

# Michigan State University Extension

## Tollgate Farm and Education Center

# **THE JOURNEY OF WATER**

### Big Ideas:

Students will explore the water cycle and discover the path water takes as it moves through ecosystems. They will apply this knowledge as they investigate the journey of water on the farm, and carry out a series of tests on the farm involving soil infiltration and water quality.

### Big Questions:

- What is the water cycle?
- How can we follow the path of water and better understand the mechanisms for water to travel around the earth?

### Michigan NGSS Performance Expectations:

<a href="#"><u>5-LS2-1</u></a>	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
<a href="#"><u>5-ESS2-1</u></a>	Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
<a href="#"><u>5-ESS2-2</u></a>	Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.
<a href="#"><u>5-PS1-3</u></a>	Make observations and measurements to identify materials based on their properties.
<a href="#"><u>5-PS2-1</u></a>	Support an argument that the gravitational force exerted by Earth on objects is directed down.
<a href="#"><u>5-ESS3-1</u></a>	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

### Common Core ELA and Math Standards:

ELA-LITERACY. SL.5.1a-d	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher- led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly. <ul style="list-style-type: none"> <li>a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic</li> </ul>
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	<p>to explore ideas under discussion.</p> <p>b. Follow agreed-upon rules for discussions and carry out assigned roles.</p> <p>c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.</p> <p>d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.</p>
Math.Content. 5.NBT.4	Use place value understanding to round decimals to any place.

**Content Outcomes:**

- Understand the movement and various states of water through the water cycle
- Understand the concept of a watershed
- Understand what happens when water reaches the ground and how this can vary in different types of soils
- Explore various biotic and abiotic methods of testing water quality

**Assessment:**

Revisit the big question at the end of the program and discuss, in pairs, small groups, or as a large group. What new understandings have students gained?

**Program Introduction:**

Welcome to Journey of Water on the farm! We'll be journeying around the farm today to solve a mystery and we need your help. *What is the water cycle? How can we follow the path of water and better understand the mechanisms for water to travel around the earth?* What do you know about the water cycle and the path that water takes? Is this path always the same? What happens when water falls to the earth and reaches the soil? What are some things that can impact water quality and how can we measure this?

**Tollgate would like to acknowledge that the land we are meeting on today is the original homelands of the Anishinaabe tribal nations. We owe a debt of gratitude to the people who first lived on this land. We honor and respect the many diverse indigenous peoples still connected to this land on which we gather.**

**Rotations:**

- |                                |                                    |
|--------------------------------|------------------------------------|
| ● The Incredible Journey       | <i>Upper Barn</i>                  |
| ● Infiltration Tests           | <i>Three Locations around Farm</i> |
| ● Pond Walk and Stream Studies | <i>Pond</i>                        |
| ● Hydrolab                     | <i>Pond Dock</i>                   |

## Teacher Resources:

### Background Information:

- [Journey Through the Water Cycle](#)
- [Teaching Great Lakes Science](#)
- [Fisheries Learning on the Web](#)
- [Exploring the Flow of Water Through Soils](#)
- [Macroinvertebrates as Indicators of Water Quality](#)
- [Hyrdolab Info](#)

### Children's Literature:

- [All the Water in the World](#) by George Ella Lyon
- [Water Runs Through This Book](#) by Nancy Bo Flood
- [Dirt: The Scoop on Soil](#) by Natalie M. Rosinsky
- [Pond Life](#) by George K. Reid
- [Riparia's River](#) by Michael J. Caduto

### References:

- The Incredible Journey is adapted from Project W.E.T.'s [Discover the Incredible Journey of Water through the Water Cycle](#)
- Infiltration Tests around the Farm is adapted from Earth Partnership for Schools from the University of Wisconsin-Madison Arboretum's [Infiltration Test: Exploring the Flow of Water Through Soils](#)
- Pond Walk and Stream Studies is adapted from University of Wisconsin Extension Basin Education Initiative's [Monitoring your Wetland](#).

# CURIOSITY PHOTOS

Following are photographs and questions intended to inspire curiosity and wonder throughout the days leading up to your Tollgate visit







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