



# Conservation Education Teacher Guide

## WHERE DOES YOUR WATERSHED?

Students will use the Enviroscope to learn how point source and nonpoint source pollution negatively impacts streams, rivers, and lakes. Students will also discuss ways they can help prevent pollution and conserve our water resources.

### WATERSHED WORRIES!

The Enviroscope model represents a watershed. A watershed, or drainage basin, is the land that water flows across or under on its way to a river, stream or lake. All water runs to the lowest point in the watershed. On its way, the water flows over the surface and across farm fields, forest land, suburban lawns, golf courses and city streets. The pollutants become attached to water. Pollutants such as lawn chemicals, oil, gasoline, manure, sediment, fertilizers, and pesticides carry these pollutants to water bodies. This is known as nonpoint source pollution.

Nonpoint source pollution is difficult to control because there are so many sources. But, if we act on a watershed level and voluntarily do our part, we can reduce the amount of nonpoint source pollution that enters our water resources.

### Pre-Visit Activity- Sum of the Parts

Before the activity take sheets of 11 X 17 paper lay them out in two rows with the 11" sides touching. Draw a river on the connecting sheets. Number each sheet in order.



Inform the students that they have just inherited valuable riverfront property and 1 million dollars. Pass out the "pieces of property" in random order to each student. Explain that they need to draw/design how they are going to use their land and money.

When the students are complete have them look for the number and explain to them they are pieces to a puzzle and they must put them in order.

Once the riverfront property puzzle is assembled, have the student with the first piece of property explain how they used the money and land. Have them list any possible pollution from their property. Use paperclips, pencils, cups, etc. to represent pollution and have them pass the pollution to the next property owner.

Have a class discussion on how pollution is passed downstream and what can be done to prevent this from happening. Have each student write a paragraph detailing how they could change their land use to help prevent pollution.

Pre/Post visit activities are adapted from "Project WET" and "WOW! The Wonders of Wetlands" and may need to be adjusted depending on the grade level.

### Geauga SWCD Mission:

"To conserve, protect, and enhance the resources of Geauga County by providing leadership, education, and assistance to all."

## Vocabulary

**Nonpoint Source Pollution** - A waste discharge that comes from an unknown source. There are four main types of nonpoint source pollution: Soil erosion, Bacterial, Toxic, and Nutrient.

**Point Source Pollution** - Waste, often made by humans, that damages the water, air and the soil.

**Runoff** - Rainwater that flows over the land and into streams and lakes. It often picks up soil particles along the way and brings them into the streams and lakes.

**Sediment** - Soil and debris from construction sites, mining operations, croplands, logging operations, and stream bank erosion.

### Post Visit Activity- Enviroscape to Go!

Students can make their own Enviroscares. Purchase small 15" X 7" paint trays (enough for each student), modeling clay in multiple colors, lego pieces for buildings (optional), 1 spray bottle, 1 jar of soil and sponges.

Give each student a paint tray and a variety of modeling clay. Explain that they are going to create their own Enviroscape model and they need to have a river running from the top (high part) to the lower (shallow part) of their tray. Explain the area where the roller would rest is a lake.

Have each student design their model by using the clay. Their landscape can be agricultural, residential, commercial or a wildlife refuge. It is up to the student.

Once all the students are complete, have each student explain their Enviroscape! After all the students have had a opportunity to explain their model, ask if there is any pollution that enters their river? If so, identify the pollution. Have each student sprinkle some soil (pollution) onto their Enviroscape and then spray the water bottle (have it rain) onto the model. Where does the pollution go? Into the Lake! Have the students cut up the sponges and place them along the edge of their land in the Lake. Repeat the pollution process. Is there a difference?

Explain how a wetland acts like a sponge to filter pollution out of our waterways. Explain the importance of wetlands and vegetation around our waterways.

## Ohio Learning Standards, Ohio revised Science Standards and Model Curriculum

### Kindergarten

Physical Sciences: 1

### First Grade

Earth and Space Sciences: 2

Life Sciences: 1,2

### Second Grade

Earth and Space Sciences: 2

Life Sciences: 1

### Third Grade

Earth and Space Sciences: 2, 3

### Fourth Grade

Earth and Space Sciences: 1, 2, 3

Life Sciences: 1

### Sixth Grade

Earth and Space Sciences: 4

### Seventh Grade

Earth and Space Sciences: 1

### Eighth Grade

Earth and Space Sciences: 1