HOW GOOD IS THE WATER IN MY BACKYARD?

Objectives:
Students will:
- identify how to access water data for watersheds in their area,
- analyze watershed data to get a profile of a local watershed,
- investigate factors that may affect watershed quality
- prepare a presentation of their findings and speculate on how their community may be impacted by their local watershed.

Materials:
- Computers with Internet access
- Presentation materials such as overhead transparencies, paper to print out selected web pages or even computer disks to store Power Point (HyperStudio) type presentations.

Background:

From a practical standpoint most of us are interested in sources of good, clean water for everyday use. We all need water for drinking, washing, and a host of everyday uses.

Watersheds are those land areas that catch rain or snow and drain to specific marshes, streams, rivers, lakes, or to groundwater. Since all life is dependent on clean, usable water, understanding watersheds is very important. Thus the study of watersheds can be seen as something in which all of us should have more than a passing interest.

When we get down to the level of where the "water hits the road", so to speak, our interest in watersheds probably revolves around how much water is available to use and what is the quality of that water. Fortunately, with the advent of the internet, information related to these important questions is readily available to everyone from the United States Geological Survey (USGS), regarding the quantity of water that is available through streamflows, and the Environmental Protection Agency (EPA), regarding the quality of water that may be available. This activity pertains to the quality of water.

Procedure:
1. Connect to the EPA "Surf Your Watershed" website. Point your web browser to http://www.epa.gov/surf/.
2. Using the "Locate Your Watershed" icon, jump over to the Locate Your Watershed page. You can locate a watershed near you that you would like to investigate by using "Search By Map, Places, QuickNAV, or by Zip Code". For example, if you type in your Zip Code, a page will be displayed showing all the watersheds in your immediate Zip Code that have searchable databases. If you click on a "Station Number" hyperlink you will be directed to that particular watershed. A regional map and more localized watershed map will be provided to get you oriented. A wealth of data about this watershed is listed on this page and more information is available by using the hyperlinks provided. Write down the watershed USGS Cataloging Unit number so that you can easily get even more information about this watershed.
3. Using the hyperlinks provided on the EPA site or by surfing the web, you can find information about various assessments of the watershed's health and other environmental information.

4. Click on the "EnviroMapper for Watersheds" hyperlink. The EnviroMapper is a Geographical Information System (GIS) that allows you to make maps that are colored or shaded based upon a host of various characteristics. Examine your watershed by producing maps based on each of the data layers. Choose Mapping Features that help you identify localities in your watershed that you are familiar with. Zoom the map in or out to get a better perspective of your watershed based upon your personal knowledge.

5. Have students examine the following ideas:
   - How are some of the maps you generated related to each other?
   - How are they related to other information you have collected about the watershed that is, perhaps, not available in the EnviroMapper GIS?
   - Compare what you know about your community and the local surrounding area where you live with the results of the EnviroMapper.
   - Do the results of the GIS go along with what you know about your area?
   - What makes sense to you comparing GIS results and your own experience?
   - Where are there discrepancies between your knowledge and the results of the computer analysis?
   - Why do you think your experience with your area is different from the computer's results?

6. Present your conclusions to your class along with any speculations you might have relating the effect of your watershed on people living in your area. What might people be doing that may affect the watershed?

Hints:
1. Some of the terms used to describe watershed on this website may not be familiar to you. Refer to the vocabulary list included in this unit for better understanding. On the EPA website, try out various hyperlinks and you may find the definitions to the terms you may not know. Using the web itself may also help you define unfamiliar terms.
2. There may be hyperlinks to real-time streamflow data collected by the USGS on your watershed. In many cases the stream gauge station number is the same as the watershed cataloging number. You may wish to examine the watershed data in the context of the activity titled: "How much water is in your backyard?" This may help you understand the individual watershed you are investigating.
3. Looking at other watersheds near your chosen watershed may help you get a better perspective on the watershed you are investigating. By looking at adjacent watersheds you may gain a better understanding of the water where you live. Compare your watershed to the watersheds that other students in your class may be investigating. What conclusions can be reached by comparing the watersheds investigated by the entire class.