

Water Is Life—Rain, Rain, Rain

Water Is Life — A spoken word piece, featuring a diverse range of student voices
Rain, Rain, Rain — Written by Mrs. Finkle's Grade 1 & 2 Class, Andes Central School

Lessons and Activities – GRADE K-5



BIG IDEAS

- Interconnectedness
- Responsibility in Systems
- Access to Natural Resources
- Connection to Place

"If you think about it, everything on Earth is connected through water."

– Student speaking on the introductory track *Water Is Life*

In the photo at right, Story Laurie works with students at PS 164 in Brooklyn, as they prepare to perform at their school's Spring Green Festival. These are some of the students whose voices you hear saying "Water! Water is Life!" in eight different languages on the introductory track, *Water Is Life*.

The photo at the top of this page shows the stream that flows through the front yard of Andes Central School, on its way to the Pepacton Reservoir, one of the six NYC reservoirs in the Catskill Mountains. It is this stream which Mrs. Finkle's Grade 1 & 2 class references in the lyrics to their song *Rain, Rain Rain*.

- Before diving into these activities, we encourage you and your students to first listen to the introductory multilingual track *Water Is Life*, followed by the song *Rain, Rain, Rain*. Together, these two recordings underscore the way in which water is both global and local in nature.

Activity 1 *What is downstream? Grades 3-5*

Students consider the statement, "No matter where you are in the world, everybody lives in a watershed," while exploring what it means to be a good neighbor, whether upstream or downstream.

Activity 2 *Where does our water come from? Where does it go? Grades 3-5*

Students will have fun going on a water system hunt, exploring how water gets to the tap, and where it flows after it goes down the drain.

Activity 3 *How do we use water in our daily lives? Grades K-2*

Students conduct a "water inventory," keeping track of class' daily water usage, and mapping the places in the community where people access water.



For more information, or if you experience any problems with downloads, please contact info@harvestofsongs.com.

Harvest of Songs is a collaboration between Farm Catskills and Story Laurie.
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Water Is Life—Rain, Rain, Rain

What is downstream?

Time 40 minutes

BIG IDEAS

- Interconnectedness
- Responsibility in Systems

STANDARDS

NYS Science Standards

- LE 6.1e
- LE 3.2a
- LE 5.2g
- LE 7.1a
- LE 7.1b
- LE 7.1c
- PE 5.2a
- PE 2.1c

CCSS

- Literacy.RL.3.4, 4.4, 5.4
- Literacy.W.3.1, 4.1, 5.1
- Literacy.W.3.7, 4.7, 5.7
- Literacy.SL.3.1, 4.1, 5.1
- Literacy.SL.3.4, 4.4, 5.4

YOU WILL NEED

- Access to a stream or any small flowing body of water
- Natural floaters—sticks, leaves, flowers
- Audio system to play *Water Is Life*
- Paper and pencils
- NYC Watershed maps (see Resources) and other local maps

- Being downstream of something isn't just a metaphor, it comes from the natural flow of water as it moves on from one point to another and its ability to transport objects, particles, and even invisible solvents. This activity helps students to contextualize what it means to be downstream and the responsibilities of those people who are upstream of others, as we all are.

STUDENTS WILL UNDERSTAND

- We all live downstream.
- Water is a global common resource.
- What happens upstream matters.

ACTIVITY

- 1. Listen: *Water Is Life*
- 2. Consider the following statements from the introductory track:

*No matter where you are in the world,
everybody lives in a watershed.*

*If you think about it, everything on Earth
is connected through water.*

- 3. Discuss: "In your own words, what are the speakers saying here?"
- 4. Think of a nearby stream that your students might be familiar with. "What do you think happens when something flows 'downstream'?"
- 5. Predict & Observe: Head outside to that stream. Have a floater item ready for the whole class to follow. It may be a light stick, a dry leaf, or a large flower. "What do you think will happen when we drop this floater in the stream?" Listen without responding to the predictions, then ceremonially drop the floater in the stream and allow the students to follow the floater on its journey.
- 6. Reflect: Determine a good stopping point for this observation. If possible, gather up the floater, then prompt the students, saying, "What did you notice about the floater's journey?" "Why did it move the way it moved?" As the students describe the floater's journey, reinforce the water vocabulary, mirroring their responses using the terms upstream, downstream, and flow when appropriate.
- 7. Extend: "If we left our floater in the stream, what would happen to it?" "What if the thing we put in the water upstream was something we didn't want in our drinking water, like trash?" "Who might this affect?" "How?"

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Water Is Life—Rain, Rain, Rain

What is downstream?

