

Be a Watershed

QUESTION(S)

What is a watershed? How does water flow through the watershed?

OVERVIEW

To introduce watershed concepts, students will become a watershed and experience firsthand its interconnectedness, and how water flows from lake to stream to river to ocean. Students will work together to create/become different watershed features. This activity will give students basic watershed knowledge before moving forward to discuss how watersheds are influenced by outside sources and systems.

Multiple Watershed Experiences use this lesson in different ways (see descriptions below). When appropriate, modifications for specific Watershed Experiences will be noted in the Extension Ideas section.

All My Watershed Neighbors



Students use this lesson to understand and define the term watershed and focus on the different habitats that are included in a watershed. A habitat is defined as: “the place or environment where a plant, animal, or other species naturally or normally lives and grows” ([Merriam-Webster Online](#)).

As students explore their watershed through a fun, hands-on activity, ask them to think about the different habitats that are a part of land that forms watershed features. Students will explore habitats further in [My Watershed Habitats](#).

Natural Resources and ME



Students use this lesson to understand and define the term watershed and focus on the different natural resources that are included in a watershed. A natural resource is defined as: “industrial materials and capacities supplied by nature” ([Merriam-Webster Online](#)).

As students explore their watershed through a fun, hands-on activity, ask them to think about the different natural resources that occur within the watershed and how they rely upon and impact watershed health. Students will explore natural resources within their own watershed in [My Paddle to the Sea](#).

STANDARDS (MLR)

Science and Technology: A. Unifying Themes

A1 Systems

3-5 a. Give examples that show how individual parts of organisms, ecosystems, or man-made structures can influence one another.

6-8 b. Explain how the output of one part of a system, including waste products from manufacturing or organisms, can become the input of another part of a system.

A2 Models

3-5 Students use *models* to represent objects, processes, and events from the physical setting, the living environment, and the technological world.

6-8 b. Propose changes to *models* and explain how those changes may better reflect the real thing.

Author(s):

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Grade Level: ,

Themes: ,

Activity Type: ,

Setting: ,

Part of the [Watershed Neighbors Watershed Experience](#)

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LEARNING OBJECTIVES

Students will be able to explain and model what a watershed is.

Students will be able to explain and model how land shapes water flow, and how water flow shapes the land.

Students will be able to explain why certain industries are found in certain areas along a watershed.

MATERIALS

Clear plastic tarp

Candy (in wrappers)

or if you're brave...water (in spray bottles with blue food dye)...take it outside!

Blank paper

Colored markers

TIME NEEDED

30 minutes

ACTIVITY PROCEDURE

1. Divide the class in half. Have half of the students stand close together in a group (so that they will all fit under your tarp) and drape the tarp over the group. Ask each person to choose a height (arms up, standing, squatting...). Have the other half of the group standing on chairs surrounding the group under the tarp.

Tell students under the tarp that they are now a watershed!

Tell students standing on chairs that they are now rain clouds!

2. Ask the rain clouds to "rain" on the watershed. Have them gently toss a couple pieces of candy onto the tarp. Ask:

Where did the candy go? Why?

What does the candy represent?

Who is the tallest point in the watershed (the mountain)?

Who is along a river?

Who is along the coast/ocean?

Who makes up a lake?

3. Change the shape of the watershed. Ask the students underneath to change their positions, become either taller or shorter under the tarp.
4. Repeat step #2
5. Switch groups, have the watershed students become the rain clouds and the rain cloud students become the watershed.
6. Ask the watershed students to form a specific watershed feature such as:

a lake

a river

meandering stream

a water fall

mountain valley

a tidal cycle

ocean waves

7. Ask the rain clouds to "rain" on the watershed. Did the water flow as you would expect in the watershed feature that was created?

8. Repeat with 3-4 different watershed features.
9. Discuss as a class:

What did this activity tell us about the flow of water through a watershed?

What are some different watershed features?

Are some features better suited to some activities than others? Give example.

REFLECTION / FORMATIVE ASSESSMENT IDEAS

1. Have the teams compete. Have the watershed students quietly decide on a watershed feature and create that for the other team to see. Have the rain cloud students “rain” on the watershed to help them guess what feature it is. The goal for both teams is to have the watershed feature be guessed correctly. Repeat several times and have the teams switch roles.
2. Have each student create their own watershed model. Crumple up a blank piece of paper into a ball. Now un-crumple the paper. The paper is now your watershed, with the creases representing rivers or low valleys. With marker draw on your watershed the rivers, lakes, ponds, stream, etc. Have students label different water features.

EXTENSION IDEAS

All My Watershed Neighbors Watershed Experience

Use this activity to help students understand the different habitats that make up a watershed (open fields, forests, roads, farmland, towns, aquatic habitats, etc.).

