

Exploring Origins

A Research Development Process for Science Classrooms

FACILITATING STUDENT RESEARCH ON THE INTERNET

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Introduction



In the fast moving world of technology, the Internet is becoming a fundamental tool in the classroom, enhancing children's opportunities to learn about the world around them. It facilitates excitement and energy, providing children an opportunity to explore information. The World Wide Web has the potential to be a great place for students to get information that addresses teachers' needs in today's classrooms on information to support arguments, to base decisions, and even to debate validity or the value of an argument. So, does the Internet provides an easy way of collecting information needed to do these things? Possibly. However, certain issues must be kept in mind when employing the Internet as a tool in a classroom setting. These issues include Internet

safety, effective searching techniques, and quality of information.

Internet Safety: A Teacher's Call

Safety is an evolving issue in the world of technology. Increased use and access of the Web raises safety issues. As teachers and parents we must be aware of what risks are on the Internet for our children. Make sure your students understand the DOs and DON'Ts of the Web. Listed below are five basic guidelines to share with your students.

1. Always tell a parent, teacher, or other adult if anything on the Web makes you uncomfortable.
2. Never give out your address, phone number, or full name.
3. Never enter a chat room without the permission of a teacher or parent.
4. Never take words, pictures, or sounds from other Web sites without permission.



To find out how well your students understand the safety rules, ask them to visit one of the following Web sites: <http://www.path1.com/KidBytes/safetyquiz.htm> or <http://missingkids.com/quiz/internetquiz.html>. Both of these sites offer a safety quiz. It is a good precaution to have students take a safety quiz before signing on to the Internet to do a search. Some schools even use such a "pre-use test" to, in effect, license students for school use of Internet facilities.

Effective Searching: Tools to Get What Students Need

Children are often excited about doing research on the Internet. It is important that they give thought to their search strategies. If students are looking at a broad topic, the Web directory is the place to start. An example of a directory would be Yahoo: <http://www.yahooligans.com>. Other directories include the Librarian's Index to the Internet and LookSmart.

Directories are one search tool and search engines are another. A search engine is often used for more focused searches. It employs a piece of software, often thought of as a robot, that looks at materials posted on the Web and searches for specific terms. The search engine looks for words that are either repeated in the article or occur near the beginning. Some familiar search engines include Lycos, Hotbot, AltaVista, and Excite. In general, the more directed the search, the more likely students are to find what they are looking for.



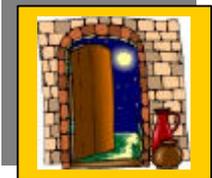
There are two types of text searches: 1) a keyword search, and 2) a concept-based search. A keyword search allows students to look for a specific word. The search engine pulls out words from the article that are repeated or are included in the front end of the information. Each search engine looks at the words differently. For example, one engine will acknowledge capital letters, while another will not. Search engines cannot tell the difference between words that share the same spelling, (e.g., cape: a point of land sticking out into a body of water and cape: a sleeveless outer garment). Therefore, students will often find unrelated items as a product of their searches.

A concept-based search will find items that are related to a specific topic. Again, each engine does this differently. The goal is to find articles about topics that relate to the word that is selected. Generally, the more words that are chosen, the better search your students will have.

Once a search engine has narrowed a topic down, it will automatically create a listing of related sites. The more specific the search, the easier it is to find the necessary information. Although each search engine has specifics listed, below are some general tools and tips to use in refining a search. Using the + symbol between words will allow students to find pages that have all of those words. For example, [moon+water] would find only the articles that contain both items. The – symbol will allow a search to take out a word. For example, [solar system–asteroids] will find articles including only items on the solar system that do not have the term *asteroid*. In general, this tool will help to focus results when getting too many topics that are unrelated.

Once they have mastered these two techniques, students can cluster words by using quotation marks. In doing this type of phrase search, they will find only items in which the terms appear in that exact order. Your students' answers will become even more specific with this approach. Finally, they can combine symbols to create targeted searches: ["solar system" – "sun"]. The above techniques are usable on all of the major search engines. These techniques offer a few ways to narrow searches. If you or your students are interested in other types of search strategies, visit <http://scout.cs.wisc.edu/scout/toolkit/searching/define.html>.

Quality: The Search Continues Now More Than Ever

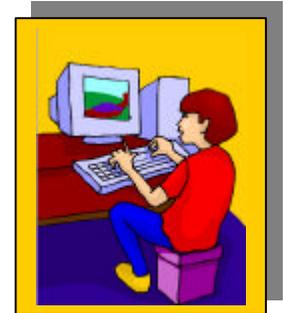


The Internet opens the door to a vast array of information. Other types of resources have editors whose job it is to ensure the quality of the information the audience receives. However, there are no guidelines for putting information out on the Web. Therefore, as students are gathering their data from the Web, they need to be aware of ways to determine the quality of the source. Students need to be provided with the skills and tools to evaluate the validity of the information.

The following items should be considered when determining the quality of the source. Who is the author? Are his or her credentials listed? Who is the sponsor of the article? Does the author have a bias or agenda? Can you determine the purpose for providing the information? Check to see if the information is up-to-date. Look at the review dates on the pages to determine their currency. Has the site been updated recently? Is the material in the article timely? The source of the information must be clearly stated. Check to see if other sources validate the information both electronically and in print versions. Is the information unique, or is it repeating information that you already have? A quick check of the author, source, content, and currency will determine the validity of the information.

Good resources are in demand. Listed below are a few sites that contain lessons to take you students through to develop the questions they need to determine the quality of a site.

<http://spot.colorado.edu/~lowej/issues.html>
<http://www.gslis.utexas.edu/~kidnet/kidgate.html>
<http://www.library.cornell.edu/okuref/research/skill26.htm>
<http://bvsd.k12.co.us/curriculum/tools/bvsdwebeval.html>



It is a good idea to also consider your students' backgrounds when determining Web site quality. For example, the follow site contains useful and thoughtful information to consider when evaluating the appropriateness of Native American Web sites: <http://www.u.arizona.edu/~ecubbins/webcrit.html>.

The Internet is a valuable tool that will enhance instruction in the classroom. Being aware of what the students are doing, and who they are communicating with, will help to ensure a safe environment when using the Internet. Knowledge of a few refining skills while conducting an Internet search will help to ensure quality results. Evaluating information on the Internet is an important skill for students to develop and practice. As students are exposed to resources, they should use their critical thinking skills to help determine the validity of a site. Remembering safety, search techniques, and quality of a site will increase the effectiveness of the Internet as a classroom resource.