ACTIVITY continued

8. Explore: Encourage students to find their own floater and experiment with the downstream flow of water. Floaters should only be of natural materials that “Nature has given them” such as fallen leaf litter, seedpods, small dried sticks or stems—materials that are no longer growing. Remind them of their responsibility to ensure that no harmful materials enter the water system, and if they choose larger items, like a stick as a floater, they should try to safely rescue that from the stream.
9. Connect and Apply: Organize students into small groups of 3 or 4. Give each group a copy of the appropriate Watershed map and/or local map. Each group will
 - locate their town, city, or school’s location on the map(s),
 - find out what towns or areas are upstream of their location and what towns or areas are downstream of their location and
 - write advice to the people and businesses upstream of them about how to care for the water that will flow downstream,
 - OR write a message to those people who live downstream of them about the water that “we send them” and how it has or has not been cared for.



Activity 1

GRADE 3-5

Water Is Life—Rain, Rain, Rain

What is downstream?

EXTENSION

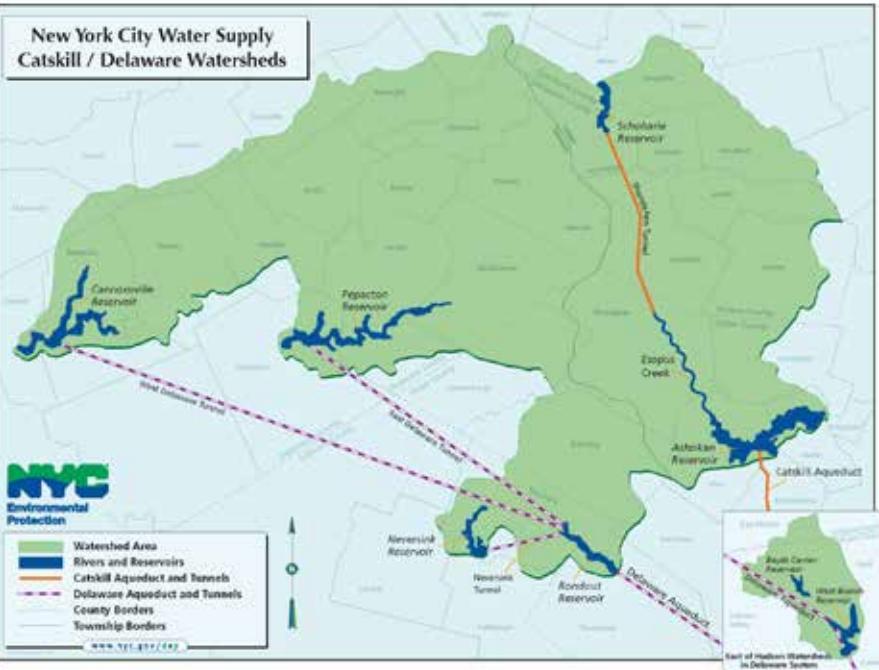
Debate

"Should factories and businesses be required to have their waste water disposed of upstream of their business or factory?" (The output would be upstream of their water intake.) Why or why not?

TEACHER TIP

This lesson has two parts, the physical exploration of what downstream and upstream mean and the application of this understanding in relationship to the movement of water through the watershed. If you do not have access to a stream for this exploration, do not skip over this step. Substitute the outdoor experience with a mini-stream model in the classroom using whatever materials you can find. The important thing is creating some sort of one directional flow of water upon which something can float and follow the movement of water. A pitcher of water slowly poured into fish tank with a drainage hole could be one solution.

The terms 'upstream' and 'downstream' can be confusing at first. The key understanding is the idea that water has a tendency to flow downwards from an upper point—from a higher elevation down to a lower elevation.



Maps provided by NYC Department of Environmental Protection, nyc.gov/dep
See Resources page for information about how to access pdfs of these and other maps.

Water Is Life—Rain, Rain, Rain

Where does our water come from? Where does it go?

Time 40 minutes

BIG IDEAS

- Natural Resources
- Water Systems

STANDARDS

NYS Science Standards

- LE 6.1e
- LE 3.2a
- LE 5.2g
- LE 7.1a
- LE 7.1c
- PE 2.1c

CCLS

- Literacy.W.3.7, 4.7, 5.7
- Literacy.W.3.8, 4.8, 5.8
- Literacy.SL.3.1, 4.1, 5.1
- Literacy.SL.3.4, 4.4, 5.4

YOU WILL NEED

- Access to your school buildings water infrastructure (a faucet, pipes, etc.)
- Index cards
- Pencils
- Colored pencils
- Pencils
- Paper
- Audio system to play *Rain, Rain Rain*

- We are all dependent on having a clean, fresh and reliable source of water every day. Most people in this country have easy access to potable water.
- This activity helps students to investigate the journey of water before and after it is flowing from our taps. Prior student exposure to the basic phases of the water cycle is recommended, but not necessary.
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STUDENTS WILL UNDERSTAND

- Water has a journey before and after our human uses.
- The water system requires natural, human, and structural inputs.
- Access to clean water is a human need.