A habitat is defined as “the place or environment where a plant, animal, or other species naturally or normally lives and grows” ([Merriam-Webster Online](#)).

1. Plastic tarp watershed model

Ask the rain cloud students to follow the raindrops through the watershed and identify the different habitats that the water flows through (mountains, flatland, rivers, streams, lakes, ponds, etc.). Have the students switch rolls and repeat.

List as a class the different habitats they “saw” on their watershed model. Can you think of any other habitats that exist within your watershed?

Try to create these habitats using your plastic tarp watershed model.

2. Crumpled paper watershed model

Brainstorm with whole class different habitats that occur in Maine (salt marsh, forest, field, river, stream, lake, wetland, bedrock, urban area, suburban area, agricultural field, orchard, etc.)

Have each student (or pairs of students) take a piece of blank paper, crumple it, and then spread it out to make a landscape

Invite class to make a color key for all the habitats that they brainstormed (might have to do some simplification or expansion)

Challenge students to site (using the color key) as many habitats as they can on their crumpled paper watershed

Have students swap “tours” of their watersheds, explaining why they put the habitat types where they did.

Natural Resources and ME Watershed Experience

Students use this lesson to understand and define the term watershed and focus on the different natural resources that are included in a watershed. A natural resource is defined as: “industrial materials and capacities supplied by nature” ([Merriam-Webster Online](#)).

After completing the above activity, use this activity extension to help students understand how Maine’s natural resources are linked to the watershed.

How do they depend upon healthy waters?

How does the use of these natural resources (logging, farming, fishing, aquifers, paper mills, river rafting, whale watching, etc.) impact the watershed?

1. Plastic tarp watershed model

Ask the rain cloud students to identify the different natural resources that occur within the watershed model they are looking at (trees, water, fields, animals, etc.).

“Rain” on the watershed and discuss how these natural resources use/need water.

Switch roles & repeat.

Discuss as a class: What industries use these natural resources? How can natural resource use impact the watershed?

Ask students to “rain” on the watershed again, but this time mix in different types of candy, one to represent healthy water, another to represent polluted water. Have students switch rolls and repeat.

List as a class the different natural resources and their uses/industries they “saw” on their watershed model. Discuss as a class: How do these resources rely on healthy waters? What happens if one industry upstream negatively impacts the watershed? How does this impact the watershed and natural resources downstream? What can industries do to minimize their impact on the watershed?

2. Crumpled paper watershed model

Brainstorm with the whole class different natural resources in Maine. Refer to natural resource list generated in [Maine: a Natural Resource Rich State](#). How do we use these resources? (logging, farming, fishing, paper mills, hydropower dams, aquifers, etc.)

Have each student (or pairs of students) take a piece of blank paper, crumple it, and then spread it out to make a watershed (the peaks represent mountains and hills, and the creases and folds are rivers, streams, and lakes).

Have students draw/write different natural resources on their watershed model. What industries use these natural resources? Draw/write those on too.

Starting at the high point of their watershed model, along the creases and folds, have students color the water resources (blue) until they reach their first natural resource industry. Switch colors and continue coloring water resources until they reach their second natural resource industry. Repeat, changing colors each time until they have reached the low point of their watershed model. (Check out this: [Sample Watershed Model](#))

Note the different points where there has been an impact to watershed health. (Please Note: not all impacts are negative) In teams, have students share their watershed models and consider:

How do natural resources rely on healthy waters?

What happens if one industry upstream negatively impacts the watershed?

What can industries do to have a positive impact and minimize their negative impact on the watershed?

RESOURCES

Have a great idea to share? Please leave a [comment](#) below.

REFERENCES

Have a great idea to share? Please leave a [comment](#) below.

2 Comments



GAYLE

OCTOBER 13, 2010 AT 9:13 AM

I did this activity with 3 groups of students at the Northern Maine Children's Water Festival, and it was a lot of fun. But a few things to think about:

1. It gets hot under the tarp, and is very hard to hear because the plastic is quite noisy/crinkly. A suggestion would be to use fabric, such as a king size flat sheet (you really can't see through a clear tarp anyways).

2. We used Hershey Kisses as rain drops, which the kids loved. But make sure you emphasize that

students should use them as a gentle spring rain, not a hurricane (toss them lightly overhand)! And if candy won't work well for your students...try cereal, such as corn puffs (students likely won't eat these off of the floor)!

It was a fun activity and students gained an understanding that a watershed is more than just water (or a shed for that matter), but that it includes the land water is flowing over.



MEREDYTH

MAY 17, 2011 AT 6:20 PM

I love how this activity gets kids up and moving. Its a great start to this watershed experience and so many other lessons too.

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