module engages students in exploring the future of genomics-based medicine. Students will explore several approaches to pharmacogenetics and pharmacogenomics, try some of the methods used in these sciences, learn about drug development and therapy, learn the potential benefits of pharmacogenetics and pharmacogenomics, consider the challenges and issues that face these two sciences.

<http://gslc.genetics.utah.edu/units/pharma/index.cfm>

PI: Pedigree Investigator, On the Case of Nicotine Addiction

Try your hand at building a pedigree for a family afflicted with nicotine addiction. Watch video interviews, and interpret surveys to discover if smoking could be "in the genes" for the Mitchell family.

<http://gslc.genetics.utah.edu/units/addiction/genetics/pi.cfm>

PLoS Biology

PLoS Biology features works of significance in all areas of biological science, from molecules to ecosystems, including works at the interface with other disciplines, such as chemistry, medicine, and mathematics. PLoS Biology is an open-access, peer-reviewed general biology journal published monthly by the Public Library of Science, a non-profit organization of scientists and physicians committed to making the world's scientific and medical literature a public resource. The Institute for Scientific Information (ISI) recently ranked PLoS Biology in the top-tier of life science journals.

<http://biology.plosjournals.org>

PLoS Computational Biology

PLoS Computational Biology features works of significance that further the understanding of living systems at all scales, from molecules and cells to patient populations and ecosystems, through the application of computational methods. PLoS Computational Biology is an open-access, peer-reviewed general biology journal published monthly by the Public Library of Science, a non-profit organization of scientists and physicians committed to making the world's scientific and medical literature a public resource.

<http://compbiol.plosjournals.org>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

PLoS Genetics

PLoS Genetics publishes human studies, as well as research on model organisms—from mice and flies, to plants and bacteria. Topics include (but are not limited to) gene discovery and function, population genetics, genome projects, comparative and functional genomics, medical genetics, cancer biology, evolution, gene expression, complex traits, chromosome biology, and epigenetics. PLoS Genetics is an open-access, peer-reviewed general biology journal published monthly by the Public Library of Science, a non-profit organization of scientists and physicians committed to making the world's scientific and medical literature a public resource.

<http://genetics.plosjournals.org>

Protein Synthesis

These animated reviews show the making of proteins using the information found in DNA. Short version available.

<http://www.lewport.wnyric.org/jwanamaker/animations/Protein%20Synthesis%20-%20long.html>

Sex Determination: Meiosis

These animations explain how meiosis in males determines the sex of offspring. The first animation shows normal crossing over, where the X and Y-chromosomes exchange pieces only at their tips. The second animation shows a rare mistake in which the Y chromosome transfers a gene called SRY to the X chromosome, resulting in sex-reversed babies. Studies of sex-reversed individuals led researchers to identify the master switch for sex determination, the SRY gene, which tells a foetus to become a boy. Introductory and background information is available along with teaching tips and links to other resources.

http://www.hhmi.org/biointeractive/animations/meiosis/meiosis_frames.htm

Sheep Brain Dissection: The Anatomy of Memory

By dissecting the brain of a sheep, we can see where the memory process takes place. This online dissection reveals the intricate structures deep within nerve cells.

<http://www.exploratorium.edu/memory/braindissection/>

Stem Cells in the Spotlight

This module engages students in learning about stem cells, current and potential medical therapies utilizing stem cells, and issues in the controversy surrounding their use: how the body uses stem cells to grow and develop, step-by-step examination of a treatment for Parkinson's Disease, established stem cell therapies currently in use, the potential for new stem cell therapies and the challenges facing researchers working to develop them, cells cultured in the lab to create experimental models, new stem cell technologies, links to current news about stem cell research and regulation, along with in-depth information about other topics covered in this module. Extensive use of animations and illustrations. Online student materials are available. Teacher guides for these materials as well as additional teacher-facilitated activities are linked from the Interactive Teacher Guide Index.

<http://gslc.genetics.utah.edu/units/stemcells/>

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The Organization of the Human Body: Body Cavities

In this interactive object, students examine the locations of major body cavities and their protective membranes. A drag-and-drop exercise completes the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

<http://www.wisc-online.com/objects/objectmailspec.asp?objid=AP15505#>

Virtual Knee Surgery

Perform a virtual knee replacement! In this guided virtual surgery, you will use tools such as the scalpel and bone saw. You can also view photos from a real knee surgery. Content standards for grades 9-12: understandings about scientific inquiry, matter, energy and organization in living systems and behaviour of organisms, abilities of technological design, understandings about science and technology, natural and human-induced hazards, science and technology in local, national, and global challenges, understanding of the nature of scientific knowledge and science as a human endeavour.

<http://www.edheads.org/activities/knee/index.htm>

Business Administration (Accounting, Marketing, Finance)

Accounts and Financial Statements

Students read about the purposes of balance sheets and income statements, and then place accounts into these two financial statement categories in a drag-and-drop exercise. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACC2305

Business Studies, Finance and Accounting

There are six brief numerical challenges to test students' knowledge of the key relationships of the unit. Each section also has a collection of multiple-choice questions and a data-response task. Students can download spreadsheets of sample accounts that they can analyze using the skills they have learned. They can then suggest strategies for the business to pursue, using their skills of evaluation. Finally, there is a task that could be used as an extended research assignment or as the piece of coursework that can be taken for final assessment.

<http://www.ioe.ac.uk/TeachNetUK/dsalbstein/index.html>

Hypertextual Finance Glossary

Over 8,000 entries in alphabetical order, and 18,000 hyperlinks. The hard copy version "The New-York Times Dictionary of Money and Investing" is coauthored with the 2002 Pulitzer Prize winner for financial writing, Gretchen Morgenson.

<http://www.duke.edu/~charvey/Classes/wpg/glossary.htm>

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(<http://www.ntic.org/internetguide.pdf>)

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Investments: An Institutional Portfolio

This video assesses the risk factor of investments in the context of an institutional portfolio. A student interviews a representative from the Calgary Board of Education, who discusses a scholarship fund.

http://www.learnalberta.ca/content/meamr/movieLauncher.html?asset=Movies/legam_investmentsindtwo.mov

So, you want to learn Bookkeeping! Introductory Tutorial

This bookkeeping tutorial is for beginners and is only an introduction into the world of accounting. What's covered? The Introduction discusses types of business organizations, activities, bookkeeping systems, cash and accrual basis of accounting. Lesson 1 introduces terminology and definitions. Lesson 2 explains property and property rights, the accounting equation, double-entry bookkeeping, and how business transactions affect the equation. Lesson 3 introduces debits and credits, how they affect the accounting equation, and how they are used to record business transactions. Lesson 4 demonstrates how business transactions are properly analyzed, recorded, and summarized. Lesson 5 covers general ledgers and journals. Lesson 6 discusses financial statements, how they're created, and how they're used. Lesson 7 reviews the major definitions, concepts, and bookkeeping records previously discussed and necessary for an understanding of bookkeeping.

<http://www.dwmbeancounter.com/tutorial/Tutorial.html>

SWOT Analysis

SWOT analysis is a tool for auditing an organization and its environment. 10 SWOT analysis examples and an exercise are included.

http://www.marketingteacher.com/Lessons/lesson_swot.htm

Tetraccounting Game

Students are presented with a broad range of balloon-dropped accounting entry categories and need to determine (A) which are debits and which are credits; or (B) which are for income statement, statement of O/E, or for balance sheet. Set up as an arcade-style game, competition can promote learning.

<http://digilearn.nait.ab.ca/careo/Accounting/PCgame/>

The Budget Zone

This interactive multimedia segment discusses balancing a family budget. Interactivity allows students to "play with the numbers" and is supported by a video.

<http://www.learnalberta.ca/content/meamr/html/number/Budgeting/start.html>

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The Times 100

Free educational resource for students, teachers and lecturers of business studies. The Times 100 brings business studies theory to life with case studies on real companies, written by leading business studies textbook authors and linked to all exam specifications. Each business case study expands on basic business studies topics using real-world examples to help your understanding. Developed in the UK but applicable to U.S. and Canadian issues. Resources include downloadable study guides, a glossary, and a quiz.

<http://www.thetimes100.co.uk/index.php>

Virtual Bank

This site is a Virtual Bank and looks at the role of banks and central banks in the management of the economy, and also the services that banks offer to support business. There are two main sections to the site: business and economics. Each section has explanations, relevant theories and worksheets. The site also includes a complete glossary and an In The News section that can be searched at any time for news about money, interest rates, and banks.

<http://www.bized.ac.uk/virtual/bank/>

Chemistry

Acclimatization on Mt. Everest: An Application of Chemical Equilibrium

This applet adds relevance to the equilibrium portion of the course and provides an interesting problem-solving activity. To get to the top of the mountain before winter arrives, students must derive an equation that relates the necessary amount of hemoglobin to the partial pressure of oxygen at the current and next camp. Everest connects a paper and pencil calculation to a computer simulation of a real-world phenomenon. The calculation is challenging, but is similar to those that the students often solve in the equilibrium part of the course. The applet illustrates the use of computer simulation to allow students to interact with complex phenomena, at an earlier point in a course than would otherwise be possible. For instance, the Everest applet involves a kinetic phenomenon: the body responds to a decrease in the amount of atmospheric oxygen by growing more hemoglobin. Nevertheless, the problem is presented in such a way that students need only understand the chemical equilibrium of a single chemical reaction. The simulation handles the kinetic aspects of the system; the student need only wait until the amount of hemoglobin produced by the body is sufficient to survive at the next elevation. Everest also implements a simple approach to automatic grading. When a student successfully climbs the mountain, the applet sends an e-mail (containing an encrypted key word) to the teacher indicating that the student has completed the assignment.

<http://www.chemcollective.org/applets/everest.php>

Better Hair Through Chemistry: Build a Hair Hygrometer

In this activity, students will hook up a hair to a lever system and create a hair hygrometer to measure changes in humidity. Invented in 1783, the hair hygrometer was so reliable that an electrical instrument did not replace it until the 1960s.

http://www.exploratorium.edu/exploring/hair/hair_activity.html

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Blood Collection Tubes: What's in Them?

In this interactive object, students review descriptions of various blood collection tube additives. They then test their knowledge by matching the different tubes to their corresponding additives. Resource from Wisc-Online: free access but sign-in is mandatory.

<http://www.wisc-online.com/objects/objectmailspec.asp?objid=MEA4604#>

Cell Screening

Researchers, looking for intriguing interactions between cells and small molecules, use techniques to expose large numbers of diverse compounds to treated cells. This 3D animation illustrates one of these techniques. In this example, the objective is to screen small molecules for ones that interact with the glucose sensing protein network. Each well in the 384-well plate contains a small number of cells. The cells have been put into a “diabetic-like” state through the use of the small molecule rapamycin.

http://www.hhmi.org/biointeractive/animations/cellscreen/cell_frames.htm

Chemistry Library Tutorial

This resource was designed to introduce students to research sources in the field of chemistry. Students can find direct links to primary sources or information about locations where the materials can be found (there are also a number of exercises that allow students to test their own knowledge about chemistry resources at Columbia University).

<http://www.columbia.edu/itc/chemistry/chem-tutorial/>

Chromatography Laboratory

In this simulation, you will separate a mixture of proteins using liquid column chromatography.

<http://hmchem.cubicsci.com/docs/sims/chromatographylabsim.html>

Equilibrium: Extends the Stoichiometry Simulation to Chemical Equilibrium

This applet is similar to the limiting reagent applet, but applies to chemical reactions that do not go to completion. The calculation of the equilibrium state of such reactions is typically covered months after students learn how to solve limiting reagent problems. This applet uses the same visual layout as the limiting reagent applet, with the addition of a red dot indicating the equilibrium position of the reaction. The common visual theme will encourage students to make connections between this new material and that covered previously.

<http://www.chemcollective.org/applets/equilib.php>

Graphing Ozone Chemistry

This lesson includes a simple "how-to" graphing example followed by other more sophisticated examples of graphing using NASA images and images from the Neumayer Antarctic Station. The "Ozone Chemistry" section contains enough material to enable students to find data and images for graphing.

http://www.exploratorium.edu/learning_studio/ozone/graphing.html

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HMChem Library

These assets include hundreds of molecular structures viewable in 3-D, video and animation files, interactive simulations, and algorithmically generated drill problems. Contents: basics of chemistry, atomic and molecular structure, states of matter and solutions, chemical reaction and equilibrium, nuclear chemistry and elements. The library also includes all of the images and text from the sixth edition of Ebbing and Gammon, General Chemistry.

<http://hmchem.cubicsci.com/docs/library.htm>

Internal Combustion Engine Simulator

Throughout this applet, the authors have developed the base code for what they believe to be a powerful and general approach to educational software: computer simulations that allow students to interact with different components of a complex real-world phenomenon. The simulation shown here is that of a 4-stroke internal combustion engine. The thermodynamic cycle being simulated is the Otto cycle, which involves an isentropic compression, an explosion at constant volume, an isentropic expansion, and the release of the exhaust at constant volume to return to the original pressure. The initial interface allows for students to interact with the ideal-gas law portion of the simulation.

<http://www.chemcollective.org/applets/engine.php>

Molecular Symmetry

This simulation shows chemistry students the five general types of symmetry operations (identity operator, rotations, reflections, centre of inversion, and improper rotations). Requires Java in order to see and interact with 3D molecules.

<http://www.queensu.ca/cloe/projects/public/symmetry/index.htm>

Nuclear Chemistry Laboratory

In this simulation, you will use a Geiger-Mueller tube to detect background radiation, and to determine characteristics of the radiation emanating from the metastable nucleus, $^{137m}56\text{Ba}$. There are three experiments in this laboratory: measurement of background radiation, effect of distance on radioactivity, measurement of half-life.

<http://hmchem.cubicsci.com/docs/sims/nuclearchemistrylabsim.html>

On Fire

This feature lets you explore the basics of combustion, including how a fire ignites, how a molecule's atoms rearrange themselves during combustion, and what a flame is made of.

<http://www.pbs.org/wgbh/nova/cigarette/onfire.html>

Periodic Table Including Electronic Configurations

Simply click on the desired element to display data as well as a graphical plot of electron configurations. This particular version shows the electronic configuration of the element in the panel on the right. Future versions of this applet will show relative atomic sizes, electronegativities and other periodic trends, as well as extensive atomic data.

<http://www.chemcollective.org/applets/pertable.php>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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PPAR-delta Activation in the Muscle Cell

The PPAR-delta receptor activates certain genes in a muscle cell, resulting in the burning of fat. This animation includes audio narration.

http://www.hhmi.org/biointeractive/animations/ppar-delta/ppar-delta_mov.htm

http://www.hhmi.org/biointeractive/animations/ppar-delta/ppar-delta_frames.htm

QC-Lab

The aim of QC-Lab is to facilitate the elaboration and study of molecular theoretical models in Gas Phase and Solution. QC-Lab puts together the instructions in GAMESS language and automatically submits the job for execution. Once the task has been accomplished, QC-Lab retrieves the data where a variety of molecular properties may be read from: Optimum molecular structure, atomic charge distribution, dipole moment, thermodynamic state functions, etc.

https://www.nanohub.org/simulation_tools/qclab_tool_information

Qualitative Analysis Laboratory

In this simulation, you will use qualitative analysis to identify unknown metal ions in solution.

<http://hmchem.cubicsci.com/docs/sims/qualitativeanalysislabsim.html>

See Inside a Diamond

This feature is divided into two sections. The first is an activity that lets you build a carbon atom out of quarks and electrons. The second allows you to manipulate a diamond crystal, giving you a three-dimensional look into how its carbon atoms are arranged.

<http://www.pbs.org/wgbh/nova/diamond/inside.html>

Spectroscopic Simulator

This applet covers an aspect of a physical chemistry course that students often find confusing. Although it is based on relatively simple mathematics, a complete understanding of the phenomenon requires assimilating the following concepts: the energy levels of a diatomic molecule, the molecule's light absorption, and the intensity of the transition. Many students are comfortable with these separate concepts, but find it difficult to combine them to produce an understanding of rovibrational spectroscopy. This applet simulates an infrared spectrometer, allowing students to adjust the experimental and molecular parameters, and observe the effects on the infrared spectrum. Students may use the applet to first focus on each of the individual concepts, within the context of the actual experiment, and then integrate these concepts into a coherent whole.

<http://www.chemcollective.org/applets/spectro.php>

Spectroscopy Laboratory

In this simulation, you will determine the concentration of an unknown solute using absorption spectroscopy.

<http://hmchem.cubicsci.com/docs/sims/spectroscopylabsim.html>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Statistical Mechanical Simulator

The Statistical Mechanics Simulator allows students to create a multi-level quantum mechanical system and explore the partition function and thermodynamic properties.

<http://www.chemcollective.org/applets/statmech.php>

Stoichiometry: A Visualization of Limiting Reagent Calculations

One of the first numerical problems encountered in introductory chemistry is that of "limiting reagents". The applet does not approach or solve the problem, as it would be done with paper and pencil, on the blackboard, or in the textbook. Rather, it serves as a supplement to such calculations, providing imagery that helps students see beyond a rote mathematical procedure. In lecture, the teacher may work through the problem on the blackboard, referring to the applet as a constant visual reminder of what is being calculated and why. Outside lecture, students may use the applet while solving problems, to generate and check intermediate results and help them discover and correct their own mistakes.

<http://www.chemcollective.org/applets/stoich.php>

The Fate of Fat

This animation provides an overview of how dietary fat gets digested, packaged, and sent to various tissues for storage or energy. It includes audio narration.

http://www.hhmi.org/biointeractive/animations/fatefat/fatefat_mov.htm

http://www.hhmi.org/biointeractive/animations/fatefat/fatefat_frames.htm

http://www.hhmi.org/biointeractive/animations/fatefat/fatefat_wmv.htm

The Structure of Metal

This feature explores the atomic heart of metal and reveals what it is that gives metal its special characteristics and how metal behaves under the stress of heat and outside forces.

<http://www.pbs.org/wgbh/nova/wtc/metal.html>

Titration Laboratory

In this simulation, you will determine the concentration and molar mass of an unknown acid by titrating the acid with a base.

<http://hmchem.cubicsci.com/docs/sims/titrationlabsim.html>

Urinalysis Laboratory

In this simulation, you will use kits that indicate colourimetrically the presence of glucose, proteins, and ketones.

<http://hmchem.cubicsci.com/docs/sims/urinalysislabsim.html>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

Virtual Lab Simulation

The Virtual Laboratory allows students to select from hundreds of standard reagents and manipulate them in a manner that resembles that of a real lab. It allows students to design and perform diverse experiments in acid-base chemistry, thermochemistry, solubility, and redox chemistry.

<http://www.chemcollective.org/applets/vlab.php>

Computer Science

1D Fast Fourier Transform

The Fourier Transform is a powerful tool allowing us to move back and forth between the spatial and frequency domains. Many of our explanations of key aspects of signal processing rely on an understanding of how and why a certain operation is performed in one domain or another. This applet helps students feel comfortable with these explanations, helping to build a strong intuitive grasp of how signals in one domain correspond to signals in the other. Students can load scanlines from common image patterns and see that scanline's Fourier Transform in real-time. For example, they can load the scanline of a standard test image to note how most of the energy is concentrated at low frequencies -- a key to why low-pass filtering doesn't render an image unintelligible.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/fft1DApp/1d_fast_fourier_transform_guide.html

CITIDEL (Computer and Information Technology Interactive Digital Education Library)

CITIDEL serves to “establish, operate, and maintain a part of the NSDL that will serve the computing education community in all its diversity and at all levels.” CITIDEL activities include community development, expanding through workshops knowledge and skills regarding the development and use of online educational content.

<http://www.citidel.org>

Coordinate System Transformations

This applet teaches several concepts. The first is how a transformation applied to a coordinate system affects the axes of that coordinate system. Second, this applet shows how looking at only a very small portion of any curve produces a straight line (linear approximation) of that curve. Finally, this applet shows how a transformation of the coordinate system affects any objects within that coordinate system.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/coordinateTransformations/coordinate_transformations_guide.html

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Cylindrical Texture Mapping

The Cylindrical Texture Mapping applet shows the graphical ramifications of the mathematics used to wrap a flat image around a cylindrical model. The applet allows the user to designate a point on the cylinder and displays the corresponding sample point on the image, which is represented on a unit plane. Both numerical and graphical representations of each point are present in hopes that the user will thereby gain a more intuitive understanding of the correlation between them.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/textureMapping/cylindrical_texture_mapping_guide.html

Introduction to Sampling

Pixels are samples at specific points of continuous mathematical functions. To demonstrate this, the Introduction to Sampling applet uses an image on screen to represent a continuous function. In addition to introducing the concept of sampling, this applet also demonstrates and helps develop intuition about scanlines, which we use throughout the later applets.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/sampling/introduction_to_sampling_guide.html

Reflection 2D

The 2D Reflection applet is an interactive illustration letting users reposition a light source and automatically recalculate the reflection vector. The standard equation is used with N , L and R for, respectively, the surface normal, normalized direction to a light source, and normalized reflection of L off of a surface. All equations are automatically updated with a user's changes to the illustration. A series of tips/concept explanations are available. This applet helps enhance complete understanding of essential tasks.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/reflection2D/reflection_2d_guide.html

Scenegraph Builder

This applet allows users to construct their own scene graph and observe how each transformation affects all others below it on the scene graph.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/scenegraphBuilder/scenegraph_builder_guide.html

Spherical Texture Mapping

The Spherical Texture Mapping applet uses Java3D to show the graphical ramifications of the mathematics used to wrap a flat image around a sphere model. The applet allows the user to designate a point on the sphere and displays the corresponding point on the image, which is represented on a unit plane. Both numerical and graphical representations of each point are present in hopes that the user will thereby gain a more intuitive understanding of the correlation between them.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/textureMapping/spherical_texture_mapping_guide.html

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Tiled Planar Texture Mapping

The Tiled Planar Texture Mapping applet uses Java3D to show the graphical ramifications of the mathematics used to tile an image on to a 3D plane. The applet allows the user to designate a point on the plane and displays the corresponding point on the image, which is represented on a unit plane. Both numerical and graphical representations of each point are present in hopes that the user will thereby gain a more intuitive understanding of the correlation between them.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/textureMapping/tiled_planar_texture_mapping_guide.html

Token Ring Demonstration

This applet demonstrates a token ring. Users may add or delete stations (or computers) from the ring. The applet allows the user to show data being circulated around the ring. Users may also select to demonstrate the cases when one of the stations is switched off, or monitoring.