ACTIVITY

1. Listen: *Rain, Rain, Rain*
2. Engage: In small groups, students consider the question, "What do we use water for in our daily lives?" Students will make a list or a thinking map with their responses. Each group will then share their responses with the whole class.
3. Discuss: "In our school, how do we access fresh water?"
4. Think: "Where does our water come from before we get it from the water fountain or the sink?" "Where does it go after we use it?" Listen to any thoughts without approving or disapproving any student responses, then say, "Let's go find out!"
5. Uncover: Go on a water system hunt. Younger students can imagine that they are water droplets traveling through the school. Begin at your nearest water fountain or sink. Ask, "After we get the water to drink or wash our hands here, where does it go?" Look for the pipe below the fountain or faucet and begin following that "gray water" pipe. You will head downwards, as water tends to flow with gravity, and will most likely end up in the basement at a pipe that heads into the ground or out of the building towards the sewer system.
6. Reverse: "How does water travel to the sink or fountain where we started?" Find the pipe where water enters the building and begin tracing that pipe as it leads you upward toward your classroom.

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Water Is Life—Rain, Rain, Rain

Where does our water come from?

Where does it go?

EXTENSION

Debate

"Is access to clean water a human right?" There are many people and businesses in the world that sell water to people. What if people can't afford to buy water? Whose responsibility is it to provide clean water and protect our water sources? Randomly assign sides to this debate. Students should work in small teams to prepare their arguments.



- A vertical column of 15 blue circular dots, evenly spaced from top to bottom.

ACTIVITY continued

- 7. Reflect: Students will retell the journey of water through the building by illustrating each step of the way on index cards with colored pencils. On the back of each card, students will write the part of that water story that is visually represented on the other side of the card.
 - 8. Imagine: "Where does water come from before it enters our school?" "Where does water go after it leaves our school?"

FOLLOW-UP

Field Trip

- Continue the journey of gray water. Follow the sewage pipes out of the school building. Where does it go? What's the process of filtering and cleaning that gray water? Where does the water ultimately end up? If you have access to a water sanitation plant, take a field trip and learn from the experts.

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TEACHER TIP

Following the fresh and gray water pipes through your school building is a fantastic way for students to see the journey of water that is immediately accessible to them. In order to do this, you will need to collaborate with your school facility manager. The facility manager will know exactly how and where water flows through your building and what mechanisms help the water to move. (If you are lucky, your facility manager may also act as a host and "field trip" guide!) In many buildings there is a water pump in the basement that moves incoming water up through the building. In some areas, water tanks sitting atop buildings are common for storage. The downward flow of gray water is usually moved by gravity, as water tends to move from a higher elevation to a lower elevation.



Water Is Life—Rain, Rain, Rain

How do we use water in our daily lives?

Time: two 30 minute periods, plus exploration

BIG IDEAS

- Access to Natural Resources
 - Connection to Place

STANDARDS

NYS Science Standards

- LE 1.1b
 - PS 2.1a, 2.1c
 - PS 3.1c, 3.1d
 - LE 6.1a, 6.1b
 - LE 7.1a, 7.1c

CCLS

- Literacy.RI.K.10
 - Literacy.W.K.2, 1.2, 2.2, 2.8
 - Literacy.SL.K.1, 1.1, 2.1
 - Literacy.SL.K.3, 1.3, 2.3
 - Literacy.SL.K.5, 1.5, 2.5
 - Literacy.SL.K.6, 1.6, 2.6
 - Literacy.L.2.3
 - Math.K.MD.A.2, 1.MDA.1
 - Math.K.CC
 - Math.MP.2, MP.5

YOU WILL NEED

- Markers
 - Chart paper
 - Empty 1 pint, 1 quart and 1 gallon bottles
 - Digital camera
 - Crayons or markers
 - Butcher paper
 - Pushpins
 - String
 - Paper and pencils
 - Audio system to play *Water Is Life* and/or *Rain, Rain, Rain*

- Water is one of those essential resources that we often don't notice. This simple investigation raises students' awareness about the need for water in our daily lives. Taking a water inventory explores place and a connection to our natural resources while building mathematical and geographical skills.

