

Watershed Protection
NewsDepth October 30, 2008
Classroom Activities
Lesson Plan
Additional Resources



Overview:

Watersheds are the land area that water flows over or under on its way to a stream, river lake or ocean. Everyone lives in a watershed and the way we live our lives can affect the water that ends up in our rivers and lakes. The Ohio Department of Natural Resources is planning to give out more than a million dollars in grants to help protect eleven of its watersheds. These grants will help people in areas like the Blanchard River, Euclid Creek, Huff Run and Yellow Creek Watersheds to restore and protect their water resources. Students will be introduced to the concept of watersheds and will be able to construct their own classroom watersheds.

(www.sciotoriver.org Picture source)

Grade Level: 5-6

Subjects:

Science and Language Arts

Objectives:

Students will be introduced to the concepts of a watershed.
Students will be familiarized with watersheds in their own state and possibly in their own communities.
Students will understand the importance of protecting the environment.

Standards:

Science 5: Knowledge of changes in ecosystems and interactions of organisms with their environments.
Students will be able to use the most appropriate graphics and maps to answer questions on specific environmental issues.
Students will gain knowledge of changes in ecosystems and interactions of organisms with their environments.



Classroom Activities: (10 minutes)

1. Activity #1 Watershed

- Can someone tell me what a watershed is?
- What did you learn about the watersheds in Ohio from today's NewsDepth feature?
- Do you live in a watershed? Why do you think you do or don't?
- You all live in a watershed. Let students know that watersheds come in all shapes and sizes. Small watersheds, such as the watershed for the creek behind your house, or the watershed for the pond down the

street from you, drain into small bodies of water, and cover small land areas. The runoffs from small watersheds join together, and their combined areas become a new, larger watershed.

- Where do you think all of the water drains into?
- What happens to the watershed when people pollute?
- What are some types of pollutants? (fertilizers, oils, pesticides, litter, chemicals)
- After discussing this, why do you think those grants are so important to the Ohio watersheds?
- An extended at home activity: Ask students to go home and take a walk around their neighborhood with their parents. Have them discover all of the water that is running through and around the area. See if they can identify the source and the runoff.

2. **Activity #2 Watershed Game** (15 minutes)

- Ask students to gather three nonbreakable nonvaluable items (anything from books to paperclips) from their desks or book bags, and to form two parallel lines three feet apart and facing each other. Divide the lines into three parts. Have students in the back third of the lines stand. Ask the students in the middle third to sit on chairs, and the last third to sit on the floor. Have them put their three items on the floor and then extend their arms out in front of them and wave them up and down. Now starting at the back pass a wave down the line. Can anyone guess what this demonstrates? Give hints until they guess they are a river. Where are the headwaters? Where is the mouth?
- Have everyone pick up their items. Explain that on a count of three, the very last students at the back of the line will each hand one of their three items to the person next to them. That person will hand that item and one of their own to the next and so on down the lines. When passing items, students should continue to hold onto the two items they are reserving, and should try to keep anything from falling on the floor. The first person in line will place the items in a tub or just in a pile on the floor. Complete the first round of passing. Can anyone guess what the passed items represent?
- Rotate each group one position "down river" and initiate a second round of passing. This time, have students pass two items each down this time. How was this different than the first time? Was it harder? What happened as the items were passed down? How the ones lower in the line feel? How is this like water pollution?
- Point out that this is how water sheds become polluted and why it is critical for the Ohio Department of Resources help protect eleven of its valuable watersheds.
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3. **Activity #3 Build Your Own Watershed.** (30 minutes- class period)

- Students will enjoy building their own watershed. There are several websites that provide instruction for building your own Watershed right in the classroom.
- Resources:

- <http://www.mysciencebox.org/wetlands/lesson> My Science Box
- <http://www.teachingtools.com/H2O/Activity-Watershed.htm> in this activity students will recognize that bodies of water are the end product of drainage from watersheds. They will also predict where water and pollutants will flow. They will also observe the watershed in action and record observations.
- http://www.epa.gov/ogwdw000/kids/activity_grades_9-12_buildyourownwatershed.html The EPA's watershed building activity.

4. **Activity #4 Surf Your Watershed** (15-20 minutes)

- This activity comes from the United States EPA. You choose your watershed by State from a map and then it identifies its major watersheds.
- You then select the watershed closest to you. Once you select your specific watershed, you can obtain specific information about that watershed. Students can determine the closest major watershed to where they live.
- <http://cfpub.epa.gov/surf/locate/index.cfm> is the resource for this activity.

5. **Activity #5 Water Shed Map Making** (30 minutes – 1 class period)

- In this activity, everyone will transform a piece of plain paper into a detailed topographical relief map. Before beginning, discuss the differences between a flat map, topographical map, and relief map.
- Model the step- Crumple a piece of paper into a small ball first. Then open but do not smooth out flat. Have students do this- with imagination their paper should look like a miniature range of mountains and valleys.
- Model the step- With brown markers- trace the 'ridges' of your 'mountains' starting at the tallest 'peaks'.
- With blue markers- trace the lowest points between all the ridges. This is where rivers and creeks flow. What happens at the lowest points where the creeks meet? Draw in your freshwater lakes.
- Give students time to work on the watersheds.
- Finally, add where people would build houses and human additions. On the lakeside? Near a creek? In the mountains? Why are different locations preferred?
- Take a close look at the maps. How are the maps similar and different? Do any of them remind them of real mountain ranges? What do students think would happen if it rained on their mountain ranges? Discuss theories. Examine the houses--are any sitting on floodplains?
- Before making it rain on your maps, discuss the term watershed. A watershed is the entire land area around a stream from which all runoff ends up in that same stream. The boundaries of a watershed are naturally ridges. On one side of the ridge, the water ends up in one creek, and on the other side of the ridge, the runoff ends up in another creek. The ridge is the boundary between the watersheds of the two creeks. Point to specific spots on the students' maps and ask the group to predict where the rain will go. Observe which stream it feeds into. The spot you pointed to is a part of that stream's watershed!

- Now it is time to see if your predictions are correct. Hand out sprayers and make it rain! Hold the sprayers up above the maps, so the water is not sprayed onto them but falls from above. It will take several spurts of water before the creeks start to flow, so WATCH CAREFULLY! Examine and share results. Set maps in a sunny spot to dry.
- <http://www.cdm.org/i/Resources/Articles/BioSITE-WatershedMapMaking.pdf> is the resource for this activity.

Online Lesson Plan (Grades 6-7) Standards are included in lesson

1. What is a Watershed?

<http://www.learningtogive.org/lessons/unit382/lesson2.html> The purpose of the lesson is to educate learners about watersheds, ways in which water pollution occurs, and how important proper use of watersheds is to them.

Additional Resources

<http://www.wviz.org/water/> This is WVIZ / PBS's "Life Depends on Water" website. This is an excellent website that is an "online water quality handbook," It may provide for some online sharing of information.

http://nlquery.epa.gov/epasearch/epasearch?fld=EPAHOME&url_directory=epahome&reaname=EPA+Home&areacontacts=http%3A%2F%2Fwww.epa.gov%2Fepahome%2Fcomments.htm&areasearchurl=&result_template=epafiles_default.xml&action=filtersearch&filter=sample3filt.h This is the EPA's site that identifies websites with watershed information.