<http://www-mm.informatik.uni-mannheim.de/veranstaltungen/animation/mac/tr/>

Transformation Game

This applet introduces the user to the usage and mathematics of two-dimensional transformations using a fun, interactive play space.

http://www.cs.brown.edu/exploratories/freeSoftware/repository/edu/brown/cs/exploratories/applets/transformationGame/transformation_game_guide.html

Economics

Budget Odyssey

This resource, from It All Adds Up, is a simulation that helps students learn how to make decisions regarding budgeting. "It All Adds Up", developed by the National Council on Economic Education, is a Web-based, interactive program designed to help high school teachers and students understand responsible personal finance management skills and the proper care and use of credit. Using the Shockwave plug-in, visitors to the site can play online games and simulations to learn about credit management, buying a car, paying for college, budgeting, saving, and investing.

<http://italladdsup.org/mod4/>

Costs and Benefits of Taxing to Pay for Lambeau Field

Students read the introductory material and answer questions that lead them through a cost-benefit of a real-life contemporary topic. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ECO600

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Cultural Characteristics Influence a Region's Character

In this Xpeditions lesson, students analyze demographic data and explore relationships between several cultural characteristics of nations. They develop and test hypotheses about the sources of demographic differences.

<http://www.nationalgeographic.com/xpeditions/lessons/10/g912/region.html>

Dining In: Developing a Business Plan for the School Cafeteria

In this lesson, which uses recent New York Times articles as a springboard for examining important curricular topics in interesting and exciting ways, students develop a business plan for improving their school cafeteria.

<http://www.nytimes.com/learning/teachers/lessons/20050805friday.html>

Economic Sectors and International Development

Lesson in which students, using poverty rate as a measure of development, compare how resources are allocated to three economic sectors: agriculture, industry, and service. They then determine whether a relationship exists between a country's allocation of resources to certain economic sectors and its national poverty rate. They also identify patterns in the geographic distribution of countries. The tool provides teachers with learning advice, a suggested conclusion, and questions and answers, as well as a link to The World Factbook 2005 for students who wish to test their hypotheses further.

<http://www.econedlink.org/lessons/index.cfm?lesson=EM288&page=teacher>

Human Numbers Through Time

Trace the dramatic growth and spread of human populations on our global map, and see where on Earth as many as three billion more people may live by 2050.

<http://www.pbs.org/wgbh/nova/worldbalance/numbers.html>

Income: It Ain't Where You Start, It's What You Got, and Where You End

In this lesson from EconEdLink, students explore the concept of income by reviewing data on income distribution, poverty, and the cost of living, using the elections of 2000 as a model. The federal elections of 2000 involved electing a president, all members of the House of Representatives, and one third of the Senate. Economic issues played a large role in the debates and the people's decision.

<http://www.econedlink.org/lessons/index.cfm?lesson=EM65>

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If All Adds Up: Personal Finance for Teens

This resource, developed by the National Council on Economic Education, is a Web-based, interactive program designed to help high school teachers and students understand responsible personal finance management skills and the proper care and use of credit. Using the Shockwave plug-in, visitors to the site can play online games and simulations to learn about credit management, buying a car, paying for college, budgeting, saving, and investing. Links are provided to online tools such as a downloadable calculator, plugins, and other related Web pages.

<http://www.italladdsup.org/>

Managing Credit

This resource, from It All Adds Up, is a simulation that helps students learn about the concept of economic decision-making related to purchases and credit. Students learn how to develop a good credit rating and how long it can take to pay off a credit card balance. "It All Adds Up", developed by the National Council on Economic Education, is a Web-based, interactive program designed to help high school teachers and students understand responsible personal finance management skills and the proper care and use of credit. Using the Shockwave plug-in, visitors to the site can play online games and simulations to learn about credit management, buying a car, paying for college, budgeting, saving, and investing.

<http://italladdsup.org/mod1/>

Saving and Investing Blitz

This resource, from It All Adds Up, is a simulation that teaches students about how interest is calculated. The activity features the use of an interactive multiple-choice question format to teach the skills and concepts. "It All Adds Up", developed by the National Council on Economic Education, is a Web-based, interactive program designed to help high school teachers and students understand responsible personal finance management skills and the proper care and use of credit. Using the Shockwave plug-in, visitors to the site can play online games and simulations to learn about credit management, buying a car, paying for college, budgeting, saving, and investing.

<http://italladdsup.org/mod5/>

The Economics of Income: If You're So Smart, Why Aren't You Rich?

The purpose of this lesson is to help you explore the relationship between education and income. Income is earned from one's resources. Those resources might be natural resources (oil field, farm land), capital resources (man-made resources that are used in the production of goods and services: computers, factories, sewing machines), entrepreneurship (the ability to organize the other factors to produce goods or services or labour.) Most people earn their income by selling their labour. The lesson will focus on the following question: "Why do some people earn more income from their labour than others?"

<http://www.econedlink.org/lessons/index.cfm?lesson=NN130>

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Understanding the Interrelationship of Supply and Demand

This learning object is intended to reveal and manipulate supply and demand curves, and demonstrate the effects on equilibrium price/quantity and on price ceilings and floors. It is primarily intended for presentations or demonstrations. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ECO1102

Virtual Bank

This site is a Virtual Bank and looks at the role of banks and central banks in the management of the economy and also the services that banks offer to support business. There are two main sections to the site: business and economics. Each section has explanations, relevant theories and worksheets. The site also has a complete glossary and In The News section that can be searched at any time for news about money, interest rates, and banks.

<http://www.bized.ac.uk/virtual/bank/>

Wheel and Deal

This resource, from It All Adds Up, is an interactive simulation that helps students learn about the decisions involved in purchasing a car. "It All Adds Up" is a Web-based interactive program designed by the National Council on Economic Education to help high school teachers and students understand responsible personal finance management skills and the proper care and use of credit. Using the Shockwave plug-in, visitors to the site can play online games and simulations to learn about credit management, buying a car, paying for college, budgeting, saving, and investing.

http://www.italladdsup.org/car_buying/overview.php

Where Should I Build My Business?

In this Xpeditions lesson, students learn how to identify the market areas of some of the major retailers in their communities. To accomplish this, they survey consumer travel behaviour and create hypothetical businesses in their hometowns.

<http://www.nationalgeographic.com/xpeditions/lessons/11/g912/business.html>

You're Going to College

This resource, from It All Adds Up, is a simulation that helps students learn about the issues and challenges regarding how to fund a college education. "It All Adds Up", developed by the National Council on Economic Education, is a Web-based, interactive program designed to help high school teachers and students understand responsible personal finance management skills and the proper care and use of credit. Using the Shockwave plug-in, visitors to the site can play online games and simulations to learn about credit management, buying a car, paying for college, budgeting, saving, and investing.

<http://www.italladdsup.org/mod3/>

Affects of a Rheostat in a Series Circuit

In this animated object, students examine how the way in which a rheostat is connected in series with other resistors causes current and voltage to change as the resistance is varied. A brief quiz completes the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE6603

Affects of a Rheostat in a Series-Parallel Circuit

In this animated object, students examine the current and voltage changes in a series-parallel circuit as the resistance value of a rheostat is varied. Illustrations and calculations are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE6703

Ammeter Circuit Connections

In this animated activity, students view a step-by-step approach of how to connect an ammeter to a circuit. A brief quiz concludes the lesson. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE3902

Analog Ammeter Operation

Students examine the procedure to measure current with an analog ammeter. The use of Function and Range switches is explored along with reading the needle position on the meter scale. A brief quiz completes the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE7304

Analog Ohmmeter Operation

Students follow procedures for measuring resistance using an analog ohmmeter. They examine the use of the Function Switch and the Range Switch and practice reading a non-linear scale. A brief quiz completes the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE7104

Analog Voltmeter Operation

Students follow the procedure to measure voltage with an analog voltmeter. They examine the use of the Function Switch and the Range Switch. A brief quiz completes the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE7204

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Apparent Power

Students read an explanation of the concept of apparent power in a power distribution system involving motors, generators, and transformers. A quiz completes this interactive lesson. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACE3103

Assembling a Circuit from a Schematic Diagram

In this animated object, students examine the steps for wiring an electrical circuit from reading a schematic diagram. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE7004

CENEMS

CENEMS is a user-friendly tool that computes the surface charge density distribution on the surface of the conductors in a multi-conductor system. CENEMS contains a graphical user interface which will allow users to design multi-conductor systems, including drawing conductors, specifying applied voltage and discretization level (the higher the level, the finer the discretization) for the conductors. After running the simulation, users can immediately see the surface charge density distribution on the conductors. CENEMS solves the exterior potential problem and computes the surface charge density by using boundary integral equations and a Boundary Cloud Method (BCM).

https://www.nanohub.org/simulation_tools/cenems_tool_information

Circuit Protection

In this interactive and animated activity, students read how a fuse de-energizes a parallel circuit when too many lamps are connected to a power outlet. A brief quiz concludes the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE602

DC Current Flow Through a Parallel Circuit

Students observe current flow throughout the series portion and branches of a parallel circuit. This animated activity includes calculations and a short quiz. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=HVC403

Digital Meter

This resource provides videos and a simulation to demonstrate how to use a digital multimeter to measure ohms, amps, volts.

<http://www.learnalberta.ca/content/ctmr/html/ELT1010E.htm>

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Electrical Switches & Pushbuttons

In this interactive and animated activity, students view the operation and schematic symbols of various types of switches and push buttons used for electronic circuits. They then match the names of the switches to their symbols. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE2002

Electromagnets

Students examine how an electromagnet is formed. Animated illustrations show current running through a coil wrapped around an iron core. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ELE304

Electrostatic Discharge and Computers

This video shows the effects of electrostatic on computers. It introduces ground testers, wrist straps, and antistatic mats.

<http://www.learnalberta.ca/content/ctmr/frameSet.htm?asset=movies/ELT1060E.mov>

How Adding Parallel Branches Decreases Total Resistance

In this animated object, students follow an analogy of water flowing through pipes and valves to see how resistance decreases in a parallel circuit as branches are added. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE14705

How Adding Parallel Branches Increases Total Current

In this animated object, students follow an analogy of water flowing through pipes and valves to see how current increases in a parallel circuit as branches are added. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE14805

How Current Requires Voltage

This learning activity uses a water pressure analogy to present the concept that voltage pressure is required to cause current flow. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE14605

Making a Circuit Board

This video demonstrates the various steps required to produce a circuit board.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/ELT2010E.mov>

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Mathematical Expression of an AC Sine Wave

Students view the mathematical expression of an AC waveform with respect to time (t) and read about the different components of this expression. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACE202

Norton's Theorem

Students follow the steps for reducing all of the elements of a complex circuit to a single current source and a single source resistance to create a simple circuit. Several examples are given for DC circuits. The conversion between Thevenin and Norton is also presented. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE10004

Ohm's Law: The Relationship of Voltage, Current, and Resistance

In this interactive object, students vary the value of the resistance to see how it affects current. Example problems are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE8104

Opens and Shorts

In this animated activity, students examine the difference between opens and shorts in an electrical circuit. A brief quiz completes the object. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE6503

Padre

PADRE is a 2D/3D simulator for electronic devices, such as MOSFET transistors. It can simulate physical structures of arbitrary geometry--including heterostructures--with arbitrary doping profiles, which can be obtained using analytical functions or directly from multidimensional process simulators such as Prophet. For each electrical bias, PADRE solves a coupled set of partial differential equations (PDEs). A variety of PDE systems are supported which form a hierarchy of accuracy: electrostatic (Poisson equation) drift-diffusion (including carrier continuity equations) energy balance (including carrier temperature) electrothermal (including lattice heating).

https://www.nanohub.org/simulation_tools/padre_tool_information

PLC Software Circuit Capabilities

In this animated object, students examine how to use a programmable logic controller as an alternative to hardwiring a ladder logic circuit. Resource from Wisc-Online: free access but sign-in is mandatory.

<http://www.wisc-online.com/objects/objectmailspec.asp?objid=IAU1406#>

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(<http://www.ntic.org/internetguide.pdf>)

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Resistor Color Code Description

In this interactive activity, students read about the coloured stripes on a resistor and interpret the placement of those colors to determine the value of four-band resistors. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE802

Resistor Color Code Practice

Students practice reading a resistor's color code. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE1002

Resistor Color Code Recognition Drills

In this interactive object, students complete progressively more difficult exercises as a way to improve their ability to recognize resistor color code values. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE10804

Security - Electronic Devices

This video presents security systems for cars and homes. It includes components that detect or inhibit intruders.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/ELT1110E.mov>

Series RC Circuit Practice Problems

In this interactive object, students calculate capacitive reactance, phase angle, impedance, and power in series RC circuits. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACE8404

Series RC Circuit Vector and Circuit Analyzer

In this teaching and learning aid, the user can alter circuit variables and view how these changes affect circuit voltage, current, reactance, impedance, and phase angle. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACE10004

Series RL Circuit Practice Problems

Students calculate current, phase angle, resistor voltage, inductor voltage, and power. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACE8504

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Series RL Circuit Vector and Circuit Analyzer

Students alter circuit variables and view how these changes affect circuit voltage, current, reactance, impedance, and phase angle. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACE10104

Silicon Diode Basics

This primer introduces students to the key terms and concepts associated with the silicon diode. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=SSE302

Sine Wave Fundamentals

Students examine the characteristics of a sine wave and the various ways to describe it including V_p , V_{p-p} , V_{rms} , V_{avg} , and frequency. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACE8604

The Case of the Dead Diode

This video demonstrates the operation of a single diode and a bridge rectifier, including direction of current and output wavelengths.

<http://www.learnalberta.ca/content/ctmr/frameSet.htm?asset=movies/ELT2050E.mov>

The Great Satellite Search!

In the Satellite Presentation Project, students will be asked to find information on the Internet and make a presentation to the class on a satellite. This lesson plan is designed to teach students how to use the computer and the Internet to research, organize, and present information. By requiring students to work in teams, they will be developing their cooperative learning skills. The lesson plan is designed to be incorporated into other topics such as technology, space exploration, electronic communication, and computers.

http://www.exploratorium.edu/learning_studio/satellite/sat.html

The Thevenin Theorem

This animated object allows students to examine the four steps used to reduce a complex circuit to a simple series circuit. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE5803

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Transfer Functions: The RC High Pass Filter

Students read how the transfer function for a RC high pass filter is developed. The transfer function is used in Excel to graph the V_{out} . The circuit is also simulated in Electronic WorkBench and the resulting Bode plot is compared to the graph from Excel. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACE2203

Transfer Functions: The RC Low Pass Filter

Students read how the transfer function for a RC low pass filter is developed. The transfer function is used in Excel to graph the V_{out} . The circuit is also simulated in Electronic WorkBench and the resulting Bode plot is compared to the graph from Excel. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ACE2303

Watt's Law

In this animated object, students examine the concept of wattage dissipation and the three Watt's Law formulas. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE6903

Wires

Students examine the four factors that affect resistance of a wire: temperature, length, diameter, and the type of material from which it is made. A short quiz completes the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DCE6403

English Studies, Literature, Writing Skills

1984 by George Orwell: Fact or Fantasy?

In his classic book, 1984, George Orwell includes specific methods and behaviours used by those who controlled Oceania that are based on history, as well as others he created himself. Students do research to show that the methods and behaviours Orwell depicted are based on the behaviour of other dictators.

<http://www.teachnet-lab.org/FKLANE/pmaslow/1984/compare.htm>

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Aboriginal Literatures in Canada: A Teacher's Resource Guide

This resource guide is designed to encourage and support the teaching of Aboriginal literature in Canadian high schools and colleges. It provides a context for teaching literature from six Aboriginal cultures: Mi'kmaq, Six Nations, Anishnabe (Ojibway), Cree, Metis, and Okanagan through commentaries supported by extensive bibliographies. Suggestions for incorporating the literature into curriculum are also included.

<http://www.curriculum.org/tcf/teachers/projects/aboriginal.pdf>

Adapting a Musical

This ARTSEdge lesson explores the implications of developing a musical from a literary text or historical event. It includes suggestions for immersing students in the creative process of building a musical.

<http://artsedge.kennedy-center.org/content/2287/>

An Incredible Journey: Exploring Brave New Worlds

This project is designed to work in concert with Aldous Huxley's dystopic novel, Brave New World. This project provides students with the opportunity to express and explore what they have learned from Huxley's novel, their research, and their reflection on their own lives through the form of a research/literature-based creative writing assignment.

<http://www.teachersnetwork.org/readyssettech/janka/janka.htm>

A+ Research & Writing for High School and College Students

The Internet Public Library provides this extensive guide to researching and writing a paper, using Web and library sources. Includes links for more online resources for essay writing, research skills, writing skills (composition).

<http://www.ipl.org/div/aplus>

Building a Resume

Students read about the components of a resume and write one for personal use. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABC2102

English Language Arts 30-1, 30-2 Interactive Multimedia Segments

This resource focuses on five English language arts topics: Poetry, Functional Writing, Point of View, Context, and Storytelling. In addition to the feature video segment on each topic, there are three other selections: Review, Extend, and Apply. "Review" presents the student with a list of other relevant English Language Arts resources. "Extend" features supplementary material such as interviews with authors and poets, downloadable versions of stories and poems, more video segments, and practical activities. "Apply" includes a list of questions that encourages students to test their knowledge.

<http://www.learnalberta.ca/content/elims/html/start.html?launch=true>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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GED Essay Writing: Formula for Success

Students read about the format for a five-paragraph essay, which is the second part of the GED Writing Test. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABC1002

Gerry's Vocabulary Teacher

This program is for teaching and learning language through exposure to vocabulary in context. It provides a list of keywords, each of which is linked to a number of sentences, which illustrate how the word is used. Users can search and edit these sentences, and add more keywords or sentences of their own. And with a couple of mouse-clicks, they can choose a sequence of sentences, and build them into a complete language exercise. This program is suitable for second-language English students from an intermediate to advanced level, or for native English speakers in junior high or senior high school. Teachers can use the program to teach vocabulary in context, review and reinforce vocabulary, create tests, etc. Students can increase their vocabulary by examining new words in context, or even by creating random word gap exercises to test their knowledge of vocabulary.

<http://www.cict.co.uk/software/gvd/>

More ELA Live!

This collection of thirty videos features students exploring various aspects of English language arts. Topics include engaging prior knowledge; reference strategies; comprehension strategies; tone, purpose, and audience; audience response; clarity, coherence, and emphasis; atmosphere, tone, and voice; irony; musical effects and figures of speech; persuasive techniques; evaluating texts; identifying context; effect of personal factors; developing supporting details; presentation strategies; audience rapport; reviewing the controlling idea; coherence and transitions; word choices; stylistic techniques and rhetorical devices; punctuation; parts of speech; sentences; influence of texts; celebrating achievements; and group processes.

<http://www.learnalberta.ca/content/elmlal/index.html?launch=true>

Spectrum: Building and Celebrating Community

In these videos, students plan and create texts for various scenarios: a heritage minute, a documentary, an advertisement, and a scene from a screenplay. Students also use language to brainstorm ideas, share their perspectives, set group goals, deal with conflict, and work together as a student community. The resource offers four learning levels; how-to tips and student worksheets are also included.

<http://www.learnalberta.ca/content/elsbcc/html/bcc.html?launch=true>

Spectrum: Creating and Enhancing Text

These videos feature students working in groups as they plan and create texts for various purposes: writing a narrative about heroism; creating articles for a school e-zine; preparing a report on the needs of youth; and developing proposals for summer jobs. Moreover, students learn how to identify genres, revise and edit their work, and use specific techniques and elements of style to achieve their purposes. The resource offers four learning levels; how-to tips and student worksheets are also included.

<http://www.learnalberta.ca/content/elscet/html/cet.html?launch=true>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Spectrum: Exploring Language

The students in these videos explore the creative use of language as it relates to the writing process. Professional writers offer commentaries on expression, inspiration, influences, writing techniques, poetry, and songwriting. The resource offers four learning levels; how-to tips and student worksheets are also included.

<http://www.learnalberta.ca/content/elsel/html/el.html?launch=true>

Spectrum: Reading, Viewing, and Listening Strategies

These videos show groups of students as they learn a number of reading, viewing, and listening strategies. Students learn how to analyze literary techniques, learn research skills, and use their personal experiences and interests in responding to texts. The resource offers four learning levels; how-to tips and student worksheets are also included.

<http://www.learnalberta.ca/content/elsrvl/html/rvls.html?launch=true>

Spectrum: Researching and Making Presentations

This resource features videos of students demonstrating several aspects of the research and presentation process: focusing in on a topic; finding, evaluating and organizing research information; deciding among various presentation formats, and considering ways to make their presentations engaging for their audiences. The resource offers four learning levels; how-to tips and student worksheets are also included.

<http://www.learnalberta.ca/content/elsrmp/html/rmp.html?launch=true>

Summary Writing

Students demonstrate an understanding of summary writing by reading step-by-step instructions and then summarizing short paragraphs. Examples of poorly written and well-written summaries are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=TRG2603

The "Secret Society" and FitzGerald's The Great Gatsby

In this lesson, from EDSITEMent, students explore the nature of the "secret society" implied in "The Great Gatsby" through a close study of the text, an examination of Fitzgerald's letters and other statements, and a consideration of class, wealth, and status during the turbulent 1920s. Students combine critical thinking, textual analysis, and imaginative writing skills to write a "credo" for the "secret society" implied in "The Great Gatsby".

http://edsitement.neh.gov/view_lesson_plan.asp?id=432

You Can't Handle the Truth: A WebQuest on The Crucible

This unit is based on Arthur Miller's play, The Crucible. The lessons are truly student pages that have links to Web resources. There are additional pages for teachers who are planning a unit, such as writing assignments, examples of work, Web pages designed by students, and a hotlist of relevant Web sites.

<http://www.teachnet-lab.org/MBHS/Scragg/Crucible/opening.html>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

Environment

Arctic Circle

The Arctic Circle features information about the people and environment of the Arctic and Subarctic region. The site has three interrelated themes and Web links for natural resources, history and culture, social equity, and environmental justice. The Arctic Circle Museum highlights art and photography of the region, by local artists. Topics include environmental protection, northern development and, the indigenous peoples in Alaska, Canada, Northwest Siberia, etc. There are specific studies dealing with the impact of petroleum, gas, hydroelectric, and other forms of large-scale natural resource development in the region. A virtual classroom provides a focus for learning activities. A discussion forum is available.

