

SPACING OUT ON THE INTERNET

ITV SERIES

LIFE ON THE INTERNET:
#4: CyberStudents

GRADES 7-12

PREVIEWING ACTIVITIES

The Internet is a common word today, although not that many students and families have personally used it. However, students are familiar with other types of telecommunications. By connecting the Internet to technology that students already understand, the unfamiliar can be made familiar. The Internet does have similarities to telephones, radios, televisions, and fax machines, as it does to other types of communication mediums (postal service, newspapers, and magazines).

This activity can be done in a whole group setting. You are going to have the students make a chart displaying types of communications, and what characteristics those communications have. Later you will show parallels with the Internet. Have the students brainstorm ways people communicate with each other if they are not face to face. Students should be able to brainstorm the above list, which you should write in a row along the top of the butcher paper. When the students have generated a number of responses, ask them whether the communication is two-way or one-way. [Write two-way on the left side of the paper, then draw a line across. Those mediums that are two-way (telephone, post mail, fax machine) should be marked with an X.] Next, ask the students which communications leave a permanent record. [Write permanent record on the left side, below two-way, then draw a line across. Those mediums that leave a permanent record (newspapers, magazines, letters, fax machine) should be marked with an X.] Next, ask the students which communications can be received by anyone with the proper receiver, regardless of who broadcasts the message. [Write anyone can receive on the left side, below permanent record, then draw a line across. Those mediums that can be received by anyone with a receiver (television, radio) should be marked with an X.] Ask the students if these things have changed recently. There should be a number of responses, focusing on cellular phones, pagers, portable televisions, and the like. As the students discuss changes in telecommunications and technology, write THE INTERNET at the top right corner of your chart. Introduce the Internet as an extension of the previous technologies.

OVERVIEW

In this lesson the students will learn how to explore and locate information about the universe using the Internet. By searching, locating, and downloading pictures and text, the students will gain an understanding of how the Internet is utilized by scientists and educators; they will also develop an appreciation for the amount of information that is available concerning our universe and its exploration. In a mathematics component to this lesson, students will explore sites devoted to mathematics and its application in their world. Puzzles, papers, and mathematics applications will be located and accessed. The students will be actively involved with using computers connected to the Internet to search and locate information about space topics they are personally interested in (e.g. Hubble telescope, manned missions to Mars, Quasars, etc.). During the course of the class, students will download pictures and text to their computers. These can then be used in extension activities where students write reports or create presentations to the class about their topic.

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LEARNING OBJECTIVES

Students should be able to:

- Describe the World Wide Web (WWW).
- Identify the parts of the software program Netscape® that will be used to access the Internet.
- Describe the purpose of search engines, and demonstrate their use.
- Create a database of information and graphics on a disk/hard drive related to some question that they have concerning the universe and its exploration.
- Create a class list of home pages on the Internet that have mathematics problems and puzzles.

MATERIALS

Brainstorming Activity

- butcher paper (1 piece large enough for the group to see)
- 1 black felt-tip marker

Post Viewing Activities

- "What is the Internet?" handout (1 per student)
- "Searching on the Internet" handout (1 per student)

PREVIEWING ACTIVITIES(continued)

Like radios and television, it is available to anyone who has a proper receiver (a computer linked to the Internet via a modem- telephone line). Like magazines and newspapers, it allows people to publish ideas and news stories, which are available to others once they are published. Like the telephone and fax machines, it allows people to both send and receive information. As you discuss each of these topics, put an X in the column under THE INTERNET beside the correct label (e.g. two-way, permanent record, anyone can receive) to show that the Internet has similarities to all of the communications mediums they are already familiar with.

VOCABULARY

URL (Uniform Resource Locator): an address on the Internet

browser: A software program that allows computers to access the Internet and converts digitized information into text, graphics, sounds, etc.

Netscape® : Currently, the most popular browser.

search engines: Sites on the Internet that allow users to search for names, words, phrases, etc. The results of a search is a list that allows the user to go directly to those locations on the Internet.

