

February, 2001- Laura Twersky, Biology

The use of the Internet can be an effective supplementary teaching technique. If given the opportunity, students find it increasingly interesting and even enjoyable. They are not merely gaining some information for future regurgitation, but they are rather actively making choices, exercising critical-mindedness, and arriving at judgments. They are in effect learning by doing in accordance with the principles of John Dewey.

In my courses I have been advocating reliance on websites for the following:

1. to search databases for journal articles for bibliographies for library/lab research papers from freshman to senior level courses, i.e., from General Biology I (Bi 183) to Research I and II (Bi 497, 498).

Sample websites

- a. www.ncbi.nlm.nih.gov/PubMed/medline.html
PubMed literature search (medically related peer-reviewed articles)
- b. <http://sdb.bio.purdue.edu>
WWW Virtual Library: Developmental Biology
- c. www.biosis.org/zrdocs/zoolinfo.htm.
BIOSIS/Zoological Record
- d. www.spc.edu
ScienceDirect (full-length journal articles available)
- e. www.mblwhollibrary.org
Marine Biological Laboratory/Woods Hole Oceanographic Institution Library

2. for use as an aid for students in learning the course material.

Sample websites

- a. www.devbio.com
This is the website accompanying Scott F. Gilbert's textbook, *Developmental Biology*. Many textbooks now have guides to their use on the Internet, with many interactive exercises and other supplementary material not able to be included in the book. Each chapter may have linked web sites of pertinent information.
- b. www.uoguelph.ca/zoology/devobio/34mmfrog

studies of 3-4mm frog embryo serial microscopic sections

- c. www.neuroguide.com
searchable index of neuroscience resources found on the Internet
 - d. <http://on.to/dictionary>
The Dictionary of Cell and Molecular Biology
3. to provide information on careers/jobs, graduate schools, professional societies, writing papers and related topics.
- a. www.njas.org
New Jersey Academy of Sciences
 - b. www.tri-beta.org
Beta Beta Beta Biological Honor Society
 - c. www.aaas.org
American Association for the Advancement of Science
 - d. <http://sdb.bio.purdue.edu>
Society for Developmental Biology -includes information on graduate school programs in developmental biology, and on research meetings
 - e. www.jyi.org
National Journal for Young Investigators -includes information on internship opportunities, undergraduate research papers, and science news
 - f. www.councilscienceeditors.org
Council of Science Editors
4. to aid in lab research by providing information on the work of other labs, on products, and on research methods.

Sample websites

- a. www.ncr.nih.gov
National Center for Research Resources (NIH-related research information)
- b. <http://zfin.org>
The Zebrafish Information Network -includes a developmental atlas and information on the zebrafish genome.
- c. <http://vize222.20.utexas.edu>

- Xenopus* Molecular Marker Resource - includes the Nieuwkoop and Faber table of normal developmental stages of *Xenopus laevis* (clawed frog), an index of developmental gene markers and much information on research techniques
- d. www.xenbase.org
Xenbase: *Xenopus* web resource - includes information on literature, methods, e-journals, and genomics
 - e. www.informatics.jax.org
Mouse Genome Informatics (Jackson Laboratory)
 - f. www.mbl.edu/BiologicalBulletin/EGGCOMP/EggComp-Cont.html
Egg Compendium -egg characteristics and breeding season for Woods Hole, Massachusetts species
 - g. http://sdb.bio.purdue.edu/Other/VL_DB_ResearchRes.html
Research Resources Index (Society for Developmental Biology)
5. to provide community service opportunities relevant to the subject matter

Sample websites

- a. www.birdsource.org
The 4th annual Great Backyard Bird Count (Feb. 16-19,2001)
This is a conservation project of the Cornell Laboratory of Ornithology and the National Audubon Society. Log on to the website to report observations.
 - b. www.npwrc.usgs.narcam/reports/states/34htm
North American Reporting Center for Amphibian Malformations.
This is a frog malformation monitoring website – a compilation of information from the public and the scientific community to aid in the investigation of the phenomenon of increasing numbers of malformed amphibians.
6. to provide background for field trips

Sample websites

- a. www.amnh.org
American Museum of Natural History
- b. www.nybg.org
New York Botanical Garden

- c. <http://mysticaquarium.org>
Mystic Aquarium, Connecticut

What my students learn about using the Internet is of course transferable to subjects other than biology. The Internet, being global, up-to-the-minute, interactive, accessible, loaded with different types of information, some unique to it, is a powerful instructional tool, and one that students must learn to use in this modern technological world.