

Healthy Wetlands

Grade 2 – Science and Technology



Lesson Details

Grade Level:	2	Curriculum Links:	Science and Technology	Time Needed:	1.5 hours
Learning Goal	To learn about the importance of wetlands in relation to water filtration and the role turtles play in a wetland. Students will also learn how ecosystems are connected, and without one element, how ecosystems can collapse.				
Success Criteria	By the end of this lesson, students will understand a turtle's role in wetland ecosystems. Students will also understand the role clean water plays in the environment, recreation, and human health.				
Specific Expectations	<p><i>Understanding Life Systems: Growth and Changes in Animals</i></p> <ul style="list-style-type: none"> Identify ways in which animals are helpful to, and ways in which they meet the needs of, living things including humans, to explain why humans should protect animals and places where they live; Identify positive and negative impacts that animals have on humans (society) and the environment, form an opinion about one of them, and suggest ways in which the impact can be minimized or enhanced. 				
Materials Needed	Worksheet (attached), Pencil, Clean Water, Water Mixed With Coffee Grinds, Five 2L Bottles (empty), a Coffee Filter, a Sponge, Small Rocks, Leaf Litter (if possible, use a plant with roots instead of leaf litter).				

Lesson Description

Overview	Students will learn about water filtration and wetland health through a hands-on water filtration activity.
Activity	<ol style="list-style-type: none"> Before the lesson, cut the 2L bottles in half and insert the open mouth of the bottle into the bottom half – acting as a funnel. Begin by holding up two glasses of water, one clean and the other “dirty” (filled with coffee grinds). Ask the students which glass they would rather drink from and/or swim in? Why? Then discuss how “dirty” water in nature becomes polluted (E.g. soil erosion or agricultural lands, pollutants, bacteria, etc.). Ask the students what would happen if the “dirty” water went directly into the lakes, or even our homes? Explain the importance of wetlands and turtles in wetlands. You may also share some photos of healthy wetlands. Next, hand out the observation worksheets (attached) to all students and begin the water filtration activity. Begin by placing a coffee filter into the funnel of one bottle, a sponge in another, small rocks in the next, and leaf litter or a plant in the last bottle. Make sure to leave one bottle with no filtration system in the funnel (this will be the control). While creating these, discuss the importance of wetlands as nature's filtration system and explain that you're going to test how well these filters can clean the “dirty” water. As you pour the “dirty” water into each bottle, have the students write down their observations on the worksheet. You may request a volunteer to help you pour the water.

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	<p>9. You may run the “dirty” water through the same filter multiple times - wetlands exist in long chains as water flows throughout the system so this will mimic a real-life scenario.</p> <p>10. Point out how the coffee grinds remain on top of the filters.</p> <p>11. Ask the students which filter worked the best.</p> <p>12. Discuss as a class and have the students write down their answers to the question, ‘What would happen if turtles were not present within wetland systems – how would this impact water filtration?’</p> <p>13. Further discuss how we can help protect turtles and wetland ecosystems.</p>
<p>Background Information</p>	<p>Wetlands are crucial to the health of water systems. If a wetland was part of the human body, it’d be known as our kidneys. They filter water and regulate the distribution of its flow. Without wetlands, bacteria and other pollutants would flow directly into our lakes and rivers.</p> <p>It is important to note that wetlands are also a home to many species, not just plants. Turtles are most often found in wetlands. They are considered keystone species, in other words, incredibly valuable and integral to the health of the water. Likewise, wetlands provide turtles a home and contribute to their overall well-being. Wetlands teach us the relationships between the environment, plants, and animals. Wetlands have systems to filter water, which benefits turtles. In return, turtles provide valuable services to wetlands. When turtles are young, they consume small fish and mammals, and dead carcasses. As they get older, turtles eat mainly vegetation and seeds – then when they roam they spread these seeds, creating new vegetation that will filter the water.</p>
<p>Blacklist Masters</p>	<ul style="list-style-type: none"> • Worksheet (attached) • Video Link(s): Wetlands and Turtles in Ontario • For more information, please visit https://www.turtleguardians.com/sample-page/turtle-habitats/
<p>Place-Based Learning</p>	<p>After the lesson, plan a visit to a wetland or local water area so students can see which plants work to help filtrate the water. Discuss with the students where the water in your community comes from and how it is cleaned.</p>
<p>Inquiry-Based Learning</p>	<p>Using Confirmation and Structured Inquiry, students will use their observational skills to confirm the importance of wetlands and turtles for cleaning water.</p> <p>Ask the students:</p> <ul style="list-style-type: none"> • What pollutes water? • Which glass would you rather drink from and/or swim in? Clean or “dirty”? • What would happen if the “dirty” water went directly into the lakes? • What would happen if we didn’t have turtles to help clean the water? • How important is clean water to humans and animals? • How do we use clean water?
<p>Turtle Stories</p>	<p>What other natural objects (like plants) help to filter water? Have you visited a wetland or other water area recently? What was the condition of the water like? Clean or “dirty”? What types of plants were in the water, or were there plants missing that affected the filtration of the water? Try this experiment at home and use other items to try to filtrate the water. Did anything work better? Worse? Students are encouraged to share their experience, pictures, and worksheets on the Turtle Stories website, found here: https://www.turtlestories.ca/</p>

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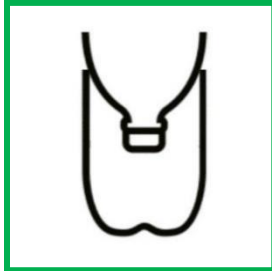
Turtle Guardian Program Links

After completing **Level 1** (Ontario Turtle Identification) of the **Turtle Guardian Program**, students can move onto **Level 2** (Wetland Watchers). In this level the students learn how to monitor wetland habitats, contribute to knowledge of wildlife-biology in the region, and are able to adopt a wetland to monitor for turtles, birds, and other animals. For more information, please visit <https://www.turtleguardians.com/what-is-a-turtle-guardian/>

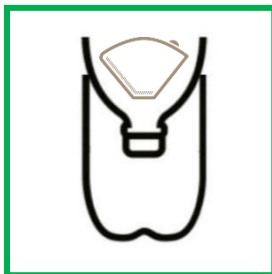
My Notes



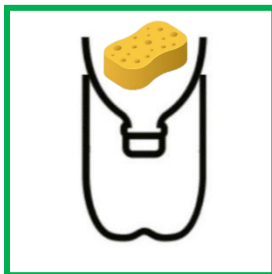
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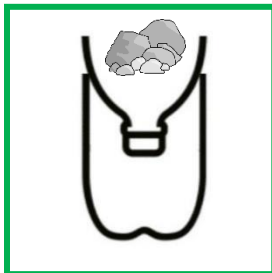
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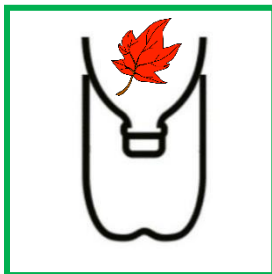
Coffee Filter Observations:



Sponge Observations:



Rocks Observations:



Plant Observations:

What would happen if turtles were not present in wetlands? _____
