

8. A Guided Tour of Web-Based Learning Activities:

Examples of Appropriate, Innovative Activities for Technology-Enhanced Learning

Five types of activities are included in this Guided Tour:

1. *Web-based learning activities – ready to use*
 2. *Using the web for research*
 3. *Using web pages for publication and presentation of student work*
 4. *Using the web for telecollaboration*
 5. *Teacher Resources*
- Use of web-based learning activities (curriculum enhancements developed by other educators, available either interactively, or via download)
 - Use of web for research
 - Use of web pages for publication of student work
 - Use of web for telecollaboration (see Judi Harris' list of activity structures)
 - Use of spreadsheets for data analysis and graphing
 - Use of word processing/page layout to produce student publications
 - Use of presentation software to support effective communication of work to others.
 - Use of simulations to study aspects of science, social studies, etc.
 - Use of database software to organize data, ask questions, draw conclusions
 - Use of specialized software tools to support particular content areas
 - Teacher Resources

1. Web-based learning activities – ready to use

Interactive Simulation Projects

<http://www.ncsa.uiuc.edu/Edu/RSE/RSEindigo/modelhomepage.html>

A collection of Online Simulation projects available on the Web. Subjects include: Biology, Chemistry, Computer Science, Earth Science, Physics and Mathematics. The Interactive frog dissection is one of the projects linked by this page.

Interactive Frog Dissection

<http://curry.edschool.Virginia.EDU/go/frog/>

The purpose of this lab activity is to help you learn the anatomy of a frog and give you a better understanding of the anatomy of vertebrate animals in general, including humans.

This program provides still and motion visuals of preserved and pithed* frogs, in addition to text. *A pithed frog has had its central nervous system destroyed (its spinal cord has been severed). It is technically dead, but some of its organs continue to function for a brief period. Visuals of pithed frogs are found in the section on "Internal Organs."

How Far Does Light Go?

<http://www.kie.berkeley.edu/KIE/web/hf-description.html>

"How Far Does Light Go?" is a debate project which engages students in an examination of the scientific properties of light by engaging them with relevant evidence from the Web. It culminates in an informal classroom debate where groups present their arguments about how far light goes and respond to questions from other students. The project takes approximately six fifty-minute periods to complete with 30 students as it is described here.

This project has been used in middle and high school physical science classes. It works very well as a culminating project where students have spent significant time learning about various properties of light through previous instruction.

Whole Cloth

http://www.si.edu/lemelson/centerpieces/whole_cloth/index.html

This curriculum contains:

- Eight units examining the chronological history of textiles, and the technology and science of their invention and use;
- Information about women and all people of color, encouraging them to think of themselves as technological and inventive people;
- Interdisciplinary units that drop-in, or connect, to American history/social studies courses in middle and high schools;
- Materials that bridge the often undigested sources available on the World Wide Web and in the classroom by providing lesson plans, primary source materials (both images and documents), and scholarly articles.

2. Using the web for research

Examples:

The WebQuest Page

<http://edweb.sdsu.edu/webquest/webquest.html>

A WebQuest is an inquiry-oriented activity in which most or all of the information used by learners is drawn from the Web. WebQuests are designed to use learners' time well, to focus on using information rather than looking for it, and to support learners' thinking at the levels of analysis, synthesis and evaluation. This site is designed to serve as a resource to those who are using the WebQuest model to teach with the web. By pointing to excellent examples and collecting materials developed to communicate the idea, all of us experimenting with WebQuests will be able to learn from each other.

MATHART

“Connecting Geometry and Art: A WebQuest for High School Students”

<http://u2.lvcn.com/esullivan/webquest.html>

A detailed lesson plan for students to teach other students about connections between math and art, along with several examples of students' projects.

The Fire Burns On (A WebQuest)

<http://topcat.bridgew.edu/~kschrock/fall97/wilson/>

Here are the opening instructions to the students:

“Most of you were born in the years 1986 or 1987. How much do you know about the events of those years? What headlines were topping the news? Who won the World Series? Do you know who was President or what was popular at the movies?”

“Your task is to take on the role of a member of a songwriting team. You are competing for the job of writing a remake of Billy Joel's hit, "We Didn't Start the Fire". The competition is stiff. The producers want a song that describes important events which occurred during the years 1986 and 1987. The song needs to reflect the areas of World Events, U.S. Events, Sports, and Arts & Entertainment. When he wrote his song he listed many references to people and events that had a profound effect on the world. The producers now want something a little different. They want you to explain the events you choose, not just list them.”

Following this introduction are a series of detailed instructions and links to help the students carry out their webquest.

3. Using web pages for publication and presentation of student work

Examples:

J.E. Burke Community Holiday Cards

http://learnweb.harvard.edu/ent/gallery/pop1_1.cfm

“This unit is designed to foster entry-level desktop publishing skills with the following software: Microsoft Word, Adobe PageMaker, and Adobe Illustrator. The overarching understanding goal is for students to come out of Desktop Publishing with both a critical eye that appreciates the design and presentation of publications and the ability to design, construct, and publish meaningful, self-reflective products.”

4. Using the web for telecollaboration

Judi Harris of the University of Texas has written a book, *Virtual Architectures Designing and Directing Curriculum-Based Telecomputing*, describing different types of telecollaboration projects and strategies for starting and supporting them, along with links to many examples. The following web sites provide access to many of Harris’ ideas and resources.

