



More Groundwater Activity Ideas!

- ❖ Make a collection of rocks and soils important in Wisconsin's aquifers. Make a display for your school or local library.
- ❖ Schools must have their water tested regularly. Find out how often your school's water is tested. Who collects the water? What tests are run? Obtain a copy of the most recent test results and discuss.
- ❖ Send a sample of your school's water to a certified water testing lab for nitrate and bacteria testing. Labs that test for bacteria in water are certified by the Wisconsin Department of Agriculture, Trade and Consumer Protection and can be found online at dnr.wi.gov/org/water/dwg/SDWAbaclist.pdf. The Wisconsin DNR certifies labs that test for contaminants such as nitrate, pesticides, metals, and VOCs; that list is available online at dnr.wi.gov/org/es/science/lc/info/lablists.htm. You can also look in your yellow pages for certified water testing labs in your area.
- ❖ Visit the State Laboratory of Hygiene (2601 Agriculture Drive) in Madison or a certified water testing laboratory. What water tests are done at the laboratory? How much do the tests cost? How often are public wells tested? What tests are run on public water supplies? How often should private wells be tested? What tests are normally run on private water supplies? When is water considered "contaminated?" When is water considered "unhealthy?"
- ❖ If you and your students are interested in water conservation in your school, consider becoming a "Green and Healthy School." Learn about it at dnr.wi.gov/greenandhealthyschools.
- ❖ Research and report on methemoglobinemia (blue baby syndrome) caused by high levels of nitrate in drinking water.
- ❖ Interview someone who has had a contaminated well. How did she/he determine that the well was contaminated? With what was the well contaminated? What was the source of contamination? Was the problem solved? If so, how?
- ❖ Visit a beverage or food-processing industry. What is produced at the site? Is water used in the production? How? Where does the water come from? How does the company ensure that the water used is of good quality? Is wastewater produced? If so, what does it contain? How is it disposed of?
- ❖ Investigate your home or school's use of lawn chemicals. What chemicals are used? What do they do for the lawn? How are they stored? How are excess chemicals disposed of? Where do chemicals placed on lawns go when it rains? What effects might the chemicals have if they get into groundwater? Are there any alternatives to using lawn chemicals?
- ❖ Invite the county Extension agricultural agent to speak to your class about the advantages and disadvantages of insecticide and herbicide use. How should pesticides be used? What can be done to decrease the amount of chemical applied to a field or garden? Are there any pesticide contamination problems in your county? If so, what is being done about them? Can farmers eliminate the use of pesticides? Check into Wisconsin's School Integrated Pest Management program at ipcm.wisc.edu/programs/school/default.htm.
- ❖ Interview someone who farmed before the time of widespread use of nitrogen fertilizers. Find out about yields, prices, profits, conservation practices and groundwater concerns.
- ❖ Invite an organic gardener or farmer to speak to your class. What is organic farming? What alternatives to pesticides are used? How are natural pest controls, such as insect predators and companion planting used? How does not using pesticides affect crop yield? Crop appearance? Crop sales?
- ❖ Research and report on water needs of various agricultural crops grown in Wisconsin. How are these water needs met? What are some ways to irrigate farmland? Which methods cause the greatest and the least water loss (though runoff and evaporation)? What is the relationship between pesticide use and irrigation practices on groundwater?
- ❖ Interview a person involved in the production or distribution of pesticides or fertilizer. Ask about use, disposal, health, pollution, etc.
- ❖ Using newspapers and magazines, research groundwater contamination by landfills and dumps. Where did the contamination happen? Who was affected? What were the health consequences? Were there economic consequences? How was the source of contamination determined? Who was responsible for clean-up? How much will clean-up cost?
- ❖ Demonstrate that groundwater provides the baseflow for rivers and streams. Visit a stream in early fall or late spring. What is the temperature of the stream? Why is the stream cold? Has it rained or snowed recently? Do you see water running off the land? If not, where do you think the water for the stream comes from?
- ❖ Research and report on the potential environmental and health effects of placing disposable diapers in municipal landfills. Compare the cost of using cloth diapers and a diaper service to that of using disposable diapers.
- ❖ Find out what materials are used to make paper, plastic and glass. What happens to these materials in a landfill? What effects might these materials, if leached from a landfill, have on groundwater?
- ❖ Make a magazine photo display of environmentally safe products sold in non-polluting packaging.
- ❖ Organize or participate in a recycling project. Report on how the recycled materials are used.



