

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.

Ohio Academic Content Standards reinforced or introduced by this program:

Fifth Grade

- Earth and Space Sciences: 5, 6
- Life Sciences: 4, 6
- Science and Technology: 1, 3
- Scientific Ways of Knowing: 2
- Scientific Inquiry: 3

Ninth Grade

- Science and Technology: 1
- Scientific Inquiry: 3, 6

Sixth Grade

- Science and Technology: 1, 2
- Physical Science: 6, 8

Tenth Grade

- Earth and Space Sciences: 5, 6, 7
- Life Sciences: 15, 16, 17, 18, 19
- Science and Technology: 1, 2

Seventh Grade

- Earth and Space Sciences: 1, 2, 4
- Life Sciences: 3
- Science and Technology: 1, 2, 3

Eleventh Grade

- Earth and Space Sciences: 511, 12, 13, 14
- Life Sciences: 5, 9, 11
- Science and Technology: 1, 2
- Scientific Ways of Knowing: 8, 9

Eighth Grade

- Life Sciences: 3, 5
- Science and Technology: 2

Twelfth Grade

- Life Sciences: 8
- Physical Sciences: 2
- Science and Technology: 1, 4
- Scientific Ways of Knowing: 8, 9, 10, 11

Evaluation Form

Please fill out the evaluation form and return it to Geauga SWCD. We appreciate your comments and suggestions. If you enjoyed the program and would like to see future programs offered please write a letter to the Geauga County Commissioners and thank them for funding the Geauga SWCD.

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Gauga SWCD Mission:

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

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Geauga Soil and Water Conservation District

Enviroscape! Teacher Guide 4th-12th Grade

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



The Wonders of Watersheds!

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, and carries 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.

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.

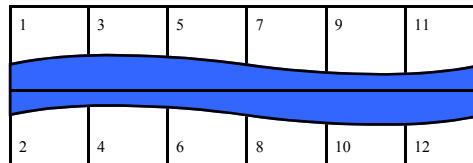
Point Source Pollution-Waste, often made by humans, that damages the water, air and the soil.

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, stream bank erosion.

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 pieces 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.

Post Visit Activity- Enviroscope to Go!

Students can make their own Enviroscopes. 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 Enviroscope 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 Enviroscope! 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 Enviroscope 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.