FOCUS FOR VIEWING

The focus for viewing is a specific responsibility or task(s) that the students are responsible for during and after watching the video to focus and engage students' viewing attention.

Give students these specific responsibilities while viewing the video segment:

Ask students to listen to the person on the screen, and be prepared to share with the class the kinds of changes that the Internet is making in the educational classroom.

After the students watch the episode about the arctic explorers, they should be prepared to explain how the Internet can allow students to be participants in other scientific explorations and endeavors. The students should also be prepared to come up with other scientific ventures that could use this same technology.

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PREVIEWING ACTIVITIES(continued)

Note to teacher: This video is part of a series on the Internet and how it is changing our society. This segment deals with the Internet in the classroom. Scott Simon will introduce the episode (this is the first segment you will share with the students), and then the show demonstrates how the Internet is being used by teachers and students. The video does not require the students to have any previous knowledge of the Internet or computers. Your discussions will allow the students to creatively explore how the Internet can positively influence what goes on in the classroom.

VIEWING ACTIVITIES

START THE VIDEO at the opening, with the narrator saying, “Hello, I’m Scott Simon.” **PAUSE THE VIDEO** when the narrator says, “but it is changing the teachers themselves.” Ask the students to give examples that they know of where the Internet could allow students to do “school things” differently. Students will respond with comments about field trips, access to information in libraries, research data, e-mail access to specialists and experts in a variety of fields, information about the government, etc. **RESUME THE VIDEO.**

PAUSE THE VIDEO when the narrator says, “running the website and e-mail for the arctic explorers.” Ask the students what a website is. The students should realize that a website is a page on the Internet that has information about a certain topic or group of topics. Ask the students what e-mail is. The students should realize that e-mail is shorthand for electronic mail, a way to send messages electronically to others connected to the Internet, much like the U.S. Post Office sends written messages to other people. **RESUME THE VIDEO.**

PAUSE THE VIDEO when the narrator says, “where the students took control of a very complicated and adult program.” Ask the students if they think this is something that students in schools should learn to do. After students share their ideas and responses, **RESUME THE VIDEO.**

PAUSE THE VIDEO after the female student says, “and all they ask for in return is that you share yours.” Ask the students if they would like to learn how to use the Internet. Discuss.

MATERIALS(continued)

- “Netscape©: An Internet Browser” handout (1 per student)
- Computers connected to the Internet equipped with Netscape© (1 per student), or students may be paired (two students per computer) for this activity
- butcher paper

ACTION PLAN

Have scientists from area businesses and government agencies (Dept. of Environmental Quality, Dept. of Justice, Police Department, etc.) come to the class and discuss how the Internet has helped them do their job better.

Have the local weather reporter (television or newspaper) come to the class and explain how the weather reporting is more successful because of Internet technology.

For a unit that the students are doing in their science class (depending on the grade level), have the students find 10 homepages concerning a related topic. Send e-mail to 2 scientists (using the mail function at the end of those homepages) to ask and receive an answer to a question that the class has. Follow-up questions could also be e-mailed.

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ACTION PLAN(continued)

Have mathematics professors from a nearby college or university come to the class and speak on how the Internet has helped the advancement of mathematics. If possible (and if they agree), have them share their e-mail address with the class. Later, as the class faces difficulties with mathematic concepts, use that speaker as a classroom resource.

EXTENSIONS

Divide students into small groups. Have each group develop a report on a question you give them, such as "How many countries are involved in sending manned missions to Mars?" [Science, Social Studies] "What is the deepest location on the planet Earth that man has explored?" [Science, Math] "How are people in South America working to save the rainforests?" [Science, Math, Language Arts] "What is the breakdown of Nobel Prize Winners in the last 10 years, by country, age, and gender?" [Math, Science, Language Arts, Social Studies.]

Language Arts: Have each student search the Internet and find biographical information on an author of their choice. Also, have them list 5 books/articles that author has written.

VIEWING ACTIVITIES(continued)

FAST FORWARD THE VIDEO to where the narrator says, "A good place to blast off into the world of cyberlearning on the world wide web..." **RESUME THE VIDEO** after the students have discussed why they want to use the Internet.