- ❖ Invent and demonstrate new uses for product packaging that you would normally just throw away.
- ❖ Write a list of rules and guidelines for your home for handling, storing and disposing of household hazardous materials.
- ❖ Interview a person who operates a gas station or other business that uses underground storage tanks. What is kept in the tanks? Could this material be harmful if it got into groundwater? How often are the tanks checked for leaks? How does the owner know if the tanks develop a leak? What is done if the tanks leak?
- ❖ Make a poster showing how your family or school can conserve water.
- ❖ Make a display of newspaper clippings involving groundwater issues for your school or local library.

Adapted from: *Groundwater Study Guide and Groundwater Resources and Educational Activities for Teaching*.

Additional Field Trip Ideas:

When planning a field trip, be sure to secure permission and discuss your activity with people at the site before your visit.

- ❖ municipal or county landfill site—possibly monitoring wells
- ❖ municipal water treatment plant, well and water tower
- ❖ agricultural operation—irrigation with wells, integrated pest management
- ❖ water resource sites—springs, rivers, lakes, wetlands
- ❖ rock exposures showing groundwater effects

Resource People:

Representatives from the following groups can explain their interest in groundwater and can often give insight into groundwater problems or issues of local interest. Contact with the community not only helps reinforce what is learned in the classroom, but also helps develop concern and sustains the enthusiasm of students.

Before you involve a resource person in your class, discuss with him or her your objectives and what you expect from his/her visit.

- ❖ water chemists
- ❖ licensed well driller (check the yellow pages of your phone book)

- ❖ pump dealers
- ❖ Department of Natural Resources environmental specialists (addresses of DNR regional offices are found on the back of the Groundwater Study Guide packet cover letter).
- ❖ municipal/county health or environmental specialists or county planners
- ❖ county University of Wisconsin–Extension resource or agricultural agents
- ❖ water treatment plant operators
- ❖ hydrologists, hydrogeologists, and engineers – private industry and governmental agencies

Publications

In addition to this booklet and activity sheets, the Groundwater Study Guide packet contains additional materials which are excellent sources of additional information.

- ❖ The *Wisconsin Groundwater Directory* contains contact information and resources available on a variety of groundwater topics, including groundwater protection and land use, groundwater contamination and clean-up and groundwater education. The Directory is included with the Groundwater Study Guide packet and is also available online by going to uwsp.edu/cnr/gndwater/info/index.htm.
- ❖ *Groundwater: Wisconsin's Buried Treasure* includes introductory information on groundwater, discusses the threats to groundwater, describes what Wisconsin agencies do to protect groundwater and lists steps individuals can take to protect this valuable resource. It is available online by going to dnr.wi.gov/org/water/dwg/gw/educate.htm.

- ❖ *Better Homes and Groundwater* describes actions that individuals can implement and practice to protect, conserve, and replenish groundwater. Topics include yard care, raingardens, household cleansers, wise water use, water conserving fixtures, water supply protection, and safe disposal practices. It can be downloaded online at dnr.wi.gov/org/water/dwg/gw/pubs/bhgw.pdf.
- ❖ *Groundwater Models Available* provides a listing of locations from which it might be possible to borrow a groundwater model for use in the classroom. The list is also available at dnr.wi.gov/org/water/dwg/gw/education/models.pdf.
- ❖ Water Resources Websites is a listing of websites for additional information on water resources, especially groundwater.