



Science



Literacy

# WAD-O-WATERSHED

## Grade Level

3-5

## Length of Lesson

45 minutes

## Objective

By the end of this lesson, students will understand the basic geography of a watershed, how water flows through the system, and how people can impact the quality of our water.

## Materials Needed

- Large, Clear Plastic tub
- Waxed Paper (at least two feet per student)
- Spray bottle filled with colored water
- Copies of student Worksheet

## Standards

### Common Core

CCSS.ELA-

Literacy.SL.5.1; W.5.2;

W.5.7

### NGSS

4-MS-ESS2-1; 5-ESS3-1;

5-MS-LS2-1; 3-5-ETS1-2;

5-PS2-1

## Lesson Summary

This lesson is a hands-on activity that will help students identify what a watershed is and how water moves in it. Students will also learn how easily sediment and pollution move through watersheds and the importance of working together to conserve and protect the water in their own watershed. Have students work in small groups for a better experience.

## Suggested Sequence of Events:

1. Set Up: Put your students into groups and hand out materials (each group gets one of each material). Then, have them block their tub so that one end is higher than the other. Hand out the “W-O-W Student Worksheet” to each student.
2. Read “[Water is Water](#)” by Miranda Paul to capture student interest.
3. Define a Watershed and teach the included background information. Have students write the definition on their student worksheet.
4. Look at the Major Watersheds in Illinois: [https://www.isws.illinois.edu/docs/default-source/maps/major-watersheds-illinois-2000-01.pdf?sfvrsn=b7aba970\\_2](https://www.isws.illinois.edu/docs/default-source/maps/major-watersheds-illinois-2000-01.pdf?sfvrsn=b7aba970_2)
5. Complete the activity following the procedures:
  - Have one student take the piece of wax paper and crumple it up into a ball.
  - Then, partially unfold the wax paper to form a 3D topography, complete with hills and valleys. This is your “wad-o-watershed.”
  - Place the wax paper in the tub.
  - Explain to students that we all live in a watershed. Have them hypothesize about the movement of water and what would cause that movement and write it on their student worksheet.
  - Have another student spray the colored water on the high points, or “divides,” of the watershed. Make sure they observe the flow of the water and fill out the next part of their student worksheet.
6. Have students work in their groups to finish their worksheets and then discuss the answers as a class.

# TEACHER RESOURCES

## Background Information

- A watershed is a geographic area in which water, sediments, and dissolved minerals all drain into a common body of water like a stream, creek, reservoir, or bay (the land that water flows across or under on its way to a stream, river, or lake).
- Large watersheds like the ones for the Mississippi River, Columbia River, and Chesapeake Bay are made up of many smaller watersheds across several states.
- A watershed includes all the plants, animals, and people who live in it, as well as the non-living components like rocks and soil. We are all part of a watershed, and everything we do can affect the surface and ground water that runs through this system.
- People influence what happens in watersheds, good or bad, by how the natural resources – the soil, water, air, plants, and animals – are treated. The quantity and quality of water draining from a watershed are dependent upon the climate, vegetation, soils, geology, and development of that watershed.
- Watersheds come in many different shapes and sizes. Landscape is made up of many interconnected basins or watersheds. Within each watershed, all water runs to the lowest point, such as a stream, river, or lake, due to the force of gravity. On its way, water travels over the surface and across farms, fields, forest lands, suburban lawns, and city streets, or it seeps into the soil and travels as groundwater.
- Activities that change the vegetation and surface characteristics of some watersheds will affect the quantity and quality of water contributed to a stream. What happens in small watersheds, such as pollution, also affects the larger watersheds downstream. Point source pollution is water pollution from an activity originating from an identifiable source. Nonpoint source pollution is water pollution from sources not easily identified.

## Possible Answers for List on Student Worksheet

Agriculture	Household	Recreational	Industrial	Natural Events
<ul style="list-style-type: none"><li>• Crops</li><li>• Animals</li><li>• Golf Course</li><li>• Horticulture Crop</li></ul>	<ul style="list-style-type: none"><li>• Homes: Drinking, Bathing, Washing Dishes, Washing Cars</li><li>• Lawns/Gardens</li><li>• Waste Water Treatment Systems</li></ul>	<ul style="list-style-type: none"><li>• Parks</li><li>• Meadows</li><li>• Woods</li><li>• Camping Areas</li><li>• Bike Paths</li><li>• Swimming Areas</li><li>• Boating Areas</li><li>• Sporting Fields</li></ul>	<ul style="list-style-type: none"><li>• Factories</li><li>• Schools</li><li>• Storage Units</li><li>• Warehouses</li><li>• Parking Lots</li><li>• Gas Stations</li><li>• Shopping Malls</li><li>• Offices</li></ul>	<ul style="list-style-type: none"><li>• Flooding</li><li>• Drought</li><li>• Mudslides</li><li>• Fires</li><li>• Storms/Severe Weather</li></ul>

# TEACHER RESOURCES

## Extension Ideas:

- Have students experiment with the amount of water they spray to see different ways the watershed functions.
- Let's see what happens when we have pollutants in our environment. Find some items to serve as your "pollutants." For instance, Orange Kool-Aid powder could be excess fertilizer on a golf course. Purple Kool-Aid could be a dump site. Mini chocolate chips could be dog poop at the local park. Place the "pollutants" on the watershed and then spray the water. What happens to the pollutants?
  - Connect this with the questions on the student worksheet.
- Have students find where they live on the watershed map of Illinois and share what they notice about it.
- Look at the [Watershed Map of North America](http://iaitc.co/NAwatershed), accessible at <http://iaitc.co/NAwatershed>. This is a government-created map of all the watersheds in North America. Each color represents a different watershed.
  - Consider these questions:
    - How many different watersheds do you see in North America? In the United States?
    - What do you notice about the size and shape of these watersheds?
    - Why is it important to have a better understanding of watersheds in our country?
- Read [A Drop Around the World](#) by Barbara Shaw McKinney to learn more about the journey that water takes as it cycles through the water cycle.
  - Have students draw a comic strip or write an essay from the perspective of the drop of water.
- Collect samples of water from around town and do a water quality test to each sample. Which samples are more polluted and why?
- Complete our "Drop in a Bucket" activity that shows how much fresh water is available on Earth for human use. Then discuss the importance of protecting and conserving water. What can they do to practice water conservation and protection? This lesson and more available at [agintheclassroom.org](http://agintheclassroom.org).
- Talk about soil erosion and how that can also impact the watershed.
- Go to [agintheclassroom.org](http://agintheclassroom.org) to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!



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# WAD-O-WATERSHED

## STUDENT WORKSHEET

What is a watershed?

Hypothesis:

Was your hypothesis correct? Explain why or why not, using evidence from your activity!

Make a list of all the water use activities, both human activities and natural events, that occur in your watershed:

Agriculture

Household

Recreational

Industrial

Natural Events



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## STUDENT WORKSHEET

How do these uses (from your list) affect local water quality and quantity?

### Point Source Pollution

Water pollution from an activity originating from an identifiable source!

### Nonpoint Source Pollution

Water pollution from sources that are not easily identified or located.

Who and/or what is affected by these pollutants?

In the blank space below, brainstorm what ways we could protect our water and watersheds from being polluted!