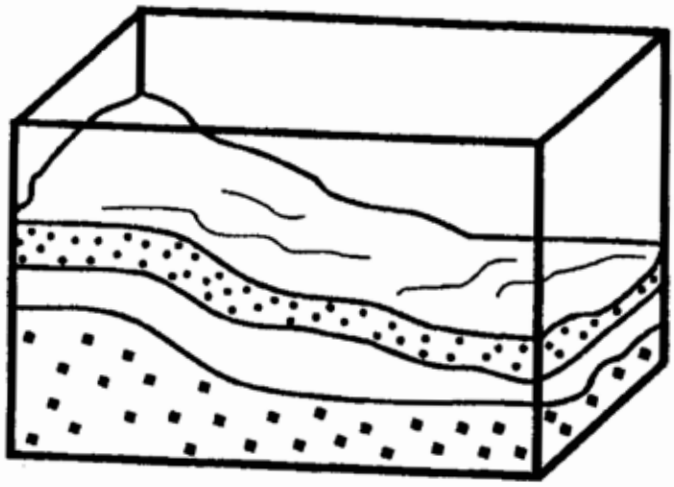
LEARNING CHALLENGES FROM:
BRIDGE to the BARRENS©
547 East Main Street, Riverhead NY, 11901
Phone: (631)369-3300 **Email:** info@pinebarrens.org

GROUNDWATER MODELING



Grade Level:
4-12

Activity Level:
Interactive

Seasonality:
Fall, Winter, Spring, Summer

Time:
1 hour

Group Size:
1 class in small groups

OVERVIEW

Students will construct a groundwater model in order to bring concrete meaning to the otherwise abstract concepts of groundwater geology.

OBJECTIVE

Students will:

1. understand the value of modeling
2. construct a simple groundwater model
3. discuss the variables that affect groundwater flow
4. appreciate the importance of groundwater to Long Island
5. discuss the Long Island Aquifer System

MATERIALS

Large translucent, rectangular tubs/containers
(Fish tanks are ideal)
An assortment of rocks, soils, gravel, organic material
The "Long Island Aquifer System" diagram

PROCEDURE

Introduce the concept of groundwater/aquifers using the "Long Island Aquifer System" diagram. Discuss the concept of modeling.

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GROUNDWATER MODELING CONTINUED . . .

Make the above materials available to students. Explain that using these materials, they need to make a model of Long Island's groundwater system.

Be sure that students demonstrate the following concepts: bedrock, aquifer, water table and groundwater.

Let Students fill in their tanks with an assortment of rocks, soil and gravel. Then have them pour water in so it comes within 6 to 8 centimeters of the surface of the soil. They should then label and define the features of their model.

FOLLOW-UP and EVALUATION

Have students modify their model to include a pond (clay works well for a pond bottom), model buildings and people.

Students can further demonstrate the water cycle by adding moss, a clear plastic top and a light source (a heat lamp or natural sunlight).

To simulate how a leaking underground storage tank may contaminate groundwater, students might bury a bottle with small holes and then fill it with colored water.

Invite a representative from Brookhaven National Lab, Suffolk County Department of Health Services or contact the New York State Water Resource Commission for a copy of a video on Long Island's groundwater system, entitled "The Long Island Water Story" geared towards middle/high school students.