

Origin and Destination Watershed Maps

Objective: Students will learn about watersheds by analyzing a variety of maps. They will discover the geographical area where their water originates and plot where it goes.

Grade Level: 5-8

Setting: indoors

Timeframe: one or two class periods

Materials: Print a copy of your school's watershed on 8" x 11" paper for each student groups (two students per group). Use a map produced by National Atlas. See example on page 2 of this document. Additionally, you may provide maps of your watershed found at the links below.

<http://www.nationalatlas.gov>

<http://www.topozone.com/viewmaps.asp>

<http://www.mapcenter.com/usgsedu.asp>

<http://www.charttiff.com/>

http://www.usgsquads.com/svcs_contour_extraction.htm

Vocabulary: aquifer, aquifer recharge zone, hydrology, topography, watershed

Skills: mapping, inferring, observing, predicting

National Science Education Standards*: A, B, D, F

Background

Everyone lives in a watershed. The boundaries of a watershed are defined by the topography of the earth and how gravity channels water into aquifers, streams, rivers, lakes and oceans. A watershed can be as large as the area east of the Continental Divide or as small as a few-acre marsh located along a seashore. But no matter how large or small your watershed is, someone or something is affected by the wastewater you release downstream. And unless you collect purified rainwater to drink, your water has been affected by someone or something upstream.



Watershed observations, photo courtesy of NRCS

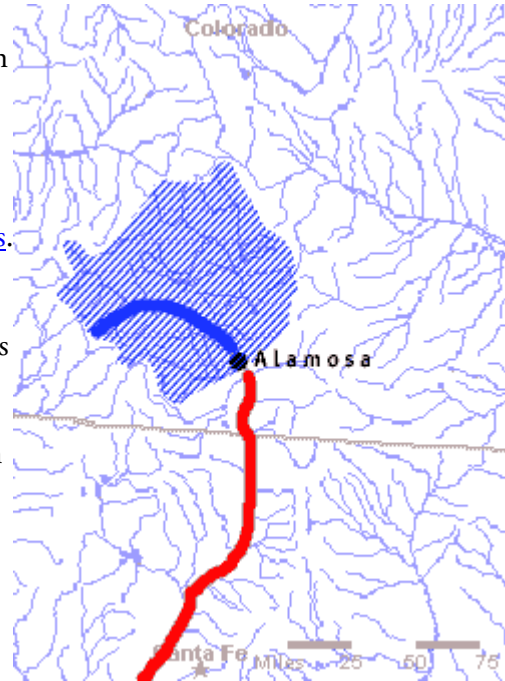
*<http://newton.nap.edu/html/nses/html/overview.html>

Procedure

Teachers, discuss with your students the reasons why hydrologists try to calculate flow and map the movement of water below and above ground. Then have your students work in groups of two or three to create a map of where your school's water originates and where it goes. Each group can pick one water source and trace it to the origin of their choosing (there will most likely be more than one).

The scale of map necessary for this activity will depend on the location of your school. Students in the Mississippi watershed will need a map of North America, while students along an isolated coastal region may need a very localized map. Maps of various scales with river and waterbody layers are available on-line from the [National Atlas](#).

Students will need to research the locations of associated rivers, topography, and possibly aquifers to complete their maps. Have them mark incoming water with a blue line and outgoing water with a red line. If their water comes from an aquifer, help them understand about aquifer recharge zones so they can include those on the map. Have them also shade their total incoming watershed with blue. Afterwards, students should share their maps with each other. They will find that there are (most likely) a variety of sources for the water they drink at school.



Have the students follow their blue lines upstream to find possible pollution sources. They should also consider whether your town is a possible pollution source for people downstream (along the red line).

Critical Thinking

As an extension to this activity, have your students research some of the people or communities who use the water downstream. What do these people do for a living? How are they affected by the water? What methods do they use for treating the water before drinking it? Also, if applicable, have your students research industrial use of the water in the blue shaded area on their maps. How do these industries affect the water that your students are drinking?