<http://borealis.lib.uconn.edu/ArcticCircle/>

Biomagnification in the Great Lakes Ecosystems

This Xpeditions lesson focuses on biomagnification as it relates to the ecosystems of the Great Lakes region in the mid-western United States. As they work through the lesson, students diagram a food chain and label maps to show progress on environmental issues.

<http://www.nationalgeographic.com/xpeditions/lessons/08/g912/greatlakes.html>

Contaminants in the Water Cycle

In this Xpeditions lesson, students review the water cycle and investigate how a region's water supply can become contaminated. They look at a list of the Environmental Protection Agency's maximum contaminant levels for drinking water and sketch the water cycle of a fictitious town that is affected by several pollutants. Students conclude by writing paragraphs explaining what a group of concerned citizens in this hypothetical town might do to improve the quality of its water supply.

http://www.marcopolosearch.org/MPSearch/url_redirect.asp?orgn_ID=4&session_id=20063201050393903975&log_type=6&Record_id=45954&URL=http://www.nationalgeographic.com/xpeditions/lessons/14/g912/tgsouhegan.html

Environmental Exploration of BC's Ecosystems: Journeys and Transformations

This social studies lesson plan uses information from the Royal British Columbia Museum's virtual exhibit Journeys and Transformations and other resources. Eleventh-grade students will complete a poster for display about one BC ecosystem. The poster will include topics such as plants and animals, environmental conditions (rainfall, temperature, etc.) and environmental concerns associated with the ecosystem and how these concerns could be addressed. The Journeys & Transformations site presents the environments of BC: mountains, forests, waters, grasslands and cities. In each environment, there are topics relating to natural and human histories, including accounts provided by First Nations.

<http://www.royalbcmuseum.bc.ca/programs/journeys/bceco.pdf>

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Environmental Inquiry: Authentic Scientific Research for High School Students

Web site and curriculum series developed to help students conduct environmental science research and participate in communities of fellow student scientists. In 2003, EI won an Environmental Quality Award from the EPA for Excellence in Environmental Education. EI includes two levels of inquiry, modeled after professional scientific research. First, students learn specific research protocols. Using these protocols, they conduct interactive research projects. Downloadable forms help students design feasible experiments and then analyze, interpret, and present results. Discussion boards and an online peer review forum provide opportunities for interaction with fellow students.

<http://ei.cornell.edu/>

Environmental Issues in the Polar Regions

In this Xpeditions lesson, students learn about how environmental problems affect the polar regions. They create magazine ads to educate the public about these problems and to convince people to pay more attention to human impacts on the Arctic and Antarctic.

http://www.marcopolosearch.org/MPSearch/url_redirect.asp?orgn_ID=4&session_id=2006320739202756056&log_type=6&Record_id=2791&URL=http://www.nationalgeographic.com/xpeditions/lessons/05/g912/polarregions.html

Estuaries: Finding the Balance

In this Xpeditions lesson, students examine the conflict between development and the environment, and the attempt to find a sound compromise. Using estuaries as a case study, students are encouraged to consider the interaction between environmental and economic demands, and to seek a balance that protects both the estuarine habitat and economic growth.

<http://www.nationalgeographic.com/xpeditions/lessons/11/g912/tgestuaries.html>

Exploring the Environment

Exploring the Environment™ (ETE) is a series of interdisciplinary, problem-based learning (PBL) modules for high school students. They tackle real-world environmental dilemmas in 25 award-winning modules and activities, ranging from the shrinking habitat of Rwandan gorillas to disappearing rainforests. The project engages student teams in addressing problems related to weather, population growth, biodiversity, land use patterns, volcanoes, water pollution, and global warming. Teams analyze remotely sensed satellite images to come up with solutions to open-ended Earth science problems--problems that real scientists are working on today in much the same fashion.

<http://www.cotf.edu/ete/main.html>

Global Warming

The Earth's average temperature rose by more than half a degree Celsius over the last century. What caused this change? Join NASA's Earth Observatory Team in an investigation into the causes and effects of global warming. A series of movies build logically upon the previous one to give you a good understanding of the issues and implications of global warming.

<http://earthobservatory.nasa.gov/Laboratory/PlanetEarthScience/GlobalWarming/GW.html>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Home Owner Irrigation Scheduling Tutorial

Using weather information to adjust your watering will save water, reduce water cost, reduce the need for fertilizer, and improve the health of your plants. Weather-based scheduling works by calculating how much water your plants need, then calculating how long to run your watering system. Since the need for water varies throughout the year, you should regularly adjust your watering times.

<http://www.wateright.org/site2/home/index.asp>

Human Numbers Through Time

Trace the dramatic growth and spread of human populations on our global map, and see where on Earth as many as three billion more people may live by 2050.

<http://www.pbs.org/wgbh/nova/worldbalance/numbers.html>

Image Composite Editor (ICE)

The Image Composite Editor is designed to be an easy first step into the realm of Earth system science, image processing, data analysis, and satellite remote sensing via your Web browser. ICE is a java applet with several modes for analyzing remote sensing data, including color image composites with multiple wavelengths, display of time series, mathematical functions between multiple datasets, and analysis tools such as scatterplots and histograms. The Teacher's Guide helps to teach lessons — for classroom use or homework assignments — about Earth system science concepts as well as the basics of the electromagnetic spectrum and satellite remote sensing.

http://earthobservatory.nasa.gov/Laboratory/ICE/ice_intro.html

MapMaker

This interactive mapping tool runs through your Internet browser. Customize your own maps and print them for classroom use. You can interact with your map in many different ways: zoom in and out, turn layers on and off, identify features, query your data, measure distances and more.

<http://www.ccge.org/ccge/english/Mapmaker/default.asp>

Mountain Weather

Find out how the movement of air creates different microclimates on a mountain.

<http://www.pbs.org/wgbh/nova/kilimanjaro/weather.html>

Patterns Of Change

These twelve activities, using QuickTime movies and 3D snapshots of Earth, allow students and teachers to observe our planet's patterns of change, over time and space, and to think critically about what might be the causes and effects of those changes. The activities can be used independently of one another or as a series.

<http://earthobservatory.nasa.gov/Laboratory/Datasets/>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Rainforest at the Crossroads

In January 2004, students, teachers, and scientists all travel to Barro Colorado Island, Panama, to make measurements of terrestrial vegetation and to better understand how natural seasonal climate changes as well as human activities may affect the forest. NASA's Earth Observatory presents this four-part exercise to help teachers and students learn about satellite remote sensing and how scientists use the unique vantage point of space to observe and measure plants.

<http://earthobservatory.nasa.gov/Laboratory/ICE/panama/panama.php>

Responding to Climate Forecasts: Using Scenarios in the Planning Process

A step-by-step guide for using the strategy of scenario building to generate plans based on climate forecasts. Each step includes a short description of the issues you need to consider, the information you need to gather, and where you can go for more information. The site has three main sections: Principles (the theory), Cases (theory applied), and Tutorials (do-it-yourself guide.)

<http://cnmtl.columbia.edu/projects/iri/responding>

Seasonal Climate Prediction for Regional Scales

Students learn to apply global climate forecast models to local environments through online text, figures, and exercises that use a custom online mapping environment based on GrADS (Grid Analysis and Display System) software developed by the Institute for Global Environment and Society at the Center for Ocean-Land-Atmosphere Studies.

<http://www.cnmtl.columbia.edu/projects/climate/>

See a Reversal

Watch a simulated flip of the Earth's magnetic field, from the first signs of instability to the final reversal.

<http://www.pbs.org/wgbh/nova/magnetic/reversals.html>

Wave Properties

In this lesson, students will learn the components of a wave, then discuss the effects of wave height, wavelength, and wave period in determining the overall size of a wave. They will use the National Geographic Wave Simulator to experiment with creating different kinds of waves. Discussion will then focus on the effects of geography on wave size as well as additional forces on boats trying to navigate waves.

<http://www.nationalgeographic.com/xpeditions/lessons/07/g912/wavesproperties.html>

Weather and Agriculture

In this Xpeditions lesson, students research, discuss, and write reports on the relationship between climate and agriculture. They pretend that they've just purchased farms in specific parts of the United States and investigate that region's weather and climate in order to maximize the chances that their farms succeed.

<http://www.nationalgeographic.com/xpeditions/lessons/08/g912/globalclimate.html>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Wildfire Simulator

Wildfire Simulator is a fire-growth computer model that lets users see how certain conditions, such as wind speed and direction, affect the spread of a wildland fire. In addition, it shows users how to use a fireline -- alone or in conjunction with a backfire -- to control a fire. (A fireline is a path along which fuel has been removed, and a backfire is a fire purposely set to burn away fuel.) To begin this simulator, students set wind and fuel conditions by selecting various options in the "Wind" and "Fuel" section at the bottom of the screen. Using the "fire" icon located in the "Tools" section at the bottom of the screen, they start a fire. Next, if they decide to fight the fire, their goal is to stop the fire from reaching the house. To stop the fire, students can create a fireline with the tool that looks like a pick and widen the fireline by creating a backfire with the drip torch (These icons are located in the "Tool" section at the bottom of the screen.

<http://www.pbs.org/wgbh/nova/fire/simulation.html>

ESL (English as a Second Language)

Activities for ESL Students

Quizzes, tests, exercises and puzzles to help you learn English as a Second Language (ESL). This project of The Internet TESL Journal (iteslj.org) has thousands of contributions by many teachers. Includes bilingual quizzes in various languages.

<http://a4esl.org/>

Application Success

Students read tips for filling out a job application and complete an online application form. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABC501

Basic Simple and Progressive Tenses

This lesson plan shows basic simple and progressive tenses with an Excel spreadsheets application.

<http://www.nelliemuller.com/integratingtechnologyinESL.htm>

<http://www.nelliemuller.com/IntegratingtechnologyinESL.basicsimpleandprogressivetenses.doc>

Building a Resume

Students read about the components of a resume and write one for personal use. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABC2102

DRAFT

Cruel Schools: Bullying Behaviour in School

Internet and class activity, and face-to-face discussion on social and communicative life skills. Students work collaboratively while learning to apply decision-making techniques. A video clip introduces a real-life situation as a result of bullying behaviour. Students learn to become aware of the dangers of bullying behaviour in school, solve problems and are ready to make character changes as they learn about the importance of caring about others.

http://www.nelliemuller.com/cruel_schools.htm

English Words of French Origin

Students read and hear English words that came from the French language. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S3202

Ever and Never

Students read the definitions of these two adverbs of frequency, which are often confused. They then complete sentences using "ever" or "never." Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ESL1803

Games & Activities for the ESL/EFL Classroom

More than 130 activities to do in an ESL/EFL classroom, from easy to advanced level.

<http://iteslj.org/games/>

GED Essay Writing: Formula for Success

Students read about the format for a five-paragraph essay, which is the second part of the GED Writing Test. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABC1002

Gerry's Vocabulary Teacher

This program is for teaching and learning language through exposure to vocabulary in context. It provides a list of keywords, each of which is linked to a number of sentences, which illustrate how the word is used. Users can search and edit these sentences, and add more keywords or sentences of their own. And with a couple of mouse-clicks, they can choose a sequence of sentences, and build them into a complete language exercise. This program is suitable for second-language English students from an intermediate to advanced level, or for native English speakers in junior high or senior high school. Teachers can use the program to teach vocabulary in context, review and reinforce vocabulary, create tests, etc. Students can increase their vocabulary by examining new words in context, or even by creating random word gap exercises to test their knowledge of vocabulary.

<http://www.cict.co.uk/software/gvd/>

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Homophones: To, Too, Two

Students read definitions of To, Too, and Two and complete practice sentences. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABC1202

Language Pronunciation and Comprehension Learning Tool

The Language Pronunciation and Comprehension Learning Tool (LPCLT) is a revolutionary linguistics toolkit designed to enhance a student's comprehension and pronunciation of a particular language. This new learning tool developed by Arts Instructional Support (Arts IS) allows teachers to author vocabulary and sentence structures into an oral component, to aid students in learning to hear and speak a new language. The authored component is a digitally recorded question-and-answer set. This tool offers direct learning enhancement by allowing teachers to create their own oral component in any given language. Students, with this tool, are given the unique opportunity to hear, comprehend and speak their chosen language at their own leisure. The tool can also be used in conjunction with language labs, or by adding a direct oral component to a language curriculum. Additionally, if this tool is incorporated onto a WebCT platform, students will benefit by being able to practice their oral skills at home.

http://www.learningtools.arts.ubc.ca/language_pronunciation_tool.htm

Leaving a Telephone Message

Students listen to three telephone messages and enter their evaluation of each one. They then read a list of guidelines for leaving effective messages. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABC1302

Managing your Money

Students will begin by learning what a budget is and studying their own. Then, they will create a plan to make important changes with the way they spend their money. This WebQuest is designed as support materials to be used with adult students within the context of advanced ESL, ABE or GED classes. The Teacher Page lists the competencies or skills addressed by the tasks included in the WebQuest and offers strategies for introducing the WebQuest to the class. This online activity includes a vocabulary list and activities to support vocabulary instruction.

<http://www.altn.org/webquests/money/index.html>

Nouns: Count and Noncount -- Many vs. Much

In this interactive lesson, students study the use of "many" and "much" with nouns that can be counted and nouns that cannot. They then practice using these words in a drag-and-drop exercise. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ESL3004

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Parts of Speech in Sentences: The Order of Operations

Students identify the parts of speech by following a certain order until each word in a sentence is labelled. In a variety of exercises, students practice finding verbs, prepositional phrases, subjects, nouns, pronouns, adjectives, adverbs, and conjunctions. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABC3004

Personal Pronouns

Students read about the difference between the subject and object form of personal pronouns and test their knowledge in practice quizzes. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABC601

Randall's ESL Cyber Listening Lab

Listening comprehension activities for use with students. Neatly organized by difficulty level. Listen to the audio segment and answer the questions based on what you hear. More than 90 general listening quizzes, 20-minute ESL vocabulary lessons, language learning and life tips, long conversations with RealVideo, listening quizzes for academic purposes (preparing for TOEIC, TOEFL).

<http://www.esl-lab.com/index.htm>

Reading Comprehension on The Future Mega-Tsunami

Reading comprehension lesson plan for ESL teachers.

<http://www.nelliemuller.com/Tsunamilessonplan.doc>

Reading Comprehension Practice and Lesson Plan for ESL/EFL Learners

Reading Comprehension Practice for ESL/EFL learners. Text about distance learning, comprehension questions, vocabulary quiz, crossword puzzle. Answers can be checked online.

http://www.nelliemuller.com/Reading_Comprehension_Practice.htm

http://www.nelliemuller.com/Online_Distance_Learning.doc

"Say" and "Tell"

Students read the definitions of "say" and "tell" and decide when to use these words in practice sentences. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ESL703

Takako's Great Adventure

A way to put an authentic voice in students' head while they are doing reading activities. There are also worksheets to go with each day of Takako's adventure, taking students from the "what happened" level to a deeper inference level of comprehension.

<http://international.ouc.bc.ca/takako/>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Train Your Accent: ESL Accent Reduction Training and Conversational English Practice

Train Your Accent provides you with samples of relaxed, North American English that reflect everyday activities and help you sound more natural. Furthermore, understanding reduced speech will help you understand others better.

<http://www.trainyouraccent.com/>

Using "Borrow" and "Lend" Correctly

Students read sentences containing the words "borrow" and "lend", and use those words in an interactive exercise. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ESL1302

Using "Lie" and "Lay" Correctly

Students view examples of the correct usage of the verbs "lie" and "lay." They then practice using the verbs in a drag-and-drop exercise. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ESL1703

Using "They're", "There", and "Their" Correctly

Students reads examples of the correct usage of "they're", "there", and "their". They then practice choosing the correct word in an exercise. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ESL1402

UVic's Language Teaching Clipart Library

This library consists of about 3,000 images, which we hope will be useful in the teaching of basic vocabulary in a variety of languages. The characters and objects depicted are as culturally neutral as possible. This is not a huge resource of graphics; its purpose is to provide a set of those graphics most basic and useful for language teaching, and at the same time, to make them as easily searchable as possible. The 3,000 images consist of 1,500 pairs. One member of each pair has a transparent background just big enough to fit the image, the other has a white background 110 by 110 pixels.

<http://web.uvic.ca/hcmc/clipart/>

Verbix

Free universal verb conjugator software for Windows operating systems, Verbix shows complete verb inflections of any verb in over 100 languages, and also returns the glossary look-up form from any inflection. It is designed for students of foreign languages who are tired of browsing grammar books, dictionaries, incomplete conjugation tables and other sources to find correct verb conjugations and spelling. Verbix is available as Verbix for Windows (as shareware in 7.2 version and freeware in 7.1 version and earlier) and WebVerbix (free online conjugator).

<http://www.verbix.com/webverbix/>

French

Bon Appetit: Exploring the Brasseries of Paris

Having previously been exposed to vocabulary and concepts on the topic of food and restaurants, students are prepared to visit authentic French restaurant sites on the Internet. Students (third-year of French) task sheets assist in comprehending the site and extracting vital information from each brasserie ad. The knowledge is synthesized and used to create a restaurant ad of their own, which is then published on their Web site for others to view.

<http://www.teachnet-lab.org/huck/brasse~1.htm>

Charles Baudelaire: The Poet of Sickness and Evil

French Language and World Literature classes will study the works of 19th century poet Charles Baudelaire and learn about the connections between the Romantic Movement and themes of 21st century popular culture.

http://edsitement.neh.gov/view_lesson_plan.asp?id=389

French Connections

Take a virtual tour of Paris, create an English language guide to French Internet resources, and compare journalistic practices in the United States and France.

http://edsitement.neh.gov/view_lesson_plan.asp?id=279

Grammaire visuelle avec Amélie

The purpose of this Web site is to practice past narration in French using the *passé composé* and the *imparfait*. In the first part of this Web site, you will watch brief video clips and say what occurred. Before doing the second part, you will need to view a feature-length movie entitled *Le fabuleux destin d'Amélie Poulain*.

http://www.bc.edu/bc_org/avp/cas/romlang/pn/french1.htm

Language Pronunciation and Comprehension Learning Tool

The Language Pronunciation and Comprehension Learning Tool (LPCLT) is a revolutionary linguistics toolkit designed to enhance a student's comprehension and pronunciation of a particular language. This new learning tool developed by Arts Instructional Support (Arts IS) allows teachers to author vocabulary and sentence structures into an oral component, to aid students in learning to hear and speak a new language. The authored component is a digitally recorded question-and-answer set. This tool offers direct learning enhancement by allowing teachers to create their own oral component in any given language. Students, with this tool are given the unique opportunity to hear, comprehend and speak their chosen language at their own leisure. The tool can also be used in conjunction with language labs, or by adding a direct oral component to a language curriculum. Additionally, if this tool is incorporated onto a WebCT platform, students will benefit by being able to practice their oral skills at home.

http://www.learningtools.arts.ubc.ca/language_pronunciation_tool.htm

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Le Patron: Writing Assistant

The "Patron" Writing Assistant is a tool that can help identify common spelling, grammar, and expression problems in French. Designed primarily for second-language students, "Le Patron" provides easy-to-understand explanations that lead users to be active participants in the process of correction, rather than allowing the machine to make corrections automatically.

<http://lepatron.tapor.ualberta.ca/>

Polar FLE: Apprendre le français avec l'inspecteur Roger Duflair

Solve a mystery and learn French at the same time! This site presents a "crime" with a set of language exercises to be completed in order to find the culprit. Available in four levels of difficulty.

<http://www.polarfle.com>

Prononciation du Français

Pronunciation guide for French using International Phonetic Alphabet notation and embedded QuickTime audio.

<http://www.colby.edu/lrc/projects/phonetique.php>

The Photo-French Reflex

In this unit, fourth-year high school French students wrote, created photographs for, and published a booklet comparing French and American teenage lives in situations requiring the use of reflexive verbs.

<http://www.kodak.com/global/en/consumer/education/lessonPlans/lessonPlan148.shtml>

Un Samedi à Paris

The aim of this learning experience is to provide a learner-centered, performance-based lesson in which students work cooperatively to plan a day of activities in Paris. Students in third-year French conduct research on the Internet using authentic French materials, assemble information in a meaningful way via a dialogue, and present their project to the class orally. Students will alternate between the computer lab and the classroom.

<http://www.teachnet-lab.org/huck/samedi.htm>

UVic's Language Teaching Clipart Library

This library consists of about 3,000 images, which we hope will be useful in the teaching of basic vocabulary in a variety of languages. The characters and objects depicted are as culturally neutral as possible. This is not a huge resource of graphics; its purpose is to provide a set of those graphics most basic and useful for language teaching, and at the same time, to make them as easily searchable as possible. The 3,000 images consist of 1,500 pairs. One member of each pair has a transparent background just big enough to fit the image, the other has a white background 110 by 110 pixels.

<http://web.uvic.ca/hcmc/clipart/>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Venez voir le Sénégal

Six short film clips in French, along with French transcriptions form the core of this learning object.

<http://www.colby.edu/lrc/projects/senegal.html>

Verbix

Free universal verb conjugator software for Windows operating systems, Verbix shows complete verb inflections of any verb in over 100 languages, and also returns the glossary look-up form from any inflection. It is designed for students of foreign languages who are tired of browsing grammar books, dictionaries, incomplete conjugation tables and other sources to find correct verb conjugations and spelling. Verbix is available as Verbix for Windows (as shareware in 7.2 version and freeware in 7.1 version and earlier) and WebVerbix (free online conjugator).

<http://www.verbix.com/webverbix/>

Geography

Animals Versus People: Who's the Better Navigator?

This Xpeditions lesson asks students to focus on people's innate navigational abilities. They first read about animal navigation and then compare animal and human navigational capabilities. They then create travel brochures for an Outward Bound-style company, providing customers with tips on how to find their way if they get lost and can't rely on their map and compass.