STOP THE VIDEO when the narrator ends the episode with the World Wide Web address, "you can contact us at <http://www.pbs.org>."

POST VIEWING ACTIVITIES

Review with the students what the Internet is, and why it might be helpful for students to understand and have access to it in their classrooms. Hand out the "What Is the Internet?" handout and have the students read. Discuss and clarify any questions the students might have.

Review with the students that the Internet is digitized information. To receive that information, they need a computer connected to the Internet with a browser, such as Netscape®. Hand out the "Netscape®: An Internet Browser" handout and have the students read it while you go over the parts of the browser. Discuss and clarify any questions the students might have.

Review with the students that the Internet is a collection of information housed on computers all over the world. To find that information, they will need to either have a URL (Internet address) or find that information using a search engine. Without a search engine, it would be like being in a library full of books, but the books are all in a pile on the floor with no organization or order. A search engine allows the user to find information in that pile of books. Hand out the "Searching on the Internet" handout and have students read. Discuss and clarify any questions the students might have.

Have each student come up with one goal they would like to reach as they use the Internet. This goal should center around finding information dealing with space exploration.

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POST VIEWING ACTIVITIES(continued)

Students should also be encouraged to develop a second goal that utilizes some aspect of mathematics (probability, trajectories of rockets, etc. are good starting points). Have the students write down their goal, so it can be a focus to them as they explore the Internet. (One problem with the Internet is that there are so many interesting things to explore, students oftentimes get off-task. This helps prevent that from happening.) Remind the students that as they move to the computers, you (the teacher) will have to take more of a “guide” role— they are going to have to be the active explorers. Remind them to raise their hands if they have problems.

Have students use the computers connected to the Internet to access Netscape®. (If the students are computer novices, it might be helpful to pair them two to a computer.) Once Netscape® is up and running, ask students to locate and identify the button they should click on to enter a URL into Netscape®. The following URLs are good search engines:

<http://www.altavista.com>

<http://www.search.com>

<http://www.yahoo.com>

As a warm-up activity, have the students locate a site that has something to do with mathematics and mathematical puzzles and problems. As the students work on this, circulate and provide help as needed. Once a student locates a site, they can then help their neighbors. This technique will allow your more talented students to help those who are having problems. Once all students have located a site, write down the URL of each homepage on a sheet of butcher paper. This list can later be typed up and given to each student as a resource for locating mathematics homepages. Once the students feel comfortable with Netscape® and the Internet, have them continue to the next part, which is to find the answer to their science and mathematics questions.

EXTENSIONS(continued)

Have students use the Internet to find a quotation dealing with some topic of their choice.

Have students use the Internet to locate 5 authors they have not heard of that have written/ published (perhaps just on the Internet) on a topic of their choice.

Social Studies: Have each student search the Internet and present up-to-date information on countries around the world. It is especially effective to choose countries that did not exist at the time their textbooks were written (Bosnia, Georgia, etc.)

Have students use the Internet to put together a chart showing the per capita income of people in countries around the world. [To tie this in with a math component, have students then graph that information 3 different ways -e.g. bar graphs.]

Have students locate a homepage from each country in the world, or from each state in the nation dealing with a specific topic (e.g. agriculture, science, industry, etc.)

Math: Have students go to the URL <http://www.integrals.com> and explore integrals.

Have students find information on the U.S. Census, and represent it to the class in a form other than the table given on the Internet.

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EXTENSIONS(continued)

Have students go to NASA sites and determine the arc of a space launch or planetary probe.

Have students research the biography of famous mathematicians (Pythagoras, A.N. Whitehead, etc.)

Have students go to sites dealing with Chaos Theory and report on the implications for mathematics.

Science: Have students use the Internet to research a living scientist (e.g. by area- Biology, Physics, etc.)

Have students locate information on a topic given to them (say, marsupials located in Australia, or Emperor Penguins and their diet.)

Have students research NASA's plans for a manned Mars space mission.