This site tells how to get the book:

<http://ccwf.cc.utexas.edu/~jbharris/Virtual-Architecture/About-This-Site/index.html>

Foundations of Telecollaboration.

This site provides access to specific articles on all aspects of telecollaboration:

<http://ccwf.cc.utexas.edu/%7Ejbharris/Virtual-Architecture/Foundation/index.html>

Harris has defined three broad activity structures for telecollaboration projects: Interpersonal Exchanges, Information Collection and Analysis, and Problem Solving.

4A. Interpersonal Exchanges

<http://ccwf.cc.utexas.edu/~jbharris/Virtual-Architecture/Telecollaboration/interpersonalexchange.html>

This web page describes and provides links to many projects involving interpersonal exchanges such as “Keypals”, “Global classrooms,” “Electronic Appearances,” “Telementoring,” and so forth.

Examples:

Ask a Space Scientist

<http://image.gsfc.nasa.gov/poetry/ask/askmag.html>

“This site has answered over 24,000 questions from students around the world since August 1995. Visit this site to find answers to questions like: Did ancient peoples really predict solar eclipses? and How are satellites prevented from crashing into each other? Or better yet, ask your own question!”

Hoop Happenings

<http://www.wested.org/tales/05hoop01.html>

“The project was driven by the following question: How can we encourage students to talk and write about mathematics? Two teachers developed a program in which college education majors serve as math telementors to students in grades four through eight. Every week, the telementors e-mailed math word problems to the mentees, who had to reply with well-articulated solutions. As you may have guessed, well-constructed and mathematically stimulating dialogue ensues.”

4B. Information Collection and Analysis

<http://ccwf.cc.utexas.edu/~jbharris/Virtual-Architecture/Telecollaboration/informationcollection.html>

This page provides examples and links for projects involving information exchanges, database creations, electronic publishing, tele-field trips and pooled data analysis.

Examples:

E.me – Electronic Self Portraits

<http://www.inform.umd.edu/EdRes/Colleges/ARHU/Depts/ArtGal/.WWW/digvil/eme/eme.htm>

“The goal of this project is "to create a collective portrait of the emerging cyberspace student community" in the Baltimore-Washington, DC region. It achieves this by publishing images, poetry, essays, music, and scientific information that describe students and their world.”

Cleo – Collaborative Learning Environments On-line

<http://cleo.terc.edu/cleo/cleo-home.cfm>

“CLEO supports inquiry and collaboration in science and mathematics by publishing classroom investigations on the Web. It promotes the use of real data in the pursuit of research questions by giving students:

- tools to share, analyze and discuss results
- a library of completed inquiry projects with full documentation

“Each CLEO project has five components:

- a research question that drives the investigation
- the procedure and materials used to gather the data

- the actual data themselves
- an analysis of those data with graphs and charts
- a conclusion that leads to new questions”

4C - Problem solving

<http://ccwf.cc.utexas.edu/~jbharris/Virtual-Architecture/Telecollaboration/problemsolving.html>

This page provides descriptions and links for projects involving Information Searches, Peer Feedback Activities, Parallel Problem Solving, Sequential Creations, Simulations, Social Action Projects, and others.

Examples:

Netvision

http://www.att.virtualclassroom.org/vc99/vc_46/

Netvision is an interactive online television station, developed as part of AT&T’s virtual classroom competition, 1999. This third place winner was created by VC-46, which includes the students of Martin Luther King Jr. High School in Chicago (USA), Himeji Higashi High School (Japan) and Athens District High School (Canada).

Internet Math Hunt

<http://forum.swarthmore.edu/hunt/>

“Every month brings with it a Math scavenger hunt in which students compete to find answers to questions such as: What mathematical relationship did Stradivari use to place the f-holes on his violins? and What is Cartesian geometry and for whom is it named?”

Kid's Care Project

<http://teams.lacoe.edu/documentation/projects/windows/care.html>

“This project asks students to identify a community problem and develop an action plan, including persuasive letters to influential people, to help combat this problem. Suggested topics include neighborhood clean-ups, tree planting, etc. The site also contains links to resources that will help jump start the project.”

*I*EARN (The International Education and Resource Network)*

<http://www.iearn.org>

“In I*EARN projects, students from around the world collaborate to solve real-world problems and positively affect resources and people around the globe. They share their

understanding of each other's cultures and envision the future. Projects on the I*EARN site are described in Spanish and English.”

Eratosthenes Experiment Via the Internet

<http://cleo.terc.edu/cleo/browse/template/BrowseIntro.cfm?QuestionID=266>

Students at several schools recreated the Ancient Greek scientist, Eratosthenes', experiment to determine the circumference of the Earth.

5. Teacher Resources

Examples:

Education With New Technologies: Networked Learning community

<http://learnweb.harvard.edu/ent/home/index.cfm>

Many resources, including a curriculum planning guide and links to exemplary projects.

ENT Resource Listing

<http://learnweb.harvard.edu/ent/library/list.cfm?category=Integrating%20Technology%20with%20Curriculum&reviewed=N>

48 exemplary resources related to teaching and learning with new technologies.

Global Schoolhouse

<http://www.gsn.org/past/kidspeak/index.html>

Collaborative projects to join or initiate, an online community for teachers, links to support professional development.