<http://www.nationalgeographic.com/xpeditions/lessons/02/g912/animalpeople.html>

Arctic Circle

The Arctic Circle features information about the people and environment of the Arctic and Subarctic region. The site has three interrelated themes and Web links for natural resources, history and culture, social equity, and environmental justice. The Arctic Circle Museum highlights art and photography of the region, by local artists. Topics include environmental protection, northern development and, the indigenous peoples in Alaska, Canada, Northwest Siberia, etc. There are specific studies dealing with the impact of petroleum, gas, hydroelectric, and other forms of large-scale natural resource development in the region. A virtual classroom provides a focus for learning activities. A discussion forum is available.

<http://borealis.lib.uconn.edu/ArcticCircle/>

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Auroras: Paintings in the Sky

This site will show what auroras look like on Earth and from space, explain how they are created, and show where they can be found. Teach yourself using the "Self-Guided Lesson" button. Includes suggestions for using this site in the classroom. The sites found in the "Aurora Links" section could serve as starting points for research on related topics. For example, students could look into how to photograph auroras, learn more about the Sun and x-ray images, or see where other interesting Astronomy Picture of the Day images lead them. They might also learn more about the Earth's magnetosphere, or study the relationship between electricity and magnetism.

http://www.exploratorium.edu/learning_studio/auroras/

A Web of Resources

What is a resource? What are the geographic qualities of resources? This activity deals with the complex nature of resources and how geography is part of the nature of resources. Students will be asked to conduct research on selected resources and explore the geographic nature of resources in general.

<http://www.nationalgeographic.com/xpeditions/lessons/16/g912/web.html>

Biomagnification in the Great Lakes Ecosystems

This Xpeditions lesson focuses on biomagnification as it relates to the ecosystems of the Great Lakes region in the mid-western United States. As they work through the lesson, students diagram a food chain and label maps to show progress on environmental issues.

<http://www.nationalgeographic.com/xpeditions/lessons/08/g912/greatlakes.html>

Contaminants in the Water Cycle

In this Xpeditions lesson, students review the water cycle and investigate how a region's water supply can become contaminated. They look at a list of the Environmental Protection Agency's maximum contaminant levels for drinking water and sketch the water cycle of a fictitious town that is affected by several pollutants. Students conclude by writing paragraphs explaining what a group of concerned citizens in this hypothetical town might do to improve the quality of its water supply.

http://www.marcopolosearch.org/MPSearch/url_redirect.asp?orgn_ID=4&session_id=20063201050393903975&log_type=6&Record_id=45954&URL=http://www.nationalgeographic.com/xpeditions/lessons/14/g912/tgsouhegan.html

Creating Contours

Given a number of points of elevation, you will be able to construct a topographic map with appropriate contours.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=108381093267497>

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Cultural Characteristics Influence a Region's Character

In this Xpeditions lesson, students analyze demographic data and explore relationships between several cultural characteristics of nations. They develop and test hypotheses about the sources of demographic differences.

<http://www.nationalgeographic.com/xpeditions/lessons/10/g912/region.html>

Different Ways of Seeing Our World

In this lesson, students are given the opportunity to make world maps, with the relative size of nations dependent not on physical geography, but on population and economic strength.

http://www.canadiangeographic.ca/worldmap/cida/lessons/word/CG-CIDA_AB_9-12_Seeing.doc

http://www.canadiangeographic.ca/worldmap/cida/lessons/pdf/CG-CIDA_AB_9-12_Seeing.pdf

Easting

Knowing the scale of a topographic map you will be able to calculate the Easting of any given point on that map.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=47501054234209>

Environmental Issues in the Polar Regions

In this Xpeditions lesson, students learn about how environmental problems affect the polar regions. They create magazine ads to educate the public about these problems and to convince people to pay more attention to human impacts on the Arctic and Antarctic.

http://www.marcopolosearch.org/MPSearch/url_redirect.asp?orgn_ID=4&session_id=2006320739202756056&log_type=6&Record_id=2791&URL=http://www.nationalgeographic.com/xpeditions/lessons/05/g912/polarregions.html

Estuaries: Finding the Balance

In this Xpeditions lesson, students examine the conflict between development and the environment, and the attempt to find a sound compromise. Using estuaries as a case study, students are encouraged to consider the interaction between environmental and economic demands, and to seek a balance that protects both the estuarine habitat and economic growth.

<http://www.nationalgeographic.com/xpeditions/lessons/11/g912/tgestuaries.html>

Global Perspectives: A Remote Sensing and World Issues Site

The itinerary for Global Perspectives takes students on a tour of some of the world's political hotspots: the Middle East, South Asia, the Balkans, Central America. Through the tools of remote sensing and a thorough package of background on each region, students use problem-based learning to tackle real-world problems in these troubled areas. The free online program's satellite images and other geospatial information convey concepts that involve global- and regional-scale patterns. With real-life scenarios, detailed historical timelines, a glossary of vocabulary, and links to other helpful sites, Global Perspectives offers a standards-based, multidisciplinary approach to current events.

<http://www.cet.edu/earthinfo/>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Human Numbers Through Time

Trace the dramatic growth and spread of human populations on our global map, and see where on Earth as many as three billion more people may live by 2050.

<http://www.pbs.org/wgbh/nova/worldbalance/numbers.html>

Image Composite Editor (ICE)

The Image Composite Editor is designed to be an easy first step into the realm of Earth system science, image processing, data analysis, and satellite remote sensing via your Web browser. ICE is a java applet with several modes for analyzing remote sensing data, including color image composites with multiple wavelengths, display of time series, mathematical functions between multiple datasets, and analysis tools such as scatterplots and histograms. The Teacher's Guide helps to teach lessons — for classroom use or homework assignments — about Earth system science concepts as well as the basics of the electromagnetic spectrum and satellite remote sensing.

http://earthobservatory.nasa.gov/Laboratory/ICE/ice_intro.html

Imagine the Universe

This Teacher Resources Corner includes lesson plans, posters and information/activity booklets about the lifecycle of stars, the anatomy of black holes, gamma-ray bursts, hidden lives of galaxies and others educational materials using videos etc. Imagine the Universe! CD-ROMs (9th Edition) are also available as disc images (Disc 1, Disc 2) for downloading, if you have a CD burner. Warning, these are 470 MB and 530 MB files! With DSL or Cable Modem, each will take approximately 1 hour to download. Using a dial-up modem, each will take approximately 1 day to download.)

http://imagine.gsfc.nasa.gov/docs/teachers/teachers_corner.html

Latitude

You will be able to determine the latitude of a point on a topographic map.

http://acme.acadiau.ca:2000/afss/bin/lor_view.cgi?file_id=47461054229094

Longitude

You will be able to determine the longitude of a point on a map.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=47471054229285>

MapMaker

This interactive mapping tool runs through your Internet browser. Customize your own maps and print them for classroom use. You can interact with your map in many different ways: zoom in and out, turn layers on and off, identify features, query your data, measure distances and more.

<http://www.ccge.org/ccge/english/Mapmaker/default.asp>

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Map Northing

Knowing the scale of a topographic map, you will be able to determine the northing of any point on that map.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=47511054234396>

Map Projections

This Xpeditions lesson emphasizes map projections and has students consider the different types of map projections and the most appropriate projections for various uses. After reading about, seeing graphics of, and taking notes on a variety of map projections, students pretend to be cartographers and specify which types of map projections would be the most valuable for their clients.

<http://www.nationalgeographic.com/xpeditions/lessons/01/g912/projections.html>

Map Scale

Given the relationship between what a measurement on a map represents in real distance on the ground, you will be able to calculate the map scale.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=47481054230019>

Mountain Weather

Find out how the movement of air creates different microclimates on a mountain.

<http://www.pbs.org/wgbh/nova/kilimanjaro/weather.html>

Parts of a Topographic Map

You will be able to identify the components of a topographic map.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=47521054234651>

Patterns Of Change

These twelve activities, using QuickTime movies and 3D snapshots of Earth, allow students and teachers to observe our planet's patterns of change, over time and space, and to think critically about what might be the causes and effects of those changes. The activities can be used independently of one another or as a series.

<http://earthobservatory.nasa.gov/Laboratory/Datasets/>

Physical Characteristics of Places: The Fossil Record

This Xpeditions lesson asks students to consider how the movement of the Earth's tectonic plates alters the physical characteristics of places over geologic time. Students investigate how climate has changed in specific world regions since the time of the dinosaurs and write paragraphs explaining their findings.

<http://www.nationalgeographic.com/xpeditions/lessons/04/g912/fossil.html>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Places and Processes: Physical Processes in Shaping Places

In this Xpeditions lesson, students analyze the roles of climate and other physical processes in shaping places. Although this lesson focuses on places in the United States, it can easily be adapted to other regions of the world.

<http://www.nationalgeographic.com/xpeditions/lessons/04/g912/processes.html>

See a Reversal

Watch a simulated flip of the Earth's magnetic field, from the first signs of instability to the final reversal.

<http://www.pbs.org/wgbh/nova/magnetic/reversals.html>

The Hidden Lives of Galaxies

This guide provides information and classroom activities on the properties of galaxies and the evidence for dark matter in galaxies. It also describes the possible candidates for dark matter. The guide contains 11 standards-based activities, which use a variety of pedagogical methods.

<http://imagine.gsfc.nasa.gov/docs/teachers/galaxies/imagine/titlepage.html>

http://imagine.gsfc.nasa.gov/docs/teachers/galaxies/imagine/imagine_book.pdf

The Scientific Method in Undersea Archaeology

In this Xpeditions lesson, students discuss how the scientific method was used in studies of the Black Sea. Current theory says that during the Ice Age, the Black Sea was an isolated freshwater lake surrounded by farmland that was eventually flooded. Students diagram the steps scientists took to test one of their hypotheses concerning the flooding and then outline two other hypotheses and the steps that were taken to test them. Students conclude by writing a research plan for future studies.

<http://www.nationalgeographic.com/xpeditions/lessons/17/g912/methods.html>

Topographic Profile

Given two points on a topographic map, you will be able to draw a topographic profile or cross-section between the two points.

<http://courseware.acadiau.ca/lor/servlet/GetAFSSFile?id=47491054230248>

Urban Daydreams: You Should See What I See

This Xpeditions lesson has students use their perceptions of cities around the world to better understand what factors may affect their personal mental maps. Students learn how to compare sketches of fellow students' mental maps, and analyze the subjective criteria that influenced their choices about places to include and label.

<http://www.nationalgeographic.com/xpeditions/lessons/02/g912/urban.html>

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Wave Properties

In this lesson, students will learn the components of a wave, then discuss the effects of wave height, wavelength, and wave period in determining the overall size of a wave. They will use the National Geographic Wave Simulator to experiment with creating different kinds of waves. Discussion will then focus on the effects of geography on wave size as well as additional forces on boats trying to navigate waves.

<http://www.nationalgeographic.com/xpeditions/lessons/07/g912/wavesproperties.html>

Weather and Agriculture

In this Xpeditions lesson, students research, discuss, and write reports on the relationship between climate and agriculture. They pretend that they've just purchased farms in specific parts of the United States and investigate that region's weather and climate in order to maximize the chances that their farms succeed.

<http://www.nationalgeographic.com/xpeditions/lessons/08/g912/globalclimate.html>

What Can We Learn from Satellite Images?

Students will look at maps and satellite images to see how various settled parts of the Earth have changed over the past few decades. They will then draw maps of their hometown, showing how it might have looked in satellite images in the 1970s and today. This will probably require some research into their town's recent history.

<http://www.nationalgeographic.com/xpeditions/lessons/03/g912/landuse.html>

What's Up With the Weather?

In this Xpeditions lesson, students pretend they are meteorologists who have been asked to give a press report explaining what is to blame for the seemingly strange weather patterns that have afflicted the country in the past few years: floods, hurricanes, blizzards, milder-than-normal winters, etc. They conduct research in preparation for making a statement to the press about the issue. Then, students imagine that their family is contemplating a move to California and has asked them to find out what the real risks of living in an earthquake-prone area are. Students research and write a report informing their family about what they should look for when shopping for a home and deciding which neighbourhood to live in.

<http://www.nationalgeographic.com/xpeditions/lessons/07/g912/weather.html>

Where Should I Build My Business?

In this Xpeditions lesson, students learn how to identify the market areas of some of the major retailers in their communities. To accomplish this, they survey consumer travel behaviour and create hypothetical businesses in their hometowns.

<http://www.nationalgeographic.com/xpeditions/lessons/11/g912/business.html>

German

Aufenthalt in Köln

This site works on German language skills online by covering these topics: making reservations; types of accommodation; making enquiries; transport; timetables; types of tickets; entrance fees/tickets; sights and attractions; and dialogues.

<http://www.teachnet.ie/tflynn/german/>

BBC Languages: German

This Web site contains various materials to help teachers teaching German as a second language: an intermediate audio magazine with topical reports, a guide to tuning to TV in German from the UK, self-contained online courses, documentaries, etc.

<http://www.bbc.co.uk/languages/german/index.shtml>

Guess the Headline

What are the German papers saying about the Soccer World Cup? Find out here.

<http://www.bbc.co.uk/languages/german/headline/>

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http://www.learningtools.arts.ubc.ca/language_pronunciation_tool.htm

Lina und Leo

Undertake a multimedia tour of the cities of Germany with student Lina and her parrot Leo, and explore the country and its people. Through interactive learning language, students practice their vocabulary, grammar and ability to understand written and spoken texts. This course for teenagers is also available as a course on CD-ROM.

<http://www2.goethe.de/z/50/linaleo/deindex.htm>

Station-d: A Virtual Tour of Germany!

You are just a mouse-click away from exciting sites from and about Germany.

<http://www.goethe.de/dll/pro/station-d/deindex.html>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Test your German

This test has 30 questions and will give an approximate placement in one of the six levels of the Common European Framework.

<http://www.goethe.de/cgi-bin/einstufungstest/einstufungstest.pl>

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<http://www.verbix.com/webverbix/>

History

Art2Life: The Canadian Century

This interactive timeline of Canadian art, people and events provides an educational tool for students, teachers, and life-long learners interested in Canadian culture, art and history. The site is inspired by the principles of learning through art and the importance and value of integrated learning. Art2LIFE provides an in-depth look at 20th Century Canada through one hundred works of art and hundreds of original photographs, articles, video and audio clips, illustrating thirteen curriculum-based themes and weaving a sense of country and place stretching from coast to coast. The 15 suggested activities, developed and approved by professional teachers, target various subject areas and learning expectations. A visual arts glossary is also available to increase students' knowledge of art terms and techniques, which will enhance their interaction with and appreciation for the Canadian art on the site.

<http://www.art2life.ca/>

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Babatha's Scroll

Have a close look at one of the 35 papyrus scrolls in the Babatha archive — a registration of land dating from the year 127 — by translating a 2,000-year-old cave document from ancient Greek into English, and get an inkling of what life was like for a well-to-do Jewish woman living under Roman rule in the second century.

<http://www.pbs.org/wgbh/nova/scrolls/babatha.html>

Cold War: Interactive Maps

The maps allow students to view changes in geography, actual photos, or navigate 360 degrees around a picture of the time. Interactive maps, detailing the impact of the Cold War on political boundaries, are available here, by episode: Cold War battle lines, the Iron Curtain, the Marshall Plan, the Berlin airlift, the Korean conflict, after Stalin, how the Wall worked, Vietnam, the nuclear club, Wenceslas square, China, Central and South America, The Cold War as regional flashpoint, Afghanistan and its neighbours, where the Wall fell. A teacher's guide is also available at <http://turnerlearning.com/cnn/coldwar/index.html>.

<http://www.cnn.com/SPECIALS/cold.war/kbank/maps/>

Colombia: The U.S. Response to the Changing Nature of International Conflict

The simulation focuses on the agendas, options, and dynamics at play when prospects of foreign intervention by the U.S. military are being considered. Participants grapple with a scenario of political and economic crisis in Colombia, and debate the policy decisions to be made in defining an appropriate American response to that situation. Participants role-play officials from the U.S. government executive and legislative branches, officials of human rights organizations, and journalists representing various U.S. media. In the process, participants will have the opportunity to consider the broader implications of the scenario on U.S. foreign policy and international conflict in general.

<http://www.usip.org/class/simulations/colombia.pdf>

Controlling the Proliferation of Nuclear Weapons

This teaching guide assists teachers in increasing students' understanding of the prevalence and spread of nuclear weapons, and familiarizes students with historic and contemporary measures to control nuclear proliferation, and stimulates their thinking of potential strategies for doing so in the future.

http://www.usip.org/ed/npec/teaching_guide06.pdf

Escape from the Third Reich

Online activity on the escape attempts and lives of Allied Prisoners of War during the Second World War. There are student activity pages including a downloadable teacher's guide. The project attempts to evaluate the potential for using ICT, Multiple Intelligences and cross-subject study in the teaching of history in Transition Year. The activity is a WebQuest based around activities where students will be set a range of different tasks.

<http://www.teachnet.ie/jheffernan/escape/index.htm>

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History in Films

Since students are so media-oriented, this Web site provides a version of a World History class that takes advantage of the many popular films that deal with historical subjects. The intent is to give students a place on the Internet to review the films shown in class. Each film here has both a plot summary page and an outline. The plot summary can give students an overview before they watch the film or serve as a review sheet after. The outline can be used to facilitate note taking as students watch the film. Some students respond more positively if they know there is graded work involved in a project. So, there is also a homework sheet for every film. There is also a Links page for each film, so students can easily find outside resources if they are needed.

<http://www.historyinfilm.com/index.htm>

Human Numbers Through Time

Trace the dramatic growth and spread of human populations on our global map, and see where on Earth as many as three billion more people may live by 2050.

<http://www.pbs.org/wgbh/nova/worldbalance/numbers.html>

Medieval Women

Teachers in History and Women's Studies program, with support from McMaster's and from the Bell Broadcast and New Media Fund, created an interactive Web site on Medieval Women incorporating virtual reality, video and audio. It presents a thoroughly modern recreation of a medieval world, with women's lives as its focus. It is designed for the curious and the scholarly alike. With just a click of a mouse, visitors can experience life in a nunnery, play authentic medieval games or set off on a pilgrimage.

<http://mw.mcmaster.ca/>

Northern Ireland: One Step at a Time (The Derry March and Prospects for Peace)

The simulation deals with a specific issue in the Northern Ireland conflict: that of the marches, which serve as a microcosm of the larger conflict between Catholics and Protestants. The simulation's focus on the Parade Commission's decision whether or not to allow a particular march in Derry helps crystallize the wide array of issues that arise when the Northern Ireland conflict is studied. In role-playing, the representatives of the various concerned political parties, associations, and authorities, participants learn about the deep roots of this longstanding conflict and attempt to fashion new proposals to deal with this challenging situation.

<http://www.usip.org/class/simulations/nireland.pdf>

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Ontario History Quest

The Toronto Public Library, in partnership with the Ontario Ministry of Culture, the Archives of Ontario and the City of Toronto Archives, presents an online learning resource for Ontario students in grades 7, 8, 10 and 12 studying history from 1820-1970. The site meets Ontario Ministry of Education curriculum requirements and operates in a closed Internet environment. Grade 10 and 12 students are directed to the complementary OHQ Digital Collections Web site with searchable databases of over 3,300 primary and secondary source materials. Students use primary and secondary sources for gathering, analyzing, synthesizing and evaluating historical information through a series of prompts. Following completion of the introductory activities, pairs of students will be assigned a role in a class WebQuest to examine social, economic and political conditions in Upper Canada, 1820s - 1850s. For each grade, are provided Introductory Activities and a WebQuest where students have the opportunity to learn about Ontario history through the exploration of original letters, diaries, pictures and other documents. Teacher packages are provided for each grade. For grade 12 see: <http://ohq.tpl.toronto.on.ca/OHQ-gr12-teacher-package.pdf>.

<http://ohq.tpl.toronto.on.ca>

Sri Lanka: Setting the Agenda for Peace

The setting for this simulation is a September 2001 meeting in Geneva, where the Government of Sri Lanka and the Liberation Tigers of Tamil Elam (LTTE) are to explore avenues for resolving their conflict. What gives this meeting particular urgency is a donor threat to cut off aid unless the Sri Lankan Government shows a willingness to explore political solutions. Donors have also indicated they may enact legislation banning LTTE fund-raising activities in their respective countries. The international community's threat to use economic pressure to end the violence has changed the status quo of the conflict, and offers a rare window of opportunity for peace. In role-playing representatives of the parties to the conflict, various political parties, concerned states, and other organizations considered to be major stakeholders in the conflict, participants will attempt to forge an acceptable agenda that can serve as the basis for peace talks.

<http://www.usip.org/class/simulations/srilanka.pdf>

Talking History: Aural History Productions

This weekly broadcast/Internet radio program, Talking History, focuses on all aspects of history. It gives free access to all its radio archives. Most of them are available both in MP3 and Real Media formats. Based at the University of Albany, State University of New York, Aural History Productions is a production, distribution, and instructional center for all forms of aural history. Its mission it to provide teachers, students, researchers, and the general public with as broad and outstanding a collection of audio documentaries, speeches, debates, oral histories, and archival radio sources as is available anywhere.

<http://www.talkinghistory.org>

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Talking History: The Radio Show

Talking History is a weekly half-hour radio program produced by the Organization of American Historians with a grant from the Gilder Lehrman Institute of American History. The goal is to bridge the gap between professional historians and the public, and to demonstrate that history is not confined to chronology but consists of layered mosaics of understanding. Wide ranges of topics are covered from the Founding Fathers and the Constitution to baseball and gangsters, from the American Revolution and the Civil War to Jesse James and Mother Jones. Indexed by topic and people, most of the archives presented here (more than 300) are MP3 files but since 2006, Talking History is also available as a podcast.

<http://talkinghistory.oah.org>

The Cambodia Peace Settlement

Participants role-play negotiators at a peace settlement conference, where, due to international pressure, the Cambodian government has agreed to negotiate with opposition leaders over implementation of a peace settlement and past accountability for genocide and war crimes.

<http://www.usip.org/class/simulations/cambodia.pdf>

The Conquistadors

This online learning adventure was created to learn about the Spanish Conquistadors in the New World – and the legacy of their contact with Native Americans. There is in-depth online content for students, in both English and Spanish. The site includes a wealth of information about Cortes, Pizarro, Orellana, and Cabeza de Vaca. The Teacher Guide consists of 4 interdisciplinary teaching units with lesson plans geared to the US national standards and a variety of "Teaching Tickler" interactive activities and discussion questions for middle and high school.