Have students research and estimate when the first permanent U.S. Space Station will be built. Subgroups can be assigned to explore: a) what will the space station be made of? b) what will industry hope to manufacture in a weightless environment? c) what will be the long-term effects of weightlessness on the human body?

VIDEO AVAILABLE FROM

ITV Overnight Block Feed which may be taped off air. Contact your local PBS station for broadcast times.

POST VIEWING ACTIVITIES(continued)

Have the students go to a search engine, and find a website for their self-determined goal. Circulate and help students as needed.

[This will become a very chaotic learning environment. You need to be prepared for noise, excitement, and frustration. Encourage students to help each other. This lesson will be finished when all students have reached their goal, or at least have tried.]

URL for this program summary with links to other sites mentioned:

<http://www.screen.com/understand/education.html>

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What is the Internet?

by Christopher J. Campbell

The internet is the world-wide computer “network of networks.” In a way, the Internet is like a telephone system for computers, allowing them to “talk” to each other. (However, unlike people, computers can carry on many simultaneous conversations at once.)

But it’s not just the computers who are doing the talking. People are communicating through computers as well. The Internet is turning the computer into another communication tool, like the telephone, faxes, the mail, periodicals, and books.

What is the Internet?

by Kevin Hughes

The Internet is the catch-all word used to describe the massive world-wide network of computers. The word “Internet” literally means “network of networks.” In itself, the Internet is comprised of thousands of smaller regional networks scattered throughout the globe. On any given day it connects roughly 15 million users in over 50 countries.

The World Wide Web is mostly used on the Internet; they do not mean the same thing. The Web refers to a body of information - an abstract space of knowledge, while the Internet refers to the physical side of the global network, a giant mass of cables and computers.

[These definitions were found on the Internet.]

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Netscape®: An Internet Browser

**What do each of the following buttons do?**

Back: It goes back a page, to the place where you were last.

Forward: If you went Back (used the Back button), this takes you forward.

Home: The Homepage that you started with.

Reload: If your software page is not loading, it might indicate a problem. Click this button.

Images: If you don't see pictures on your page, but instead get a tiny icon like this

you can see the picture by pressing this button.



Open: Use this button to open up an address (URL) you already have.

Print: This prints the page you are on. Be careful, since the page may be more than the screen you can see. (It could be 40 pages long, or even longer!!)

Find: This is NOT a search engine. This searches just the document you have on your screen at the time.

Stop: This stops Netscape from continuing to load the document. Press it if you find you don't want to wait for the document to load. Then press the Back button.

Searching on the Internet

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Simple Search: To find information on the Internet, you must use a search engine. The rules that follow will help you be more successful.

Searching for a phrase

Looking for a phrase? Don't just enter a few words. The best way to look for a group of words together is to use quotes. Are you looking for something about skiing in Idaho?

Search for skiing in Idaho online like this:

"skiing in Idaho"

Using plus and minus signs

OK, so you hate skiing in Idaho. Maybe you're searching for skiing, but don't want to be bothered with skiing in Idaho. Well, then you want to make certain you include the word "skiing" in your search, but you can cut down on your results by asking the search function to exclude all instances of "Idaho." Your search would look like this:

+skiing -Idaho

Using caps

So far you've only used lowercase words as search terms. This is the safest way to search, as your results will include both lowercase and capitalized occurrences of your term(s). But you may run into trouble with this if your search term is both a proper name as well as a common, everyday words like the politician Bob Dole and the phrase "to dole out." If you want only the proper name, "Dole," then capitalize the first letter when entering your search. Doing this forces an exact match. One word of caution, though. If you type "DOLE" in all caps, your results will show only documents with all caps.

Try a search

Suppose you want information about space exploration research but you do not know a specific place in space to search for. You might start with the following query (search) "space exploration research." This will get you a result all right, probably over 100,000 results. You'll need to narrow this significantly.

Step 1: Think of words you can group into a phrase. You're looking for research on space exploration that pertains to earth, so group "space" and "exploration" together as a phrase, then add "earth."

"space exploration" +earth

Step 2: Submit this search for better results. [This information was adapted from the AltaVista Search Engine Help page.]

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