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STUDENTS WILL UNDERSTAND

- Water has a journey before and after our human uses.
 - The water system requires natural, human, and structural inputs.
 - Access to clean water is a human need.

ACTIVITY

- 1. Listen: *Water Is Life* and/or *Rain, Rain, Rain*
 - 2. Discuss and Chart: "How do we use water in our daily lives?" Make this chart available to students after the discussion to continue to add illustrations and new ideas.

- ***Exploration 1: Water Usage***

- 3. Estimate: "How much water do you think you use in one day?" Set out a few standard-sized bottles for estimation. Chart the full range of estimations. "How can we find out?"
 - 4. Collect Data: Depending on students' suggestions, keep track of water usage in the classroom. This may include tracking the number of times students wash their hands, flush a toilet, or drink a cup of water while at school. Post charts to track water usage near the bathroom, water fountain, and sink—anywhere students use water. Each time a student uses water, he or she would add a tally mark.

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Water Is Life—Rain, Rain, Rain

How do we use water in our daily lives?

- **ACTIVITY continued**

- **5.** Analyze: After one day of taking measurements, tally up the marks. Small groups of students can tally up one water usage chart, counting by 5s, 10s and 1s and then present their findings to the whole class.
- **6.** Reflect: “How does the measurement compare to our estimations?” “Do we have enough water to meet our needs?” “What else do we need water for that we don’t see?”

- **Exploration 2: Water Access**

- **7.** Explore: “Where are all the places in our community that we can access water?” Start inside your school building and then venture outside for a walk around your block. Take pictures of all sources of water and sightings of people using water.

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Water Is Life—Rain, Rain, Rain

How do we use water in our daily lives?

EXTENSION

Water at Home

Extend the Water Use and Water Access Explorations to home. “How do you use water at home?” “How much water do you use at home?” (You’d be surprised how much water we use for cooking, cleaning and bathing!) Prompt students to map out all of the water access points at home.

FOLLOW-UP

Take Action

Follow up on one or a few of the students’ responses to the question, “What would make our water system better?” This may lead to group research, community education, letter writing, a clean-up day, or a visit with an expert.

ACTIVITY continued

- **8.** Represent: Map the water access points. Create a large map of your school’s block with your students on butcher paper.
 - Begin by marking out the grid for the street or streets and putting the footprint of the school building on the map. Support your students in identifying and locating important landmarks on the map before they draw in the details.
 - Print out the images of water access points and usage taken during your neighborhood walk. Trim down the photos if needed.
 - In pairs or trios, students will identify where each of the water photos belongs on the map. Affix the photos to the map.
- **9.** Describe: In their small groups, students will write descriptions of the water sighting or access point illustrated in the photo. You may wish to post these written descriptions near the map, using string and pushpins to connect the writing to the image.
- **10.** Reflect: “What do you notice about where people have access to water in our neighborhood?” “Is the water free or for profit?” “Are people’s water needs being met?” “What would make our water system better?”

TEACHER TIP

In order for students to build a sense of value around our natural resources, they first need to build an awareness of and appreciation for our connection and dependence upon these resources. This activity is about building awareness. Encourage open-ended exploration and play-based experiences with water in order to develop a positive relationship to this amazing resource! Responsibility and care will follow as a natural extension of connectedness.

“What else do we need water for that we don’t see?” Many of the ways that we consume water are unseen. Water is essential to growing all the food that we eat, for producing nearly every product we purchase, and in moving ourselves and our things around our hometowns. Once you and your students start looking around, you’ll find water to be an essential element in most processes that we engage in and rely upon, after all Water Is Life!

Water Is Life—Rain, Rain, Rain

Resources



You can access the Watershed maps mentioned in this packet at either of the following sites:

Catskill NYC Watershed Educators Network:
www.watershededucators.org

NYC Department of Environmental Protection's Office of Education:
http://www.nyc.gov/html/dep/html/environmental_education/index.shtml

Both of these sites also offer an extensive list of resources for educators and students, including:

- materials that are ideal for classroom use
- watershed-based programs that you can bring into your school
- recommended field trips to regional environmental education centers
- information about teacher trainings and funding sources for educational programs
- and recommended picture books, including:

Magic School Bus at the Waterworks, Special NYC Edition — a special edition of the popular Scholastic book that takes Ms. Frizzle and her students on a colorful, raindrop-to-faucet tour of the New York City water supply system, including maps. Teachers can request copies of this book, as well as other Watershed education resources at: educationoffice@dep.nyc.gov.