<http://www.pbs.org/opb/conquistadors/home.htm>

The Israeli-Palestinian Conflict

This simulation focuses on a U.S.-led effort to bring together many elements of both Israeli and Palestinian society to hold discussions about the needs and interests of both sides before entering into formal negotiations. The simulation provides an opportunity to view this longstanding conflict from the perspectives of those immediately impacted by it: in particular, the communities of ordinary Israelis and Palestinians who have yet to see much benefit in their own lives from the peace process.

http://www.usip.org/class/simulations/israeli_conflict.pdf

The Paris Peace Talks of December 1972–January 1973

This simulation focuses on a brief phase in the Paris Peace Talks, when the U.S., North Vietnam, South Vietnam and the Soviet Union met in Paris to salvage peace in Vietnam. Two months earlier the Government of South Vietnam had announced its disagreement with a draft text, blocking further progress. Now, the major parties have agreed to come together and try to achieve a peace agreement in the belief that this may be the last chance to do so. In role-playing these four major stakeholders, participants will be asked to consider issues of cooperation, the threat of force, and the role of secrecy in peace negotiations.

<http://www.usip.org/class/simulations/paris.pdf>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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The Use of Force in Chechnya: An Exploration through Track-Two Diplomacy

This simulation focuses on the conflict in Chechnya and provides an opportunity to take part in a problem-solving workshop involving Russian and Chechen representatives of civil society. Participants will play the roles of Russians and Chechens from various sectors of society: low to mid-level government officials, religious leaders, and representatives of non-governmental organizations (NGOs). Participants will explore possible future directions of this conflict, the needs and interests of the two peoples, and the conditions and situations under which violence and the use of force might possibly be justified. The potential benefits of "track-two diplomacy"—that is, an effort to bring together influential members of the parties to a conflict in an unofficial capacity to explore joint problem solving—will be discussed and analyzed.

<http://www.usip.org/class/simulations/chechnya.pdf>

Timeline Tool

The Timeline Tool is a Web-based learning object template, which allows teachers to quickly construct an interactive timeline with audio and visual effects. The finished timeline can serve as a reusable learning object, which can be easily distributed and shared over the Web. This learning object template is built in Flash, PHP and XML. Features: XML-based content organizer, media player on-the-fly, build-in file uploader, customized editing interface, interactive presentation interface. Examples of usage: timelines, course outline, navigational system, scientific process design, project phase plan, visual gallery index, multimedia file organizer.

<http://www.learningtools.arts.ubc.ca/timeline.htm>

Transitions to Democracy

This guide assists teachers in increasing students' understanding of the nature of democracy and historic and contemporary efforts at democratization. It includes lesson plans, student handouts and instructions.

<http://www.usip.org/class/guides/democracy.pdf>

What Can We Learn from Satellite Images?

Students will look at maps and satellite images to see how various settled parts of the Earth have changed over the past few decades. They will then draw maps of their hometown, showing how it might have looked in satellite images in the 1970s and today. This will probably require some research into their town's recent history.

<http://www.nationalgeographic.com/xpeditions/lessons/03/g912/landuse.html>

Italian

BBC Languages: Italian

This Web site contains various materials to help teachers teaching Italian as a second language: an intermediate audio magazine with topical reports, a guide to tuning to TV in Italian from the UK, self-contained online courses, documentaries, etc.

<http://www.bbc.co.uk/languages/italian/index.shtml>

Italian Journey

These TV programs are an all-Italian version of material featured in Italy Inside Out. The links allow you to download the program transcripts as well as their translation. The programs have been divided into sections, to be viewed one at a time. For this reason, the transcript and translation have been split into sections. The files are in Rich Text Format (.rtf) which is compatible with most word-processing packages.

<http://www.bbc.co.uk/languages/italian/journey/>

Italian Steps

This is an online course for beginners. Learn practical spoken Italian with the virtual help of an Italian teacher in 24 manageable steps based on interactive stories. Those who already know some Italian can take the fast-track challenges.

<http://www.bbc.co.uk/languages/italian/lj/menu.shtml>

Language Pronunciation and Comprehension Learning Tool

The Language Pronunciation and Comprehension Learning Tool (LPCLT) is a revolutionary linguistics toolkit designed to enhance a student's comprehension and pronunciation of a particular language. This new learning tool developed by Arts Instructional Support (Arts IS) allows teachers to author vocabulary and sentence structures into an oral component, to aid students in learning to hear and speak a new language. The authored component is a digitally recorded question-and-answer set. This tool offers direct learning enhancement by allowing teachers to create their own oral component in any given language. Students, with this tool, are given the unique opportunity to hear, comprehend and speak their chosen language at their own leisure. The tool can also be used in conjunction with language labs, or by adding a direct oral component to a language curriculum. Additionally, if this tool is incorporated onto a WebCT platform, students will benefit by being able to practice their oral skills at home.

http://www.learningtools.arts.ubc.ca/language_pronunciation_tool.htm

Oggi E Domani

This 20-lesson online Italian course includes sound bytes for listening practice, grammar exercises, bulletin board, chat room and more. This project is funded in part through a grant from the U.S. Department of Education, International Resources and Studies.

<http://academic.brooklyn.cuny.edu/modlang/carasi/site/pageone.html>

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Test Your Italian

Are you a complete beginner, quite fluent or somewhere in between? Answer one question at a time. Choose the correct answer and you'll receive a more challenging question. There are 12 questions altogether.

<http://www.bbc.co.uk/languages/italian/gauge/>

UVic's Language Teaching Clipart Library

This library consists of about 3,000 images, which we hope will be useful in the teaching of basic vocabulary in a variety of languages. The characters and objects depicted are as culturally neutral as possible. This is not a huge resource of graphics; its purpose is to provide a set of those graphics most basic and useful for language teaching, and at the same time, to make them as easily searchable as possible. The 3,000 images consist of 1,500 pairs. One member of each pair has a transparent background just big enough to fit the image, the other has a white background 110 by 110 pixels.

<http://web.uvic.ca/hcmc/clipart/>

Verbix

Free universal verb conjugator software for Windows operating systems, Verbix shows complete verb inflections of any verb in over 100 languages, and also returns the glossary look-up form from any inflection. It is designed for students of foreign languages who are tired of browsing grammar books, dictionaries, incomplete conjugation tables and other sources to find correct verb conjugations and spelling. Verbix is available as Verbix for Windows (as shareware in 7.2 version and freeware in 7.1 version and earlier) and WebVerbix (free online conjugator).

<http://www.verbix.com/webverbix/>

Law

A Just War? President Clinton's Response to Kosovo

This interactive prototype case of Project THRO (Teaching Human Rights On-Line) confronts students with the political, legal and moral choices the U.S. faced when Yugoslavia violated the human rights of Albanians in Kosovo. Clinton's decision required a complex strategic, political, and legal calculus. Background materials review Balkans history and identify the options President Clinton and his advisers considered in January 1999. Students online may either read the text or listen to the audio of the President's address to the nation announcing NATO air strikes. Study guide multiple-choice questions accompany each section, and a final three-part essay requires systematic analysis of competing principles. A model answer presents conflicting arguments on the legality of NATO's humanitarian intervention.

<http://homepages.uc.edu/thro/Kosovo/JWMain.html>

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Music Intellectual Property Cases

The Music Law Copyright Infringement project provides law students and copyright scholars with access to previously inaccessible materials that may provide new insights into an often opaque area of law. By offering digital renderings of the case documents, relevant music with melody and harmony dissected, final outcomes of cases, commentary, opinions, musical scores and study questions, the project allows a more efficient and effective presentation of these materials in the classroom. It provides, for the first time, versions of the works that one can easily and dramatically manipulate (with the Finale, Coda Music Plug-in) that enable students to study, compare and actively engage in the analysis of the disputed works.

<http://ccnmtl.columbia.edu/projects/law/library/introduction.html>

Prime Minister Rao's Dilemma

This interactive case study presents a dilemma confronted by the Indian Prime Minister in 1995 following a terrorist assassination of the Punjab Chief Minister. Political rivals in upcoming national elections might exploit a weak response, but the government's past anti-terrorist measures provoked domestic and international complaints of massive human rights violations. Prime Minister Rao must decide whether or not a) to comply with international law b) to prosecute security personnel who committed atrocities and c) to admit more international human rights observers. The exercise scores students on their ability to distinguish factors which favour human rights reform from those supporting counter-terrorist measures. After writing responses to three questions, students may review model answers that justify different policy choices.

<http://homepages.uc.edu/thro/dilemma/index.html>

The International Court of Justice Considers Genocide

This interactive prototype case of Project THRO (Teaching Human Rights On-Line) encourages its visitors to play the role of a judge at the International Court of Justice (ICJ). The case brought by Bosnia in 1993 charges genocide and seeks damages from Serbia and Montenegro, the former Yugoslavia. Students can explore the facts, research the law, and consider opposing arguments that support one side or the other. They can earn a perfect score of 100 by identifying all the best facts and arguments that support each side.

<http://homepages.uc.edu/thro/genocide/index.html>

Universal Declaration of Human Rights (UDHR)

The UDHR MSE (Multimedia Study Environment) offers a unique glimpse into events that led to the document's creation and its lasting impact on world history, including extensive videotaped interviews with major scholars in the field, including Louis Henkin, one of the document's drafters; historical film clips and links to relevant organizations.

<http://ccnmtl.columbia.edu/projects/mmt/udhr>

Boolean Searching on the Internet

On Internet search engines, the options for constructing logical relationships among search terms extend beyond the traditional practice of Boolean searching. This presentation explains how individuals can use Boolean logic to increase the relevancy of their Internet searches.

<http://library.albany.edu/internet/boolean.html>

Chemistry Library Tutorial

This resource was designed to introduce students to research sources in the field of chemistry. Students can find direct links to primary sources or information about locations where the materials can be found (there are also a number of exercises that allow students to test their own knowledge about chemistry resources at Columbia University).

<http://www.columbia.edu/itc/chemistry/chem-tutorial/>

Dewey to the Rescue

This online tour of the Dewey Decimal Classification (DDC) system explains how you can use the DDC to organize information on any topic.

<http://www.oclc.org/dewey/resources/tour/ddc1.html>

"Do We" Really Know Dewey?

This is a website created to teach kids and teens about the Dewey Decimal System. There are several levels, so it could be used with different age groups. The Book Topics and Web sites pages should help students get a better idea of the kinds of topics in each Dewey category. The test and puzzles will help them remember what they've learned.

<http://library.thinkquest.org/5002/>

Introduction to Records Management: Types of Records

In this interactive object, students read an overview of records management and then classify records as "vital", "important", "useful", or "nonessential" in a drag-and-drop exercise. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ORD805

Records Management: An Introduction to Filing Rules and Indexing

In this interactive object, students read an explanation of the file rules and indexing that have been developed by the Association of Records Managers and Administrators. They then test their knowledge of indexing in a drag-and-drop exercise. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=ORD905

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Records Management: Applying ARMA Rules to Business Filing

In this interactive object, students apply their knowledge of the Association of Records Managers and Administrators (ARMA) filing rules by organizing and filing records alphabetically, numerically, and by subject. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=BST205

Roget's Thesaurus

This electronic interface is derived from the version of Roget's Thesaurus of English Words and Phrases published in 1911. Internal cross-references are represented as clickable hypertext links.

http://humanities.uchicago.edu/orgs/ARTFL/forms_unrest/ROGET.html

Using OCLC WebDewey: An OCLC Tutorial

This tutorial introduces you to searching and browsing, teaches you how to create user notes, and shows you how to build numbers accurately and efficiently with WebDewey. WebDewey offers easy-to-use, World Wide Web-based access to the Dewey Decimal Classification (DDC) and related information, with searching and browsing capabilities; Library of Congress Subject Headings (LCSH) intellectually and statistically mapped to Dewey numbers; and links from the mapped LCSH to the corresponding LCSH authority records. You can also add your own notes to WebDewey and display them in context, which allows you to both record valuable information about local classification practices and have it available for ready reference.

<http://www5.oclc.org/downloads/tutorials/webdewey/tutdewey/index.html>

Math

Adding Fractions with Unlike Denominators

Students follow steps to add fractions with different denominators. They also review fraction concepts, do a drag-and-drop exercise involving fraction terms, and add fractions with common denominators. Resource from Wisc-Online: free access but sign-in is mandatory.

<http://www.wisc-online.com/objects/objectmailspec.asp?objid=ABM5905#>

An Algebraic Word Problem Involving Motion: Case 1

In this animated and interactive object, students use an algebraic formula to solve a problem involving distance, rate, and time. Resource from Wisc-Online: free access but sign-in is mandatory.

<http://www.wisc-online.com/objects/objectmailspec.asp?objid=TMH5606#>

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Building Connections

This lesson focuses on having students make connections among different classes of polynomial functions by exploring the graphs of the functions. The questions in the activity sheets allow students to make connections between the x-intercepts of the graph of a polynomial and the polynomial's factors. This activity is designed for students who already have a strong understanding of linear functions, some knowledge of quadratic functions, and what is meant by a polynomial function.

<http://illuminations.nctm.org/LessonDetail.aspx?id=L282>

Cardiac Output, Rates of Change, and Accumulation

This activity explores the measurement of the amount of blood being pumped by a heart. The goal of this investigation is a rich exploration of rates of change and accumulation in context. As presented here, the measurement is done from a discrete perspective, but the generalization to a continuous perspective and use of calculus (integrals) can be done easily. The measurement is based upon two common problems: (1) a flow rate and accumulation problem and (2) a concentration problem. Given a flow rate, a concentration of ice water and a duration, how much ice water is pumped over the time interval? How can you determine the concentration of ice water by measuring the temperature of the mixture? The activity is separated into four parts. These four segments are available at the bottom of every page.

<http://illuminations.nctm.org/LessonDetail.aspx?id=U136>

Cities and Suburbs: An Introduction to Markov Chains

This learning object helps mathematics students to understand the Markov chains.

<http://www.brocku.ca/mathematics/resources/learningtools/learningobjects/Markov/fullscreenframeset.html>

Congruence Theorems

Explore different sets of conditions that determine a shape. In this investigation, you can explore the conditions that guarantee uniqueness of a triangle, quadrilateral, or pentagon regardless of location or orientation. Each set of conditions results in a new congruence theorem.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=4>

Cutting Corners

This tool provides an opportunity for students to talk about the names and attributes of shapes they do not regularly meet. For example, they will most likely encounter scalene triangles, with no congruent sides; isosceles triangles, with at least two congruent sides; and equilateral triangles, which are special isosceles triangles that have three congruent sides. When appropriate, point out to the students that rectangles are special parallelograms that have right angles, rhombuses are special parallelograms that have four equal sides, and squares are special rhombuses with four equal angles as well as four equal sides.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=7>

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DESSolver: Ordinary Differential Equation System Solver

This Java applet graphs approximate solutions to ordinary differential equation (ODE) using various methods: Runge-Kutta, Euler, Heun, and Dormand Prince. The applet also gives numerical results in tabular form for its solutions.

<http://www.jens-langner.de/dessolver/>

Ferris Wheel

This multimedia segment gives a real-world example of a cyclical event in the context of an amusement park. It demonstrates how the relationship of height and time can be plotted to create a sine curve.

http://www.learnalberta.ca/content/mearm/html/patterns_and_relations/FerrisWheel/FerrisWheel.html

Fire, Fire!! Trigonometric Ratios

This learning object helps mathematics students to understand trigonometric ratios.

<http://www.brocku.ca/mathematics/resources/learningtools/learningobjects/firefire/fullscreenframeset.html>

Graphing Tool

High school students can use this resource to graph mathematical functions or relations. Graphs of the absolute value, reciprocal, and inverse of a single function can be compared to the single defining function. As well, graphs of the sum, difference, product, quotient and composition of two functions can be compared to the two defining functions. When a parameter is dynamically changed, all graphs related to functions or relations with that parameter will change dynamically. User ID and Password needed.

http://www.learnalberta.ca/content/megt/graphing_tool.html?launch=true

Investigating Pick's Theorem

Many students may have seen Pick's Theorem in middle school. In this set of lessons, students rediscover the theorem, use algebra to determine the coefficients of the equation, and explore the concept of change as a mechanism for finding the coefficients of Pick's Theorem. Although no single lesson in this unit addresses connections and representation by itself, the entire unit focuses on the Connections and Representation Standards by allowing students to make connections among mathematical ideas and asking students to use various representations to organize their work.

<http://illuminations.nctm.org/LessonDetail.aspx?id=U167>

Leap Frogs: Number Patterns

This learning object helps mathematics students to understand the science of patterns.

<http://www.brocku.ca/mathematics/resources/learningtools/learningobjects/frogs/fullscreenframeset.html>

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Least Squares Regression

This Unit Plan consists of lessons in which students interpret the slope and y-intercept of least squares regression lines in the context of real-life data. Students use an e-example applet to plot the data and calculate the correlation coefficient and equation of the least squares regression line. These lessons develop skills in connecting, communicating, reasoning, and problem solving as well as representing fundamental ideas about data. Math content: each of the lessons in this Unit Plan builds skills necessary for interpreting the slope and y-intercept of linear equations. The lessons provide students with a real-life context in which to relate both concepts. Students need multiple opportunities to explore slope as a rate of change and to view the y-intercept of a graph as having real meaning. These lessons give students the opportunity to view data in tabular, graphic, and algebraic form. Opportunities for the students to discuss and display their work are also provided.

<http://illuminations.nctm.org/LessonDetail.aspx?id=U117>

Light It Up

In this cooperative learning activity, students are presented with a real-world problem: given a mirror and laser pointer, determine the position where one should stand so that a reflected light image will hit a designated target. This investigation allows students to develop several rational functions that models three specific forms of a rational function. Students explore the relationship between the graph, the equation, and problem context.

<http://illuminations.nctm.org/LessonDetail.aspx?ID=L606>

MathDL: The MAA Mathematical Sciences Digital Library

MathDL provides online resources for both teachers and students of collegiate mathematics. Interactive mathlets include: discrete math, algebra, pre-calculus and Logic & Foundations.

<http://mathdl.maa.org/mathDL/>

Mathematics Discovery Applets

These thirty-six senior high school mathematics applets provide students with the opportunity to manipulate various parameters in order to explore mathematical relationships. A number of applied mathematics and pure mathematics topics are addressed, including Vernier calipers; micrometer calipers; slope; distance; midpoint; square root; inscribed angles; tangents to a circle; chords of a circle; linear functions; linear equations; linear programming; quadratic functions; quadratic relations; unit circles; trigonometric functions; trigonometric equations; vertical transformations; horizontal transformations; translations; stretching and reflecting; inverse of a function; exponential functions; probability; normal distribution; and binomial functions.

<http://www.learnalberta.ca/content/meda/html/index.html?launch=true>

Mirror Tool

Use this tool to investigate symmetry. You can rotate, flip, or reflect a figure across a line.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=24>

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Modeling Orbital Debris Problems

In this lesson, students examine the problem of space pollution caused by human-made debris in orbit to develop an understanding of functions and modeling. It allows students an opportunity to use spreadsheets, graphing calculators, and computer graphing utilities.

<http://illuminations.nctm.org/LessonDetail.aspx?id=L376>

Parabola Games: Parabola Properties and Transformations

This learning object helps mathematics students to understand the properties of a parabola.

<http://www.brocku.ca/mathematics/resources/learningtools/learningobjects/paragames/fullscreenframeset.html>

Periodic Events

This multimedia segment features a video and an animation showing how natural periodic events, such as the phases of the moon, can be graphed manually or with a graphing calculator. Maximum and minimum values, amplitude, period, and sinusoidal curves are discussed.

http://www.learnalberta.ca/content/meamr/html/patterns_and_relations/PeriodicEvents/start.html

PROPHET

The PROPHET simulator is a framework to solve systems of partial differential equations (PDEs) in time and 1, 2, or 3 space dimensions. PDEs are discretized using either finite elements or finite volume methods in space and with implicit methods in time, which reduces the differential equations to a system of algebraic equations that are solved by Newton's method at each timestep. The matrix resulting from the linearization is solved by sparse iterative or direct methods. PROPHET is designed with the goals of: 1) efficiency, 2) geometric flexibility, and 3) equation extensibility. The first two characteristics distinguish PROPHET from packages such as MATLAB or Mathematica, which do not allow the use of arbitrary shapes or grids and are not tuned to solve systems with 100,000 or 1,000,000 unknowns. The third characteristic distinguishes it from application-specific simulators such as PISCES or SUPREM-4. It allows new equations to be specified by a user or model developer who may not be familiar with numerical methods.

https://www.nanohub.org/simulation_tools/prophet_tool_information

Reflect on This

This lesson requires students to investigate reflections using hinged mirrors. With a kaleidoscope, students will examine the interior angles of regular polygons. They will use multiple reflections to create regular polygons; determine the relationship between the number of sides in a regular polygon and the measure of its central angles; examine the significance of congruent angles and their applications. An activity sheet in PDF format completes the lesson.

<http://illuminations.nctm.org/LessonDetail.aspx?id=L379>

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Sound Wave

Frequently sound is described using terms such as pitch, tone, frequency, intensity or loudness. To understand the origins of these terms as well as to understand the mathematical models used to represent sound, this applet can help you to explore the dynamics of a sound wave.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=37>

Statistics and Probability

This is a collection of four videos in applied mathematics: 1) "Analysis of Graphs" illustrates how a positive slope in a graph does not necessarily indicate a per-unit growth. An example set on a family farm shows how a per-unit cost may be decreasing, even though overall cost is rising 2) "Analysis of Graphs: Baby Boomers" illustrates how, over time, a particular segment of a country's population can affect the graph of an entire population. This concept is illustrated in an analysis of how Baby Boomers have affected the graph of the overall population 3) "Analysis of Graphs: Population Pyramids" displays graphs of population pyramids. The pyramids can often display the impact that events, such as baby booms or wars, can have on a country's demographics or population. Examples of Canada's and India's population pyramids are displayed 4) "Presenting Statistical Data" shows how the presentation of data can be misleading. A graph portrays a percentage increase of rats in the province but is misleading because actual numerical values are not provided.

http://www.learnalberta.ca/content/meamr/html/statistics_and_probability/statistics_and_probability_desc.html#.html

The Budget Zone

This interactive multimedia segment discusses balancing a family budget. Interactivity allows the student to "play with the numbers" and is supported by a video.

