

Water & Watersheds



Department of
Environmental
Conservation

Topics: Water cycle, watersheds, water usage

GRADE LEVEL: 2-3

Big Ideas:

- The water cycle is a complex, multi-step process.
- Most of the water on Earth is not available for humans to drink.
- Water is essential to everything on earth.
- Everyone lives in a watershed.
- Watersheds provide critical environmental services and drinking water for many people.
- Moving water can change the shape of the landscape.

Learning Objectives: *students will be able to...*

- Develop a model of a watershed.
- Describe the movement of water within the water cycle.
- Identify the forms water takes in the three states of matter and discuss how water transitions between these states.
- Observe how water changes the land.

New York State Science Learning Standards:

- 2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.
- 2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.
- 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
- 2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
- 3-ESS2-3. Plan and conduct an investigation to determine the connections between weather and water processes in Earth systems.
- 3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.

Key Understandings:

- Water is essential to everything on earth.
- Maps show the shapes and kinds of land and water in a particular area.
- Water transports material through the Hudson River watershed and estuary.
- Earth's processes continuously cycle water.
- Water is made up of particles whose properties determine its observable characteristics.
- Water affects the rate of erosion and weathering.

Essential Questions:

- Describe how the water cycle works?
- When rain falls to the ground around your home or school, where does it go?
- How can humans reduce their impact on a watershed and local water supply?
- What is a watershed?

Students will know...

- Most of Earth's available water is in the ocean.

Vocabulary:

- Matter: anything that takes up space.

- Only a small percentage of Earth's freshwater is found in streams, lakes, wetlands and the atmosphere.
- Key vocabulary terms.
- How water moves throughout the earth.
- The steps of the water cycle.
- What a watershed is.
- Where water is found on earth, and in their everyday lives.
- Humans cannot eliminate natural hazards but can take steps to reduce their impact.
- Erosion: the wearing away of land surfaces by forces such as wind, water and ice.
- Estuary: a body of water in which fresh and salt water meet.
- Fresh water: water that is not salty.
- Water cycle: continuous circulation of water from water bodies and the land to the sky and back again.
- Watershed: the area of land from which water drains into a body of water.
- Weathering: the physical disintegration and chemical decomposition of earth materials at or near the earth's surface.

Learning Plan: We recommend doing these lessons in sequential order; however, they can be done as individual lessons. Lessons have multiple links (videos, songs, diagrams, activities) that can be used at the teacher's discretion depending on class time.

Pre-assess: Use K-W-L to assess students' prior knowledge, have students write or draw in response to the essential questions. Have students draw what they think a watershed is or write down anything they want to know about the Hudson River's watershed.

Progress Monitoring: Formative assessment and teacher feedback should be ongoing throughout the lessons. Teachers should develop assessments based on their individual class needs. Think-pair share, exit tickets, interactive discussions, questions and listening, informal observations, quizzes and student work samples can all be used.

Lesson 1: How Much Water is on Earth? - Students do a Globe-toss activity to explore the distribution and amount of water on the Earth's surface.

- How Much Water is on Earth Globe Toss [Student Activity](#)

Lesson 2: Water Seekers- Students watch a video, then explore where water exists inside and outside of their school and create a class bar graph of their data.

- [Save Water with Aqua Video](#)
- [Water Seekers Activity](#)

Lesson 3: The Water Cycle- Students watch a video about where water comes from, create their own water cycle in a bag, listen to a story about the water cycle and then write their own water cycle journey. Students finish the lesson with a water cycle song.

- Video: [Where Does Water Come From?](#)
- [Water Cycle Diagram](#)
- [Water Cycle Reading and Writing Activity](#)
- [The Water Cycle Student Activities](#) (pg. 15-16)
- [Miniature Water Cycle Model](#)
- [The Water Cycle Song](#)
- [Water Cycle Song](#)

- Extension: Weather on the Water [Student Activity](#) (An introduction to solid, liquids, and gases and the role these play in weather & the water cycle).
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Lesson 4: What is a Watershed? - Students watch a video about what a watershed is and create their own model of a watershed.

- Video: [What is the Watershed?](#)
 - [Hudson River Watershed Map](#)
 - Build a Watershed [Student Activity](#)
 - Extension: [Online Watershed Interactive](#)
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Lesson 5: How Can Water Change the Shape of Land? - Students investigate water erosion with a hands-on activity.

- How Can Water Change the Shape of Land [Student Activity](#)
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Teachers: Would you like to visit us at Norrie Point environmental education center, or have an educator visit your classroom in-person or virtually? Contact us to schedule a program: hrteach@dec.ny.gov

Resources:

Children's books:

- [The Water Dance](#) by Thomas Lochner
- [We are Water Protectors](#) by Carole Lindstrom
- [The Water Cycle at Work](#) by Rebecca Jean Olien
- [I Am the Rain: Science Book for Kids about the Water Cycle and Change of Seasons](#) by John Paterson
- [A Drop Around the World](#) by Barbara McKinney
- [Water, Water Everywhere](#) by Berger, Melvin and Gilda
- [All the Water in the World](#) by George Ella Lyon and Katherine Tillotson
- [Rain Rain Rivers](#) by Uri Shulevitz
- [The Magic School Bus At The Waterworks](#) by Joanna Cole and Bruce Degen

Websites:

- [Discover Water: The Role of Water in our Lives National Geographic](#)
- [The Blue Traveler: A Trip Through the Water Cycle \(Project WET\)](#)
- [Precipitation Education \(NASA\)](#)
- [NYC-DEP-Education Curriculum Guide](#)
- [NYC-DEP Education Resources](#)
- [The Water Cycle \(National Oceanic and Atmospheric Administration\)](#)
- [Water Websites for Kids](#)
- [River Runners](#)
- [River of Words](#) - annual international poetry and art contest for K-12
- [River Rangers Toolkit](#)