<http://www.learnalberta.ca/content/meamr/html/number/Budgeting/start.html>

The Great Balancing Act: The Mean and the Median

This learning object is to help mathematics students to understand the difference between the mean and the median.

<http://www.brocku.ca/mathematics/resources/learningtools/learningobjects/balancingAct/fullscreenframeset.html>

To Fret or Not to Fret

Students explore geometric sequences and exponential functions by considering the placement of frets on stringed instruments. In lesson 1, "Exploring Measurement, Sequences, and Curves with Stringed Instruments", students will measure lengths on stringed musical instruments, and discuss how the placement of frets on a fretted instrument is determined by a geometric sequence. In lesson 2, "Fretting", students will use their discoveries from the first lesson to place frets on a fretless instrument. They will then compare geometric sequences with exponential functions.

<http://illuminations.nctm.org/LessonDetail.aspx?id=U163>

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Transformations: An Introduction to Transformational Symmetries

This learning object is to help mathematics students to understand rotations, translations, and reflections.

<http://www.brocku.ca/mathematics/resources/learningtools/learningobjects/Transformations/fullscreenframeset.html>

Triangle Classification

Line segment AB is drawn in the plane. Where should point C be placed so that ABC is a right triangle? ...so that it is an isosceles triangle? ...so that it is obtuse? This activity will allow you to explore these questions.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=142>

Tube Viewer Simulation

This applet simulates the effect of viewing an image through a tube. As you move the location of the person or change the length of the tube, the image will change appropriately as well as the measurements.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=41>

Two Terrains

Some vehicles fly down the highway, while others are dirt-track specialists. This activity will help you identify the best path for a vehicle, depending on whether it has better on-road or off-road performance.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=124>

Vaulting Cars

This multimedia segment explores the mathematics of motor vehicle accident investigations. A video of a police accident reconstruction verifies the vehicle speed formula, as determined by the angle of take-off in terms of sine and cosine, the height of fall of the vehicle, its distance of travel before touching the ground, and the gravitational constant. Interactivity allows students to input values of height, distance and angle size to compute the original speed of the vehicle. The formula also applies to operators of a motorcycle or bicycle being thrown from their vehicle.

http://www.learnalberta.ca/content/mearmr/html/shape_and_space/VaultingCars/VaultingCars.html

Vector Animations

These animations include vector addition, components of a vector, resolving a vector relative to another vector, scalar (dot) product of two vectors, vector (cross) product of two vectors, and right hand rule.

http://phys23p.sl.psu.edu/phys_anim/vectors/indexer_vectors.html

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Vectors and Supporting Structures

This video discusses the use of vectors in the design of bridges and structures such as the Calgary Saddledome. The video shows how vectors are used to calculate the load on the structures at various points.

http://www.learnalberta.ca/content/meamr/movieLauncher.html?asset=Movies/legam_vectorsand_supp.mov

Visual Mathematics

This visual tool for mathematics education is composed of more than 50 simple animations about first order differential equations, boundary value problems, functions and graphs, limit concept, applications of the derivative and the integral, vectors, curves, and surfaces in space.

<http://phys23p.sl.psu.edu/%7Emrg3/mathanim/vmath.html>

Whelk-Come to Mathematics

Students will make a conjecture, conduct an experiment, analyze the data, and work to a conclusion using rational functions to investigate the behaviour of North-western Crows.

<http://illuminations.nctm.org/LessonDetail.aspx?id=U143>

Media Studies, Journalism...

Asne High School Journalism

This Web site provides resources for journalism teachers and students. Teachers will find more than 234 archived lesson plans on such topics as advertising, bias, copy editing, editorial writing, the first amendment, interviewing, ethics, photography, etc.

<http://www.highschooljournalism.org/>

A Theoretical Analysis of Media

In this interactive object, students examine the structural-functional, social-conflict, and symbolic interaction analyses of media. A mind map and quiz questions are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S3704

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Ideology and the News Media

This resource focuses on ideology, political power, and rights and freedoms in a democratic society. The main assignment is to write an editorial based on Premier William Aberhart's radio address (Social Credit Party) in which he promotes the adoption of the "The Accurate News and Information Act." Students will choose their point of view based on their own understanding of the characteristics of left- and right-wing ideology, their personal ideological beliefs, and a critical analysis of bias in sources of information. The editorial writing assignment is carried out in a virtual newsroom where students interact with an editor, copy editor, political correspondent, reporter, photographer, cartoonist, and librarian. This version has all of the required resources, graphics and numerous special effects designed to enhance the immersive experience for students. Lite version available at

<http://www.learnalberta.ca/content/ssinml/html/Content/ideologyLite.html?launch=true>

<http://www.learnalberta.ca/content/ssinmf/html/Content/ideologyFull.html?launch=true>

News Reporting Simulation

Using this computer-based News Reporting Simulation (News Sim), journalism students assume the roles of reporters covering a fire story in a fictitious small city. Students practice their newsgathering skills, interviewing techniques, and writing abilities in a controlled digital environment that approximates some of the conditions found in the real world. A Fire Scenario assigns the student to the role of a reporter on the police beat covering a fire story in a fictitious Midwestern town of about 250,000 people. The student reporter is responsible for gathering the facts of the fire (interviewing sources) and then writing a brief news story about the event.

<http://ccnmtl.columbia.edu/projects/newssim/>

Principles of Graphic Design

This video presents examples of layout principles such as color, contrast, positive and negative space, rhythm, balance, emphasis and unity.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/INF2060BE.mov>

QuarkXPress

This video discusses some features of the desktop publishing program called QuarkXPress.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/INF2060A1E.mov>

Radio College

With an ever evolving collection of how-to articles and links, plus regularly scheduled interactive seminars on both the art and business of radio production, Radio College exists to offer insight and inspiration to students.

<http://www.radiocollege.org>

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Rohde to Srebrenica

This project was created for the course "Elements of International Reporting" at the Columbia Graduate School of Journalism, but has possible applicability at SIPA, and in Political Science and other courses. The site chronicles a journalist's journey through war-torn Bosnia, enhanced by video of Professor Nelson's interview with Rohde, evidentiary documents and a clear outline of best practices for human rights reporting.

<http://www.columbia.edu/itc/journalism/nelson/rohde/>

Music

Aida and Its Relevance to the World Today

Why have the Middle East and North Africa been torn by strife for centuries? This lesson uses the opera Aida and the history of the Middle East and Africa to open discussions about the current crisis in the Middle East. It provides a connection between music (opera), history, and current issues. Additionally, there is a geography lesson on the Middle East and Africa, and a music lesson on operatic voices and the history of opera.

<http://artsedge.kennedy-center.org/content/2374/>

Experimenting with Sound

A high-tech approach to experimenting with vibrations, frequency, waves, speed, music and more.

<http://www.teachnet.ie/jhennessy/2005/index.htm>

Folk Art as Communication

Humans communicate with one another in a variety of ways, including verbally, kinaesthetically, artistically, and literarily. In small groups, students will choose a type of folk art representative of one of these methods of communication, and present their findings in a research paper. The class will then create a multi-arts presentation as they reproduce examples from one of the genres of folk arts.

<http://artsedge.kennedy-center.org/content/2306/>

JScoreML

This is an online musical notation editor with playback and midi file creation capabilities. It was developed in association with the NIDE project. JScoreML was created entirely in the Java 2 programming language as an applet and uses an XML-based mark-up language to describe the score created by the user insofar as the rendering and playing of the score are implemented.

<http://nide.snow.utoronto.ca/music/index.html>

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Learning from Lyrics

Students research contemporary songs (alternative, country, metal, pop, rap, and rock music) to study current social issues. They deliver oral presentations using factual data, graphics, and other media to interpret the song lyrics.

<http://artsedge.kennedy-center.org/content/2058/>

Music Intellectual Property Cases

The Music Law Copyright Infringement project provides law students and copyright scholars with access to previously inaccessible materials that may provide new insights into an often opaque area of law. By offering digital renderings of the case documents, relevant music with melody and harmony dissected, final outcomes of cases, commentary, opinions, musical scores and study questions, the project allows a more efficient and effective presentation of these materials in the classroom. It provides, for the first time, versions of the works that one can easily and dramatically manipulate (with the Finale, Coda Music Plug-in) that enable students to study, compare and actively engage in the analysis of the disputed works.

<http://ccnmtl.columbia.edu/projects/law/library/introduction.html>

Ricci Adams' Musictheory.net

This interactive Web site provides music theory tutorials including detailed topics: staff, clef, and ledger lines; note duration; measure and time signatures; rest duration; dots and ties; simple and compound meter; odd meter; steps and accidentals and more. A chord calculator, staff paper generator, and matrix generator are available for online use. You can download the stand-alone version of the trainers and utilities. There is also a forum for sharing information and asking questions. Flash intensive.

<http://www.musictheory.net/index.html>

Nursing, Midwifery, Health Visiting

Acid/Base Balance

Students read about how acid/base balance affects a person's health. This activity includes animation. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR302

Acid/Base Imbalance

Students read and test themselves on the conditions that cause specific acid/base imbalances. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR602

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Acid-Base Imbalances and Their Etiologies

In this interactive object, students match various disorders to the acid-base disturbances they cause. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR4604

ACLS STAT: ACLS Self-Testing and Training

The ACLS STAT is a collection of self-assessment and learning tools for healthcare professionals who require Advanced Cardiac Life Support (ACLS) skills. This includes airway management, electrical therapy, pharmacotherapeutics, cardiac rhythm interpretation, and the management of several acute cardiac events as specified in the ACLS algorithms.

http://www.skillstat.com/Flash/ACLS_Stat531.html

Alterations in Fluid Balance

In this interactive object, students identify the symptoms of fluid volume excess and fluid volume deficit. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR2903

Antihypertensive Drugs

In this interactive object, students sort antihypertensive medications into categories. Descriptions are provided. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR6304

Apgar Scoring Challenge

Students consider the Apgar scores for several fictitious newborns. They are then given an Apgar score and proceed to create a situation in which a newborn would receive that rating. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR402

Apgar Scoring in the Newborn

Students read about the importance of the Apgar score in assessing newborns after delivery. Each sign of the Apgar score is identified with illustrations to help students recognize the proper rating. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR502

Arterial Blood Gas

Students read an explanation of the values used for arterial blood gas analysis. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR202

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A Theoretical Analysis of Health

In this interactive object, students examine a mind map depicting manifest and latent functions of health. Quiz questions complete the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S5004

Blood Collection Tubes: What's in Them?

In this interactive object, students review descriptions of various blood collection tube additives. They then test their knowledge by matching the different tubes to their corresponding additives. Resource from Wisc-Online: free access but sign-in is mandatory.

<http://www.wisc-online.com/objects/objectmailspec.asp?objid=MEA4604#>

Cardiac Checkup Puzzle

Students review common terms associated with cardiovascular anatomy and physiology by completing a crossword puzzle. Immediate feedback is provided after each term. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR3904

Cardiac Dictionary

A fast and simple tool that sports definitions of over 200 cardiac terms. This is Nursecom's first learning tool prototype.

<http://www.skillstat.com/Flash/cardiacDictionary531.html>

Cardiac Trivia Game (3 levels)

The Cardiac Trivia Game was born to challenge health professionals' knowledge of well-known and occasionally obscure cardiac facts. The three-level game directs users to correctly identify answers in a shortest time frame to score points. Questions are randomly generated. Points are awarded for correct answers and withdrawn for incorrect answers. Bonus points are awarded when correct answers are chosen within a certain timeframe. Similar to many electronic games, subsequent levels are accessed only upon successful completion of the current level. A score of 60% is required to advance to the next level. If a score of 60% is not achieved, another attempt is provided at the current level. If a score of 60% is still not achieved, the player must start the game again. Questions become more difficult with each higher level. Upon the conclusion of the game, a player is provided feedback on their degree of success. A certificate of completion can be printed.

http://www.skillstat.com/Flash/cardiacTrivia5_531.html

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Cardiac Trivia Game (5 levels)

The Cardiac Trivia Game was born to challenge health professionals' knowledge of well-known and occasionally obscure cardiac facts. The five-level game sports more questions and two additional levels of increasingly difficult questions than does the three-level Cardiac Trivia Game. Upon the conclusion of the game, players are provided feedback on their degree of success. A certificate of completion can be printed. Upcoming versions include an expanded repository of questions, more specific feedback and explanations for answers.

http://www.skillstat.com/Flash/cardiacTrivia5_531.html

Care of the Client with Schizophrenia

In this interactive object, students read a case study and consider the signs and symptoms of schizophrenia and the appropriate nursing interventions. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR3704

Chain of Infection

In this interactive object, students identify nursing actions that help to prevent the spread of infection. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR1603

Choosing Immunizations

In this highly interactive object, students read client case studies and then select the vaccines that are appropriate to administer. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR1703

Correcting Common Problems of Parenteral Nutrition

In this interactive object, students match physiological, mechanical, or other parenteral nutrition complications with the appropriate nursing care. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR4504

Diagnostic Tests Related to Gastrointestinal Health Alterations

In this drag-and-drop exercise, students review the names of diagnostic tests and match them with their descriptions and the nursing actions that relate to them. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR4304

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Disease Outbreak Simulation (EpiVill)

Students play the role of an epidemiologist, gathering facts and deciding actions to curb an outbreak that has struck the fictitious town of "EpiVill". The case study uses digital video newscasts and interviews, and municipal Web sites provide information about commerce and diseases in an attempt to mirror real-life situations. Different modules map onto various types of epidemiology study designs: case control, ecological, and cohort studies. Another module explores the topic of infectious diseases. Interactive visuals and multiple-choice questions allow students to test hypotheses about these cases.

<http://ccnmtl.columbia.edu/projects/epiville/>

ECG Simulator

This ECG simulator generates 25 of the most common cardiac rhythms, which can be started and stopped by the user. There is also a game to test your knowledge.

<http://www.skillstat.com/Flash/ECGSim531.html>

Electric Heart

This program tells the story of the pursuit of a practical artificial heart. Here's what you'll find online: 1) Map of the Human Heart: how the human heart works with an automatically changing color graphic of a heart in cross-section; 2) Amazing Heart Facts; 3) Artificial Human; 4) Pioneering Surgeon: O. H. Frazier: O. H. Frazier has done more heart transplants than anyone else alive, well over 700. He talks about his work, his thoughts, and his hopes; 5) Operation: Heart Transplant: try your hand as a heart-transplant surgeon in this simplified online procedure; 6) Additional Resources.

<http://www.pbs.org/wgbh/nova/eheart/>

Fluid and Electrolytes

In this animated object, students examine the structure and function of intracellular and extracellular fluid. They also read about the most common electrolytes in the body and complete a matching exercise to test their knowledge. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR1203

Gastrointestinal Tic-Tac-Toe

In this interactive object, students review the medication, nursing implications, and client outcomes of gastrointestinal management. For every right answer, students earn a square on a tic-tac-toe board while playing against the computer or another contestant. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR6404

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Headstart in Biology

This Internet course is aimed at nursing students unfamiliar with biology and who need to be brought up to speed. You will need to register but access is free. Modules: Science and Measurement, Atoms and Molecules, Chemistry of Life, Arrangement of the Body, Activities of Living.

<http://learninglab.co.uk/headstart/>

Interactive Health Tutorials

The tutorials listed on this Web site are interactive health education resources from the Patient Education Institute, and fall in to one of four categories: diseases and conditions, test and diagnostics procedures, surgery and treatment procedures, prevention and wellness. Using animated graphics, each tutorial explains a procedure or condition in easy-to-read language. You can also listen to the tutorial.

<http://www.nlm.nih.gov/medlineplus/tutorial.html>

Interpreting Hematology Lab Results

Students examine a complete blood count (CBC), and study the functions of blood cells, the normal range for each item on the CBC, and possible reasons for increases or decreases from the normal range. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR5304

Levels of Prevention

In this interactive object, students identify a variety of prevention activities as primary, secondary, or tertiary. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR3403

Medical vs. Nursing Diagnoses

In this interactive and animated object, students classify a number of diagnoses by shooting a soccer ball into goals marked "Medical" and "Nursing." Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR2803

Medi-Centre

These are classroom activities based on the resources of the Canadian Medical Hall of Fame.

<http://www.museevirtuel.ca/Exhibitions/Medicentre/en/>

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Mental Health in Kids and Teens

Students identify various therapeutic interaction strategies to be used when working with children and adolescents to enhance self-esteem, self-concept, self-worth, body image, and coping and communication skills. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR5604

Nursing Process: Case Study - Postpartum Nursing

In this interactive object, students use their knowledge of postpartum theory and the nursing process to complete a plan of care. The student's plan may be e-mailed to the teacher. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR3603

Osmotic Pressure

In this animated and interactive object, students conduct an experiment online to illustrate how a greater number of particles in a "vessel" increases osmotic pressure. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR4004

Pharmacologic Management of Diabetes Mellitus

In this interactive and animated object, students examine the action of insulin and other antidiabetic medications. In a drag-and-drop exercise, students match oral agents with the action they perform. In a separate activity, students answer questions about the onset of action for different types of insulin. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR5004

Physical Development of Children

In this interactive object, students select the correct description of a child in the five stages of development in the following categories: pattern of growth, vital signs, organ development, vision and hearing, and developmental stage. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR3303

Psychotropic Medications and Neurotransmitters

In this animated object, students examine how psychotropic medications act on neurotransmitter systems to achieve their desired effect. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR3503

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Reality Shock

Students examine the phases and characteristics of the reality shock experienced by nurses. They also identify strategies to deal with reality shock and with the transition from student nurse to registered nurse. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR6204

Respiratory Matching Game

In this interactive object, students review respiratory system terminology and then match the terms with their definitions in a drag-and-drop exercise. Resource from Wisc-Online: free access but sign-in but mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR2203

The Anxiety Monster and How to Tame It

In this animated object, students examine what anxiety is, how it affects people, and how to manage it. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR5904

The Endocrine Medication Game Show!

Students answer questions about medication from a game board with the headings "Pituitary", "Thyroid", and "Adrenal". Up to three people can play at one time. Contestants "buzz in" their answers to accumulate points. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR3203

The Musculoskeletal Game Show!

Students answer questions from a game board with the headings "It Fractures Me", "Name the Disease", "Complications", and "Interventions". Up to three people can play at one time. Contestants "buzz in" their answers to accumulate points. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR4404

The Nurse's Role in Medically Monitored Detoxification

In this interactive object, students read a case study and then determine appropriate assessment, planning, and intervention strategies necessary during the detoxification phase. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR5504

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Videos of Surgical Procedures

Links to pre-recorded webcasts of surgical procedures (more than 140 as of March 2006). These are actual operations performed at medical centers in the United States since January 2004. The videos last an hour. Please note that you cannot send in questions by e-mail, though the webcast may say that you can, because you are not seeing these videos live.

<http://www.nlm.nih.gov/medlineplus/surgeryvideos.html>

Nutrition, Dietetics

Body Needs

Enter this feature to find out what your body needs to function at its best, and why.

<http://www.pbs.org/wgbh/nova/thin/needs.html>

Building Medical Terms for the Digestive System

In this interactive object, students read the definitions of prefixes and suffixes that relate to the digestive system. In a drag-and-drop exercise, they combine word components to form medical terms. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=GEN704

Classifying Foods According to Nutrient Density

Students read about foods that are high in nutrients compared to the number of calories. They identify if certain foods have high or low nutrient density. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DTY803

Diabetes

Students read about the different types of diabetes and the treatment methods available. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DTY2503

Digestion and Absorption of Carbohydrates

Students follow the path of a carbohydrate food from consumption through digestion to absorption into the bloodstream. In a matching exercise, students identify the main type of carbohydrate found in four different foods. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DTY1803

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Digestion and Absorption of Protein

Students follow the path of a protein food from consumption through digestion to absorption into the bloodstream. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DTY1903

Digestive Disorders

Students complete a crossword puzzle with terms that relate to common diseases and disorders of the digestive system. Immediate feedback is provided. Students have the option to send an e-mail to their teacher, notifying them that the learning object has been completed. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=GEN3105

Documenting the Nutrition Care Process

Students read about the S.O.A.P. and D.A.R. formats that are used to document progress notes in medical records. They then match statements to S.O.A.P. and D.A.R. categories in drag-and-drop exercises. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DTY1703

Facilitating Use of the Internet as a Health Information Resource

This module is a tutorial intended for university students, faculty, and staff across all campuses that access health information through the Internet. It will provide interactive lessons that communicate and demonstrate how to search the Internet and evaluate retrieved health information.

<http://edtech.tennessee.edu/~set17/>

Guess What's Coming to Dinner?

Click on a table full of genetically modified foods and find out how biotechnology is changing what we eat.

<http://www.pbs.org/wgbh/harvest/coming/>

Leptin Feedback Control System

This animation demonstrates how changes in the amount of fat tissue lead to changes in leptin levels and thus changes in appetite.

http://www.hhmi.org/biointeractive/animations/leptinfeedback/leptinfeedback_mov.htm

http://www.hhmi.org/biointeractive/animations/leptinfeedback/leptinfeedback_frames.htm

http://www.hhmi.org/biointeractive/animations/leptinfeedback/leptinfeedback_wmv.htm

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Lipid Digestion and Absorption

In this animated learning object, students view how the fats that people eat are digested and absorbed. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=DTY2003

Milk Makes Me Sick: An Exploration of the Basis of Lactose Intolerance

In this activity, students test glucose concentration. This activity can also be used as an exploration of enzyme function. Concentration of lactase enzyme, effects of temperature, acids, bases on its activity can all be tested.

http://www.exploratorium.edu/snacks/milk_makes-me_sick/index.html

Obesity: Body Mass Index (BMI)

This animation shows a comparison of the change in BMI for a given height and varying weights. It also shows why BMI is inaccurate for muscular people. This animation includes audio narration.

http://www.hhmi.org/biointeractive/animations/bmi/bmi_mov.htm

http://www.hhmi.org/biointeractive/animations/bmi/bmi_frames.htm

http://www.hhmi.org/biointeractive/animations/bmi/bmi_wmv.htm

Obesity-Related Health Problems

A timeline illustrating the gradual effects of obesity on the body, including diabetes, atherosclerosis, and heart attack.

http://www.hhmi.org/biointeractive/animations/timeline/timeline_mov.htm

http://www.hhmi.org/biointeractive/animations/timeline/timeline_frames.htm

Pharmacologic Management of Diabetes Mellitus

In this interactive and animated object, students examine the action of insulin and other antidiabetic medications. In a drag-and-drop exercise, they match oral agents with the action they perform. In a separate activity, students answer questions about the onset of action for different types of insulin. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR5004

PPAR-Delta Activation in the Muscle Cell

The PPAR-delta receptor activates certain genes in a muscle cell, resulting in the burning of fat. This animation includes audio narration.

http://www.hhmi.org/biointeractive/animations/ppar-delta/ppar-delta_mov.htm

http://www.hhmi.org/biointeractive/animations/ppar-delta/ppar-delta_frames.htm

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Run For Your Health

Run For Your Health is a WebQuest lesson that allows students to be actively engaged as researchers and producers of authentic material. The work is done in teams of four. They search the Internet for evidence to support the idea that there is a relationship between physical activities, health and well-being. They present this in a final team report. In addition, each team produces a flyer or newsletter for a campaign to recruit students to the runner's club of the school. In order to join the club, candidates must be physically fit. The team creates a fitness training program to get the candidates into shape and running by the end of one month. This activity helps students learn about the importance of physical fitness and health. They also learn about running, the heart, nutrition, physical fitness, endurance, using a calendar software, designing a flyer, a newsletter or a poster in a campaign to promote healthy living.

<http://www.nelliemuller.com/runforyourhealth.lessonplan.htm>

The Fate of Fat

This animation provides an overview of how dietary fat gets digested, packaged, and sent to various tissues for storage or energy. It includes audio narration.

http://www.hhmi.org/biointeractive/animations/fatefat/fatefat_mov.htm

http://www.hhmi.org/biointeractive/animations/fatefat/fatefat_frames.htm

http://www.hhmi.org/biointeractive/animations/fatefat/fatefat_wmv.htm

Philosophy

Ethics Case Studies

These ethics case studies (more than 90 propositions about legal ethics, family ethics, environmental ethics, banking ethics, business ethics, bioethics, etc.) are designed primarily to be used by ethics teachers and their students.

<http://ethics.sandiego.edu/resources/cases/HomeOverview.asp>

The Ethics of Character: Virtues & Vices

This is a detailed presentation on Aristotle and Virtue Theory.

<http://ethics.sandiego.edu/presentations/Theory/virtue/virtue.ppt>

<http://ethics.sandiego.edu/presentations/Theory/virtue/virtue.swf>

<http://ethics.sandiego.edu/presentations/Theory/virtue/virtue.pdf>

Physical Education, Sports

A Theoretical Analysis of Sports

In this interactive object, students examine the structural-functional, social-conflict, and symbolic interaction analyses of sports. A mind map and quiz questions are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S4004

Ball Bouncing

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

<http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactives/bounce.htm>

Catching

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

<http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactives/catch.htm>

Dodging

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

<http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactives/dodge.htm>

Facilitating Use of the Internet as a Health Information Resource

This module is a tutorial intended for university students, faculty, and staff across all campuses that access health information through the Internet. It will provide interactive lessons that communicate and demonstrate how to search the Internet and evaluate retrieved health information.

<http://edtech.tennessee.edu/~set17/>

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Hopping

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

<http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactivities/hop.htm>

Jumping Vertically

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactivities/vet_jump.htm

Jump Stop

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactivities/two_foot.htm

Kicking for Distance

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

<http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactivities/kicking.htm>

Lesson Plan Template

This is a lesson plan template including grade specific outcomes.

<http://www.education.gov.ab.ca/physicaleducationonline/LessonPlans/templates/LessonPlanTemplateGr10-12.doc>

<http://www.education.gov.ab.ca/physicaleducationonline/LessonPlans/templates/LessonPlanTemplateGr10-12.pdf>

Make Your Jump Shot

This leaning object shows the science behind making a jump shot in basketball every time.

<http://www.fearofphysics.com/Proj/proj.html>

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Overhand Throwing

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactives/ov_hand.htm

Physical Education Online

This Web site provides information for teachers to support implementation and student learning of the Alberta K - 12 physical education program of studies. The site is organized into three sections: Programs of Studies, Teacher Resources, and Home Education.

<http://www.education.gov.ab.ca/physicaleducationonline/>

Ready Position

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

<http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactives/ready.htm>

Run For Your Health

Run For Your Health is a WebQuest lesson that allows students to be actively engaged as researchers and producers of authentic material. The work is done in teams of four. They search the Internet for evidence to support the idea that there is a relationship between physical activities, health and well-being. They present this in a final team report. In addition, each team produces a flyer or newsletter for a campaign to recruit students to the runner's club of the school. In order to join the club, candidates must be physically fit. The team creates a fitness training program to get the candidates into shape and running by the end of one month. This activity helps students learn about the importance of physical fitness and health. They also learn about running, the heart, nutrition, physical fitness, endurance, using a calendar software, designing a flyer, a newsletter or a poster in a campaign to promote healthy living.

<http://www.nelliemuller.com/runforyourhealth.lessonplan.htm>

Running (for Speed)

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

<http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactives/running.htm>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Stopping

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactives/stride_s.htm

Striking Horizontally

This interactive is a short demonstration of basic skills with strategies to increase the quality of the movement experience. It is part of a collection, which has been developed to assist teachers with assessing students' current fundamental skill sets, and provides ideas that can be utilized in developing them.

<http://www.education.gov.ab.ca/PhysicalEducationOnline/TeacherResources/ToolBox/interactives/strike.htm>

The Science of Football

Students will get a "kick" out of selecting different variables to control the outcome of a shot on goal in a soccer game in the Penalty Shoot-Out Game. Once they select the direction and power of the kick, they learn the outcome of the shot. In the "How to Bend it Like Beckham" activity, students get a physics lesson on how a real soccer star kicks the ball at an angle, creates a spin, and uses air pressure to score goals. Students will learn how airflow relates to air pressure. They can compete against the computer or one another as they learn about the physics of goal scoring. Animation is an effective way to show the movement of the ball in slow motion. Students will learn how the physics of manoeuvring a ball past the goalkeeper is as much a scientific feat as it is an athletic one. Other sections of the site discuss training and food as they relate to the science of soccer. The site content and accompanying quiz are most appropriate for K-6 students.

<http://www.bbc.co.uk/science/hottopics/football/game.shtml>

Weight Lifting for Physical Fitness

This lesson plan for physical education teachers and coaches emphasizes weight training and healthy workouts as a way to stay fit and healthy. It will be using a progressive workout that includes bench press, power clean, and parallel squat exercises.

http://www.ali.apple.com/ali/uops_display.php?findunit=1956

Physics

Activity-Based Physics

Activities at this site connect concepts with problem solving. The Thinking Problems cover such broad topics as mechanics, oscillations and waves, thermodynamics, and electricity and magnetism. Each category has a number of thinking problems available for free use in the classroom. Teachers will find alternative homework assignments, grouped into the same categories that "require the students to think critically about how the concepts are related to the mathematical equations required to solve the problem". Each assignment includes a series of questions about a single context or situation.

<http://www.physics.umd.edu/rgroups/ripe/perg/abp/>

Astronomy Animations

This collection of animations illustrates various phenomena: Earth's Orbital Motion and the Sun's Motion Across the Celestial Sphere, Meridian and Motion of the Sun, Eclipses, Orbital Motion, Tidal Forces, Retrograde Motion of the Planets, Phases of Venus, Kepler's Laws, Rotation Curves, Equivalence Principle, Expansion of the Universe, Curvature of Space, Disk Formation in Collapsing Cloud, etc.

http://phys23p.sl.psu.edu/phys_anim/astro/indexer_astro.html

CENEMS

CENEMS is a user-friendly tool that computes the surface charge density distribution on the surface of the conductors in a multi-conductor system. CENEMS contains a graphical user interface which will allow users to design multi-conductor systems, including drawing conductors, specifying applied voltage and discretization level (the higher the level, the finer the discretization) for the conductors. After running the simulation, users can immediately see the surface charge density distribution on the conductors. CENEMS solves the exterior potential problem and computes the surface charge density by using boundary integral equations and a Boundary Cloud Method (BCM).

https://www.nanohub.org/simulation_tools/cenems_tool_information

Exploring electric fields

Place punctual electric charges and visualize the effect of the electric field they create!

http://www.gel.ulaval.ca/~mbusque/elec/main_e.html

Image Formation and Ray Tracing

This animation illustrates the image concept in optics and physics.

http://phys23p.sl.psu.edu/phys_anim/optics/image_formation.avi

Make Your Jump Shot

This learning object shows the science behind making a shot in basketball every time.

<http://www.fearofphysics.com/Proj/proj.html>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Modern Physics Animations

This collection of 1D and 2D animations illustrates the photon production and relativity - time dilation.

http://phys23p.sl.psu.edu/phys_anim/mod/indexer_mod.html

Padre

PADRE is a 2D/3D simulator for electronic devices, such as MOSFET transistors. It can simulate physical structures of arbitrary geometry--including heterostructures--with arbitrary doping profiles, which can be obtained using analytical functions or directly from multidimensional process simulators such as Prophet. For each electrical bias, PADRE solves a coupled set of partial differential equations (PDEs). A variety of PDE systems are supported which form a hierarchy of accuracy: electrostatic (Poisson equation) drift-diffusion (including carrier continuity equations) energy balance (including carrier temperature) electrothermal (including lattice heating)

https://www.nanohub.org/simulation_tools/padre_tool_information

PhET (Physics Education Technology)

This is a collection of forty simulations where students can explore such topics as string tension, radio waves, static electricity, buoyancy and much more in a game-like environment that emphasizes the connections to real life experience and the underlying science. The simulations are grouped into seven categories: motion, work, energy and power, sound and waves, heat and thermo, electricity and circuits, light and radiation, quantum phenomena and math tools. Teacher resources include a database of classroom activities, created by classroom teachers, to use with the simulations, and a discussion forum. Additionally, there is information on how to access and run the simulations and suggestions for effectively incorporating the simulations into the curriculum.

<http://www.colorado.edu/physics/phet/web-pages/index.html>

Properties of Metal

This video discusses three important properties of metal: tensile strength, ductility, and hardness. It includes a demonstration of the Rockwell hardness test being done on aluminium and steel.

<http://www.learnalberta.ca/content/ctmr/MovieResourceLauncher.htm?asset=movies/CON1010E.mov>

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PROPHET

The PROPHET simulator is a framework to solve systems of partial differential equations (PDEs) in time and 1, 2, or 3 space dimensions. PDEs are discretized using either finite elements or finite volume methods in space and with implicit methods in time, which reduces the differential equations to a system of algebraic equations that are solved by Newton's method at each timestep. The matrix resulting from the linearization is solved by sparse iterative or direct methods. PROPHET is designed with the goals of: 1) efficiency, 2) geometric flexibility, and 3) equation extensibility. The first two characteristics distinguish PROPHET from packages such as MATLAB or Mathematica, which do not allow the use of arbitrary shapes or grids and are not tuned to solve systems with 100,000 or 1,000,000 unknowns. The third characteristic distinguishes it from application-specific simulators such as PISCES or SUPREM-4. It allows new equations to be specified by a user or model developer who may not be familiar with numerical methods.

https://www.nanohub.org/simulation_tools/prophet_tool_information

QC-Lab

The aim of QC-Lab is to facilitate the elaboration and study of molecular theoretical models in Gas Phase and Solution. QC-Lab puts together the instructions in GAMESS language and automatically submits the job for execution. Once the task has been accomplished, QC-Lab retrieves the data where a variety of molecular properties may be read from: Optimum molecular structure, atomic charge distribution, dipole moment, thermodynamic state functions, etc.

https://www.nanohub.org/simulation_tools/qclab_tool_information

QuarkNet

Through various classroom activities, QuarkNet brings high school students and teachers to the frontier of 21st century research that seeks to research some of the mysteries about the structure of matter and the fundamental forces of nature. QuarkNet centers are connected to high-energy physics experiments operating at CERN in Switzerland, at Fermilab in Illinois, at SLAC in California and others. Within two years, QuarkNet expects to form 60 centers associated with research groups at universities and labs across the U.S. (50 already operational).

<http://quarknet.fnal.gov/>

Reflect on this

This lesson requires students to investigate reflections using hinged mirrors. With a kaleidoscope, students will examine the interior angles of regular polygons. They will use multiple reflections to create regular polygons; determine the relationship between the number of sides in a regular polygon and the measure of its central angles; examine the significance of congruent angles and their applications. An activity sheet in PDF format completes the lesson.

<http://illuminations.nctm.org/LessonDetail.aspx?id=L379>

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Sound Wave

Frequently sound is described using terms such as pitch, tone, frequency, intensity or loudness. To understand the origins of these terms as well as to understand the mathematical models used to represent sound, this applet can help you to explore the dynamics of a sound wave.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=37>

Spectroscopic Simulator

This applet covers an aspect of a physical chemistry course that students often find confusing. Although it is based on relatively simple mathematics, a complete understanding of the phenomenon requires assimilating the following concepts: the energy levels of a diatomic molecule, the molecule's light absorption, the intensity of the transition. Many students are comfortable with these separate concepts, but find it difficult to combine them to produce an understanding of rovibrational spectroscopy. This applet simulates an infra-red spectrometer, allowing students to adjust the experimental and molecular parameters and observe the effects on the infra-red spectrum. Students may use the applet to first focus on each of the individual concepts, within the context of the actual experiment, and then integrate these concepts into a coherent whole.

<http://www.chemcollective.org/applets/spectro.php>

Statistical Mechanical Simulator

The Statistical Mechanics Simulator allows students to create a multi-level quantum mechanical system and explore the partition function and thermodynamic properties.

<http://www.chemcollective.org/applets/statmech.php>

The Science of Football

Students will get a "kick" out of selecting different variables to control the outcome of a shot on goal in a soccer game in the Penalty Shoot-Out Game. Once they select the direction and power of the kick, they learn the outcome of the shot. In the "How to Bend it Like Beckham" activity, students get a physics lesson on how a real soccer star kicks the ball at an angle, creates a spin, and uses air pressure to score goals. Students will learn how airflow relates to air pressure. They can compete against the computer or one another as they learn about the physics of goal scoring. Animation is an effective way to show the movement of the ball in slow motion. Students will learn how the physics of manoeuvring a ball past the goalkeeper is as much a scientific feat as it is an athletic one. Other sections of the site discuss training and food as they relate to the science of soccer. The site content and accompanying quiz are most appropriate for K-6 students.

<http://www.bbc.co.uk/science/hottopics/football/game.shtml>

Ultrasound: How Does it Work?

This simulation explores ultrasound imaging as a technique used to see inside an object (such as the human body). It consists of three modules. In the first, students are introduced to the technology behind the ultrasound. The second module shows how waves get reflected as they travel through objects. The final module shows how the measurement of the reflected waves can be used to produce an image of what is taking place inside a body.

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=52>

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Vector Animations

These animations include vector addition, components of a vector, resolving a vector relative to another vector, scalar (dot) product of two vectors, vector (cross) product of two vectors, and right hand rule.

http://phys23p.sl.psu.edu/phys_anim/vectors/indexer_vectors.html

Water Hammer Simulation

Simulation of Water hammer shows dynamic pressure over time for single pipe and downstream value. Also used in Civil and Mechanical Engineering classes to understand water hammers. Primarily a visualization of some difficult mathematical calculations. Learning Objective: Visualize transient pressure and velocity performance in a simple water hammer simulation for sudden closure of a valve. Parameters of the Water hammer: 2,726 m of 4 Inch Sch. 40 CS Pipe; Water at 20°C; Reservoir Head 100 m; Wave Speed 1,363 m/s; Valve closes quickly calculation by method of characteristics using 240 elements.

<http://www.queensu.ca/cloe/projects/public/waterhammer/Simulation.html>

Wave Animations

This is a collection of more than 30 animations illustrating various phenomena associated with waves in 1D and 2D: basic properties (pulse on a string, harmonic wave, transverse and longitudinal waves), boundary conditions, interferences, standing waves, double slit interferences (varying phases, coherence loss), standing wave patterns, Doppler effect.

http://phys23p.sl.psu.edu/phys_anim/waves/indexer_waves.html

Political Science

A Just War? President Clinton's Response to Kosovo

This interactive prototype case of Project THRO (Teaching Human Rights On-Line) confronts students with the political, legal and moral choices the U.S. faced when Yugoslavia violated the human rights of Albanians in Kosovo. Clinton's decision required a complex strategic, political, and legal calculus. Background materials review Balkans history and identify the options President Clinton and his advisers considered in January 1999. Students online may either read the text or listen to the audio of the President's address to the nation announcing NATO air strikes. Study guide multiple choice questions accompany each section, and a final three-part essay requires systematic analysis of competing principles. A model answer presents conflicting arguments on the legality of NATO's humanitarian intervention.

<http://homepages.uc.edu/thro/Kosovo/JWMain.html>

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Colombia: The U.S. Response to the Changing Nature of International Conflict

The simulation focuses on the agendas, options, and dynamics at play when prospects of foreign intervention by the U.S. military are being considered. Participants grapple with a scenario of political and economic crisis in Colombia, and debate the policy decisions to be made in defining an appropriate American response to that situation. Participants role-play officials from the U.S. government executive and legislative branches, officials of human rights organizations, and journalists representing various U.S. media. In the process, participants will have the opportunity to consider the broader implications of the scenario on U.S. foreign policy and international conflict in general.

<http://www.usip.org/class/simulations/colombia.pdf>

Controlling the Proliferation of Nuclear Weapons

This teaching guide assists teachers in increasing students' understanding of the prevalence and spread of nuclear weapons, and familiarizes students with historic and contemporary measures to control nuclear proliferation, and stimulates their thinking of potential strategies for doing so in the future.

http://www.usip.org/ed/npec/teaching_guide06.pdf

Global Perspectives: A Remote Sensing and World Issues Site

The itinerary for Global Perspectives takes students on a tour of some of the world's political hotspots: the Middle East, South Asia, the Balkans, Central America. Through the tools of remote sensing and a thorough package of background on each region, students use problem-based learning to tackle real-world problems in these troubled areas. The free online program's satellite images and other geospatial information convey concepts that involve global- and regional-scale patterns. With real-life scenarios, detailed historical timelines, a glossary of vocabulary, and links to other helpful sites, Global Perspectives offers a standards-based, multidisciplinary approach to current events.

<http://www.cet.edu/earthinfo/>

Ideology and the News Media

This resource focuses on ideology, political power, and rights and freedoms in a democratic society. The main assignment is to write an editorial based on Premier William Aberhart's radio address (Social Credit Party) in which he promotes the adoption of the "The Accurate News and Information Act." Students will choose their point of view based on their own understanding of the characteristics of left- and right- wing ideology, their personal ideological beliefs, and a critical analysis of bias in sources of information. The editorial writing assignment is carried out in a virtual newsroom where students interact with an editor, copy editor, political correspondent, reporter, photographer, cartoonist, and librarian. This version has all of the required resources, graphics and numerous special effects designed to enhance the immersive experience for students. Lite version available at

<http://www.learnalberta.ca/content/ssinml/html/Content/ideologyLite.html?launch=true>

<http://www.learnalberta.ca/content/ssinmf/html/Content/ideologyFull.html?launch=true>

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Northern Ireland: One Step at a Time (The Derry March and Prospects for Peace)

The simulation deals with a specific issue in the Northern Ireland conflict: that of the marches, which serve as a microcosm of the larger conflict between Catholics and Protestants. The simulation's focus on the Parade Commission's decision whether or not to allow a particular march in Derry helps crystallize the wide array of issues that arise when the Northern Ireland conflict is studied. In role-playing, the representatives of the various concerned political parties, associations, and authorities, participants learn about the deep roots of this longstanding conflict and attempt to fashion new proposals to deal with this challenging situation.

<http://www.usip.org/class/simulations/nireland.pdf>

Prime Minister Rao's Dilemma

This interactive case study presents a dilemma confronted by the Indian Prime Minister in 1995 following a terrorist assassination of the Punjab Chief Minister. Political rivals in upcoming national elections might exploit a weak response, but the government's past anti-terrorist measures provoked domestic and international complaints of massive human rights violations. Prime Minister Rao must decide whether or not a) to comply with international law b) to prosecute security personnel who committed atrocities and c) to admit more international human rights observers. The exercise scores students on their ability to distinguish factors which favour human rights reform from those supporting counter-terrorist measures. After writing responses to three questions, students may review model answers that justify different policy choices.

<http://homepages.uc.edu/thro/dilemma/index.html>

Rohde to Srebrenica

This project was created for the course "Elements of International Reporting" at the Columbia Graduate School of Journalism, but has possible applicability at SIPA, and in Political Science and other courses. The site chronicles a journalist's journey through war-torn Bosnia, enhanced by video of Professor Nelson's interview with Rohde, evidentiary documents and a clear outline of best practices for human rights reporting.

<http://www.columbia.edu/itc/journalism/nelson/rohde/>

Sri Lanka: Setting the Agenda for Peace

The setting for this simulation is a September 2001 meeting in Geneva, where the Government of Sri Lanka and the Liberation Tigers of Tamil Elam (LTTE) are to explore avenues for resolving their conflict. What gives this meeting particular urgency is a donor threat to cut off aid unless the Sri Lankan Government shows a willingness to explore political solutions. Donors have also indicated they may enact legislation banning LTTE fund-raising activities in their respective countries. The international community's threat to use economic pressure to end the violence has changed the status quo of the conflict, and offers a rare window of opportunity for peace. In role-playing representatives of the parties to the conflict, various political parties, concerned states, and other organizations considered to be major stakeholders in the conflict, participants will attempt to forge an acceptable agenda that can serve as the basis for peace talks.

<http://www.usip.org/class/simulations/srilanka.pdf>

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The Cambodia Peace Settlement

Participants role-play negotiators at a peace settlement conference, where, due to international pressure, the Cambodian government has agreed to negotiate with opposition leaders over implementation of a peace settlement and past accountability for genocide and war crimes.

<http://www.usip.org/class/simulations/cambodia.pdf>

The Case of "Palmyra"

This simulation focuses on a conflict in the territory of "Palmyra" in the fictional country of "Siwa." The aim of the simulation is to demonstrate for the participants some of the challenges facing peacemakers in their efforts to resolve violent international conflicts. The ultimate challenge of the simulation and the goals of the participants are to have the parties to a violent international conflict, with the assistance of outside mediators, address the issues that divide them and that have led to violence.

<http://www.usip.org/class/simulations/palmyra.pdf>

The International Court of Justice Considers Genocide

This interactive prototype case of Project THRO (Teaching Human Rights On-Line) encourages its visitors to play the role of a judge at the International Court of Justice (ICJ). The case brought by Bosnia in 1993 charges genocide and seeks damages from Serbia and Montenegro, the former Yugoslavia. Students can explore the facts, research the law, and consider opposing arguments that support one side or the other. They can earn a perfect score of 100 by identifying all the best facts and arguments that support each side.

<http://homepages.uc.edu/thro/genocide/index.html>

The Israeli-Palestinian Conflict

This simulation focuses on a U.S.-led effort to bring together many elements of both Israeli and Palestinian society to hold discussions about the needs and interests of both sides before entering into formal negotiations. The simulation provides an opportunity to view this longstanding conflict from the perspectives of those immediately impacted by it: in particular, the communities of ordinary Israelis and Palestinians who have yet to see much benefit in their own lives from the peace process.

http://www.usip.org/class/simulations/israeli_conflict.pdf

The Paris Peace Talks of December 1972–January 1973

This simulation focuses on a brief phase in the Paris Peace Talks when the U.S., North Vietnam, South Vietnam and the Soviet Union met in Paris to salvage peace in Vietnam. Two months earlier the Government of South Vietnam had announced its disagreement with a draft text, blocking further progress. Now, the major parties have agreed to come together and try to achieve a peace agreement in the belief that this may be the last chance to do so. In role-playing these four major stakeholders, participants will be asked to consider issues of cooperation, the threat of force, and the role of secrecy in peace negotiations.

<http://www.usip.org/class/simulations/paris.pdf>

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The Use of Force in Chechnya: An Exploration through Track-Two Diplomacy

This simulation focuses on the conflict in Chechnya and provides an opportunity to take part in a problem-solving workshop involving Russian and Chechen representatives of civil society. Participants will play the roles of Russians and Chechens from various sectors of society: low to mid-level government officials, religious leaders, and representatives of non-governmental organizations (NGOs). Participants will explore possible future directions of this conflict, the needs and interests of the two peoples, and the conditions and situations under which violence and the use of force might possibly be justified. The potential benefits of "track-two diplomacy"—that is, an effort to bring together influential members of the parties to a conflict in an unofficial capacity to explore joint problem solving—will be discussed and analyzed.

<http://www.usip.org/class/simulations/chechnya.pdf>

Transitions to Democracy

This guide assists teachers in increasing students' understanding of the nature of democracy and historic and contemporary efforts at democratization. It includes lesson plans, student handouts and instructions.

<http://www.usip.org/class/guides/democracy.pdf>

Universal Declaration of Human Rights (UDHR)

The UDHR MSE (Multimedia Study Environment) offers a unique glimpse into events that led to the document's creation and its lasting impact on world history, including extensive videotaped interviews with major scholars in the field, including Louis Henkin, one of the document's drafters; historical film clips and links to relevant organizations.

<http://cenmtl.columbia.edu/projects/mmt/udhr>

Psychology

Decision Making Methods

Students will be given eight methods of making decisions and identify advantages and disadvantages in using each method. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=PHR2401

Dr. Cecil's Psychology Series: Personality Disorder Softball

Students review descriptions of 10 personality disorders and then test their knowledge in an interactive softball game. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=PHR3405

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

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Group Performance

Students read about three factors that affect group performance: group cohesiveness, communication structure, and individual roles. They then enter brief reports of how they have observed these factors in the groups in which they have participated. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=PHR2901

Interactive Stroop Effect Experiment

This experiment, where students are required to say the color of the word, not what the word says, illustrates the Speed of Processing Theory and the Selective Attention Theory. Example of a "lesson ready to go" to use the Stroop Effect as an experiment in class.

<http://staff.washington.edu/chudler/java/ready.html>

Introductory Psychology Matching Exercises

Matching quizzes and crossword exercises for various topics of the science of psychology: Biological Basis of Behavior, Sensation & Perception, States of Consciousness, Learning, Memory, Cognition/Thinking & Language, Intelligence, Statistical Methods, Motivation & Emotion Human Development, Personality, Stress & Health Psychology, Psychological Disorders, Therapies, Social Psychology.

<http://www.rdc.ab.ca/scottpsych/website/student/match.htm>

Learning About Multiple Intelligences in the Land of Oz

Students read about the seven types of intelligence identified by psychologist Dr. Howard Gardner. They then select the type(s) of intelligence of each character in the Land of Oz. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2P3003

Psychology and Research

Students read about the scientific method and the three main types of research. They enter their answers to questions on the screen. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2P2502

PsychQuest

These interactive exercises for psychology contain eight modules, each exploring high-interest topics addressed in introductory psychology courses. An interactive tool, PsychQuest allows students to explore various psychological research topics, participate in experiments and simulations, quiz themselves on content, and link to the Web for additional information. Each module is designed to continuously foster critical thinking and stimulate student interest in key issues in psychology by relating psychological concepts to real-world issues.

<http://www.worthpublishers.com/myers5e/content/psychquest/index.htm>

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PsychSim

Interactive Graphic Simulations for Psychology, PsychSim is a set of 19 interactive graphic computer simulations plus some utility files. The modules are designed to enhance student learning by demonstrating classic experiments or simulating psychological processes in ways that would be difficult or impossible with conventional instruction materials. Each module can be completed in 15 to 20 minutes. The topic areas covered by the modules include: sensation and perception; biological bases of behaviour; cognition; learning; social cognition; abnormal psychology; and descriptive statistics. These original interactive simulations involve students in the practice of psychological research by having them play the role of experimenter (conditioning a rat, probing the hypothalamus electrically, working in a sleep lab) or subject (responding to tests of memory or visual illusions, interpreting facial expressions). Other simulations provide a set of dynamic tutorials or demonstrations of important principles and processes.

<http://www.worthpublishers.com/myers5e/content/psychsim/index.htm>

Stanford Prison Experiment: A Simulation Study of the Psychology of Imprisonment

This site provides an extensive slide show and information about this classic psychology experiment, including parallels with the abuse of prisoners at Abu Ghraib. What happens when you put good people in an evil place? Does humanity win over evil, or does evil triumph? These are some of the questions we posed in this dramatic simulation of prison life conducted in the summer of 1971 at Stanford University.

<http://www.prisonexp.org/slide-1.htm>

Test Your Thoughts

This online vocabulary quiz generator provides users with random multiple-choice questions (specific to chapter selected) based on common vocabulary words found in psychology. Students can practice their vocabulary while surfing the Internet, using MSN, checking e-mail, etc. Best of all, it is time-independent so students can complete the quizzes at their own pace.

http://www.apppsychology.net/flash/pwd_quizzes/index.html

The Mind Reader: Quantifying Free Association

The Mind Reader is a research-based technique that will automatically score the emotions underlying your own topic-related free associations using a scoring instrument called the Dictionary of Affect. It will also generate a circle diagram indicating the emotional space and the area in which your responses lie. This psychology learning object has three main aims: 1) Introduce students to the concept of free association, and the idea that free associations reveal emotional reactions; 2) Introduce students to dimensional approaches to understanding emotion; 3) Introduce student to the Dictionary of Affect, a quantitative measurement tool that can be used to analyze natural language.

<http://lo.laurentian.ca/content/laurentian.html#>

The Perspectives of Psychology

Students read about the six theoretical perspectives used to explore psychological events and do an interactive exercise. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2P2702

Internet and Education Guide

(<http://www.ntic.org/internetguide.pdf>)

Social Work

Antihypertensive Drugs

In this interactive object, students sort antihypertensive medications into categories. Descriptions are provided. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR6304

A Theoretical Analysis of Deviance

In this interactive object, students examine a mind map depicting manifest and latent functions of deviance. Quiz questions complete the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S3804

A Theoretical Analysis of Education

In this interactive object, students examine a mind map depicting manifest and latent functions of education. Quiz questions complete the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S4904

A Theoretical Analysis of Family

In this interactive object, students examine the structural-functional, social-conflict, and symbolic interaction analyses of family. A mind map and quiz questions are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S4704

A Theoretical Analysis of Health

In this interactive object, students examine a mind map depicting manifest and latent functions of health. Quiz questions complete the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S5004

A Theoretical Analysis of Sexuality

In this interactive object, students examine the structural-functional, social-conflict, and symbolic interaction analyses of sexuality. A mind map and a brief quiz are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S4104

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A Theoretical Analysis of Socialization

In this interactive object, students examine the structural-functional, social-conflict, and symbolic interaction analyses of socialization. A mind map and quiz questions are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S4604

Dimensions of Family Structure

Students read about family structure and then enter terms in a grid identifying if that family structure is determined by females, males, or both. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S2801

Group Performance

Students read about three factors that affect group performance: group cohesiveness, communication structure, and individual roles. They then enter brief reports of how they have observed these factors in the groups in which they have participated. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=PHR2901

Mental Health in Kids and Teens

Students identify various therapeutic interaction strategies to be used when working with children and adolescents to enhance self-esteem, self-concept, self-worth, body image, and coping and communication skills. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR5604

Nervous System Diseases and Mental Disorders

Students complete a crossword puzzle with terms that relate to common diseases of the nervous system and mental disorders. Immediate feedback is provided. Students have the option to send an e-mail to their teacher, notifying them that the learning object has been completed. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=GEN2105

Physical Development of Children

In this interactive object, students select the correct description of a child in the five stages of development in the following categories: pattern of growth, vital signs, organ development, vision and hearing, and developmental stage. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR3303

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Psychotropic Medications and Neurotransmitters

In this animated object, students examine how psychotropic medications act on neurotransmitter systems to achieve their desired effect. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=NUR3503

Stanford Prison Experiment: A Simulation Study of the Psychology of Imprisonment

This site provides an extensive slide show and information about this classic psychology experiment, including parallels with the abuse of prisoners at Abu Ghraib. What happens when you put good people in an evil place? Does humanity win over evil, or does evil triumph? These are some of the questions we posed in this dramatic simulation of prison life conducted in the summer of 1971 at Stanford University.

<http://www.prisonexp.org/slide-1.htm>

Sociology

A Theoretical Analysis of Culture

In this interactive object, students examine the structural-functional, social-conflict, and symbolic interaction analyses of culture. A mind map and quiz questions are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S3704

A Theoretical Analysis of Deviance

In this interactive object, students examine a mind map depicting manifest and latent functions of deviance. Quiz questions complete the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S3804

A Theoretical Analysis of Education

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http://www.wisc-online.com/objects/index_tj.asp?objID=I2S4704

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A Theoretical Analysis of Gender Stratification

In this interactive object, students examine a mind map of gender stratification. Quiz questions complete the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S3904

A Theoretical Analysis of Health

In this interactive object, students examine a mind map depicting manifest and latent functions of health. Quiz questions complete the activity. Resource from Wisc-Online: free access but sign-in is mandatory.

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A Theoretical Analysis of Socialization

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http://www.wisc-online.com/objects/index_tj.asp?objID=I2S4604

A Theoretical Analysis of Sports

In this interactive object, students examine the structural-functional, social-conflict, and symbolic interaction analyses of sports. A mind map and quiz questions are included. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S4004

Dimensions of Family Structure

Students read about family structure and then enter terms in a grid identifying if that family structure is determined by females, males, or both. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S2801

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How to Really Be a Millionaire

Students will play "How to Really Be a Millionaire" to learn the basics of accumulating wealth. Many students think that becoming a millionaire is a matter of luck or privilege, when in fact many working-class folks have accumulated over \$1 million because of sound savings habits throughout their lives. Yes, structural factors can wreak havoc on financial security, but so can poor financial planning. Resource from Wisc-Online: free access but sign-in is mandatory.

http://www.wisc-online.com/objects/index_tj.asp?objID=I2S2401

Statistics and Probability

This is a collection of four videos in applied mathematics: 1) "Analysis of Graphs" illustrates how a positive slope in a graph does not necessarily indicate a per unit growth. An example set on a family farm shows how a per unit cost may be decreasing, even though overall cost is rising 2) "Analysis of Graphs: Baby Boomers" illustrates how, over time, a particular segment of a country's population can affect the graph of an entire population. This concept is illustrated in an analysis of how Baby Boomers have affected the graph of the overall population 3) "Analysis of Graphs: Population Pyramids" displays graphs of population pyramids. The pyramids can often display the impact that events, such as baby booms or wars, can have on a country's demographics or population. Examples of Canada's and India's population pyramids are displayed 4) "Presenting Statistical Data" shows how the presentation of data can be misleading. A graph portrays a percentage increase of rats in the province but is misleading because actual numerical values are not provided.

http://www.learnalberta.ca/content/meamr/html/statistics_and_probability/statistics_and_probability_desc.html#.html

Spanish, Hispanic Studies

BBC Languages: Spanish

This Web site contains various materials to help teachers teaching Spanish as a second language: an intermediate audio magazine with topical reports, a guide to tuning to TV in Spanish from the UK, self-contained online courses, documentaries, audio reports with transcripts, clips of songs to practice with, etc.

<http://www.bbc.co.uk/languages/spanish/index.shtml>

Bienvenidos a Barcelona

In this WebQuest students work to plan a week's visit to Barcelona. They produce a printed itinerary in Spanish, which will include some graphics and photos, giving background information on Barcelona, as well as proposals for day-to-day activities. Then they need to "sell" this package to their classmates and teacher through an oral presentation.

<http://www.teachnet.ie/barcelona/home.htm>

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Colloquial Spanish Hearings

This site includes 8 examples of exercises involving different kinds of phonetic variations.

<http://www.auladiez.com/ejercicios/audiciones.html>

Costa Amor: Tú decides

Your Spanish online soap: Read the story of expat Dave and Spanish beauty Carmen that has been written by you. For 32 weeks you decided on the next line or twist of plot.

<http://www.bbc.co.uk/languages/spanish/soap/>

Ejercicios de español

The site includes grammar and vocabulary tutorials for use in the first three and four semesters of college Spanish.

<http://www.willamette.edu/~bortega/Ejercicios/>

Gramática visual

The purpose of this Web site is to practice past narration in Spanish using the *pretérito* and *imperfecto*. In the first part of this Web site, you will watch brief video clips and say what occurred. Before doing the second part, you will need to view a feature-length movie entitled *Los niños invisibles*, by Lisandro Duque Naranjo.

http://www.bc.edu/bc_org/avp/cas/romlang/pn/spanish1.htm

Grammarlab Tutorials and Drills

This site allows you to review Spanish grammar and do interactive drills to practice the materials you are learning in class -- or just to brush up on problem areas.

<http://grammar.spanish.sbc.edu/>

Instantes

A guided reading of a poem with exercises on the conditional tense, si clauses, and an online forum about what you would do if you could live life over again.

<http://www.colby.edu/~bknelson/exercises/instantes/index.html>

La fiesta de San Fermín

Celebrate the festival of San Fermin in Pamplona in a four-part story, and practice the preterit and the imperfect.

<http://www.colby.edu/~bknelson/exercises/sanfermin/index.html>

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La historia de Juan

Learn about the plight of street kids in Colombia in this guided reading of the popular song by Juanes. Focus on the preterit tense and then put yourself in the place of street child and describe a typical day. Send your comments to your teacher.

<http://www.colby.edu/~bknelson/exercises/juan/index.html>

Language Pronunciation and Comprehension Learning Tool

The Language Pronunciation and Comprehension Learning Tool (LPCLT) is a revolutionary linguistics toolkit designed to enhance a student's comprehension and pronunciation of a particular language. This new learning tool developed by Arts Instructional Support (Arts IS) allows teachers to author vocabulary and sentence structures into an oral component, to aid students in learning to hear and speak a new language. The authored component is a digitally recorded question-and-answer set. This tool offers direct learning enhancement by allowing teachers to create their own oral component in any given language. Students, with this tool, are given the unique opportunity to hear, comprehend and speak their chosen language at their own leisure. The tool can also be used in conjunction with language labs, or by adding a direct oral component to a language curriculum. Additionally, if this tool is incorporated onto a WebCT platform, students will benefit by being able to practice their oral skills at home.

http://www.learningtools.arts.ubc.ca/language_pronunciation_tool.htm

Letra y Música

From BBC Music's online archive, this site includes clips of songs in Spanish plus quizzes to practice your Spanish.

<http://www.bbc.co.uk/languages/spanish/songs/index.shtml>

Más arriba

Interactive workbook of introductory Spanish language exercises, based on the pictorial contextualization of basic vocabulary and language points. It consists of full-colour drawings, audio clips, instant feedback and vocabulary help. The material of Más arriba can be used with any introductory approach. The vocabulary and grammar corresponds to most basic college elementary texts. The visual exercises are designed to complement the textual exercises of the ¡Arriba! Companion Website and to accompany the new ¡Arriba! Comunicación y cultura Canadian Edition (©2005 by Pearson Education) in that case, the exercises are listed by lesson. Exercises are also listed alphabetically for those who work with another edition.

<http://www.trentu.ca/academic/modernlanguages/spanish/masarriba/>

Novia del campo, amapola

This site provides a guided reading of the poem by Juan Ramón Jiménez that includes an exercise on the future tense, and an activity to e-mail to the teacher.

<http://www.colby.edu/~bknelson/exercises/amapola/index.html>

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Ofrendas

The study module Ofrendas (Offerings) brings to life the custom of remembering and honouring the deceased by celebrating the Day of the Dead. A lively song, a video interview, and an Essay of Images, and related activities embrace the Standards for Foreign Language Learning in the 21st century. These standards are comprised by the 5 C's: Communication, Culture, Connections, Comparisons, and Communities. It is through these concepts of connectedness with people and life that Ofrendas teaches students how to honour the past and care for the future.

<http://www.colby.edu/~bknelson/exercises/ofrendas/index.html>

Ojala que llueva cafe

This is a guided-reading selection in Spanish based on a song by Dominican artist Juan Luis Guerra, optional translation provided, related isolated practice provided for subjunctive with interactive responses. The multimedia- and culture-based visuals make this a very versatile and engaging educational tool. A colourful photo gallery of Dominican scenes enhances the module.

<http://www.colby.edu/~bknelson/exercises/ojala/index.html>

Practicar el idioma español con ejercicios interactivos

This site provides interactive exercises to learn Spanish through practice with online self-correction including prepositions, preterit tenses, the present continuous, auxiliary verbs *ser*, *estar* and *haber*, correspondence of tenses in the compounded speech, comprehension of reading, grammar and vocabulary, idioms, possessives, adjectives.

<http://www.auladiez.com/ejercicios/index.html>

Spanish Grammar Exercises

This site provides interactive grammar exercises with immediate feedback. Practice resource for all those fine-tune grammar points with which students struggle so often. Merlot Awards (Peer Reviews and Editors' Choice Awards) and Calico Award (Access to Language Education Award 2004).

<http://www.colby.edu/~bknelson/exercises/index.html>

Spanish Journey

This program is an all-Spanish version of material featured in Spain Inside Out. The links allow you to download the program transcript as well as its translation. The program has been divided into sections, to be viewed one at a time.

<http://www.bbc.co.uk/languages/spanish/journey/index.shtml>

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Spanish Language Exercises

Rather than presenting a comprehensive display of grammar exercises, this site offers examples of different approaches to common language challenges for the foreign student of Spanish in an Internet environment. In the Instructor-Check Exercises' section, you will find links to exercises for teachers to assign to their students as review or homework. All of them require feedback by a teacher. The students' answers go by default to the author's e-mail account, but all the exercises allow any user to send them to any other e-mail address. In the Self-Check Exercise' section, you will find the main link to exercises that students can use to review their Spanish. All of the exercises provide some sort of immediate feedback, and they are not processed through an e-mail program; thus, they do not require the intervention of a teacher for review, correction or grading.

<http://mld.ursinus.edu/%7Ejarana/Ejercicios/index.html>

Spanish Property Game

Can you tell your *apartamento* from your *palacio*? Match the photos of the properties with their descriptions and pick up a bit of the lingo using the key words.

http://www.bbc.co.uk/languages/spanish/living_the_dream/game.shtml

Taller hispano

This site provides students and teachers of Spanish with focused Internet exercises meant to supplement textbooks used in the regular course of study for basic Spanish. In particular, Taller hispano is designed to identify appropriate and authentic materials and Spanish resources on the Internet that relate to selected cultural themes and topics.

<http://www.cortland.edu/flteach/usafa/taller.html>

Un viaje al Ecuador

Study the imperfect and preterit tenses in this interactive three-part story about two friends in Ecuador. Lots of innovative exercises with feedback, audio, "rules and clues", cultural background, and self tests.

<http://www.colby.edu/~bknelson/exercises/ecuador/index.html>

UVic's Language Teaching Clipart Library

This library consists of about 3,000 images, which we hope will be useful in the teaching of basic vocabulary in a variety of languages. The characters and objects depicted are as culturally neutral as possible. This is not a huge resource of graphics; its purpose is to provide a set of those graphics most basic and useful for language teaching, and at the same time, to make them as easily searchable as possible. The 3,000 images consist of 1,500 pairs. One member of each pair has a transparent background just big enough to fit the image, the other has a white background 110 by 110 pixels.

<http://web.uvic.ca/hcmc/clipart/>

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Variety Show

This project was done during a course of 2 months. It is an example of putting students in charge of their own learning. Although teachers have specific educational goals, they allow their students to be involved at all levels of project planning and implementation. Of course, since students planned the project, they are more likely to be interested in doing it than if it were assigned to them. The students will make a video variety show. They would like to hear from other Spanish-speaking students to tell them about popular movies, talk/TV shows, music, food, and humour. They will include music and radio clips from the Internet in their final video.

<http://polyglot.lss.wisc.edu/lss/lang/teach/spanvideo.html>

Verbix

Free universal verb conjugator software for Windows operating systems, Verbix shows complete verb inflections of any verb in over 100 languages, and also returns the glossary look-up form from any inflection. It is designed for students of foreign languages who are tired of browsing grammar books, dictionaries, incomplete conjugation tables and other sources to find correct verb conjugations and spelling. Verbix is available as Verbix for Windows (as shareware in 7.2 version and freeware in 7.1 version and earlier) and WebVerbix (free online conjugator).

<http://www.verbix.com/webverbix/>

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