

# Wetland In A Pan

Grade 8 – Science and Technology



## Lesson Details

<b>Grade Level:</b>	8	<b>Curriculum Links:</b>	Science and Technology	<b>Time Needed:</b>	1 hour
<b>Learning Goal</b>	To learn the importance of wetlands as a buffer zone between land and bodies of water when rainfall occurs through a discussion and hands-on activity.				
<b>Success Criteria</b>	By the end of this lesson, students will be able to describe the relationships between rain, runoff, and wetlands as well as the importance of wetland functions to habitat and human health.				
<b>Specific Expectations</b>	<p><i>Understanding Earth and Space Systems: Water Systems</i></p> <ul style="list-style-type: none"> <li>• Use scientific inquiry/research skills to investigate local water issues;</li> <li>• Use technological problem-solving skills to design, build, and test a water system device that performs a practical function or meets a need;</li> <li>• Identify the various states of water on the Earth's surface, their distribution, relative amounts, and circulation, and the conditions under which they exist;</li> <li>• Demonstrate an understanding of the watershed as a fundamental geographic unit, and explain how it relates to water management and planning;</li> <li>• Explain how human and natural factors cause changes in the water table.</li> </ul>				
<b>Materials Needed</b>	Worksheet (attached), 5 Long Shallow Pans, Modeling Clay, 5 Sponges (long enough to stretch the width of the pan), 5 Water Cans (or Liquid Measuring Cups), 5 Cups of Soil, 5 Cups of Muddy Water.				

## Lesson Description

<b>Overview</b>	Students will create and observe various scenarios of water travelling down a hill (made from clay in a pan) to illustrate the importance of wetlands as they help with water runoff and soil erosion.
<b>Activity</b>	<ol style="list-style-type: none"> <li>1. Begin by reviewing the student's knowledge of wetlands and their role in nature. Discuss with students the types of wildlife that may live in a wetland.</li> <li>2. Split the class into 5 groups (or 4 if you wish to keep a set of the materials to use as a demonstration).</li> <li>3. Distribute the materials and attached worksheet to the groups and introduce the activity. Students will be creating a wetland using modeling clay. Half of the shallow pan will be covered in modeling clay to represent land, and the other half will have nothing on it to represent a body of water (such as a lake).</li> <li>4. Ask the students "what will happen if water is poured (as rain) on the land?". Tell the students to write their predictions down on the worksheet.</li> <li>5. Tell the students to continue working in their groups, following along with the instructions on the worksheet.</li> <li>6. Once the students have completed the activity, bring the class together to discuss the questions and their answers from the worksheet.</li> </ol>
<b>Background Information</b>	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.
<b>Blacklist Masters</b>	<ul style="list-style-type: none"> <li>• Worksheet (attached)</li> <li>• Video Link(s): <a href="#">Wetlands and Turtles in Ontario</a></li> </ul>

## Lesson Description

	<ul style="list-style-type: none"> <li>For more information, please visit <a href="https://www.turtleguardians.com/sample-page/turtle-habitats/">https://www.turtleguardians.com/sample-page/turtle-habitats/</a></li> </ul>
<b>Place-Based Learning</b>	Students will become familiar with the importance of wetlands and be able to relate this information to their local water bodies.
<b>Inquiry-Based Learning</b>	<p>Using <b>Structured Inquiry</b>, the students will work independently to conduct their research and write their letters.</p> <p>Ask the students:</p> <ul style="list-style-type: none"> <li>How does muddy water affect wildlife and plants?</li> <li>How might a lack of wetlands affect humans and our health?</li> <li>How can we prevent excessive runoff events from happening?</li> <li>How can we help to conserve wetlands?</li> </ul>
<b>Turtle Stories</b>	Now that you've created an artificial wetland using clay, try creating a wetland in a jar using plants, soil and water. Students are encouraged to share their experiences, pictures, and worksheets on the Turtle Stories website, found here: <a href="https://www.turtlestories.ca/">https://www.turtlestories.ca/</a>
<b>Turtle Guardian Program Links</b>	After completing <b>Level 1</b> (Ontario Turtle Identification) of the <b>Turtle Guardian Program</b> , students can move onto <b>Level 2</b> (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 <a href="https://www.turtleguardians.com/what-is-a-turtle-guardian/">https://www.turtleguardians.com/what-is-a-turtle-guardian/</a>

## My Notes



## Wetland In A Pan

**Using the modeling clay, create a small hill on one side of the shallow pan to represent dry land and leave the other side empty to represent a body of water.**

What would happen if water (rain) were to be poured on the clay (land)? What would happen to the water body (lake)? Write down your prediction: Should runoff quickly into the body of water.

**Next, pour the water on the clay.** Was your prediction accurate? \_\_\_\_\_

**Now place a sponge(s) in the pan at the base of the clay to represent a wetland. The wetland acts like a buffer zone between the land and body of water. Pour some water on the land again.** Write down your observations: The wetland slows the runoff down and it lessens the amount of water reaching the body of water because some of the water is trapped in the wetland.

**Wetlands are shallow basins that collect water and slow the rate of flow down. This slowing process helps prevent flooding and soil erosion.**

What might happen if a wetland is destroyed and houses or other developments are built in its place? There is a greater risk of flooding and damaged to the developments. There is also a greater risk of pollution running into other bodies of water.

**Next, pour the water out of the pan and rinse your sponge. Spread soil over the clay, place the sponge back at the base of the clay, and pour some muddy water onto the clay. This represents polluted water.** Write down your observations: The muddy water and soil is trapped in the sponge with some cleaner water flowing through.

Compare the remaining muddy water in the jar to the water that you just poured. Are there any differences? The water in the jar is much more dirty and polluted.

**Remove water and sponge and repeat the last step.** What has changed? The water travels more easily and quickly, the water is also a great deal more dirty and polluted.

**Wetlands are incredibly important features of the environment. Without them a tremendous amount of silt and pollutants would end up in our bodies of water.** How would this pollution affect human health? Polluted water is extremely unhealthy for humans to consume. We would become sick if this water was ingested.



## Wetland In A Pan

**Using the modeling clay, create a small hill on one side of the shallow pan to represent dry land and leave the other side empty to represent a body of water.**

What would happen if water (rain) were to be poured on the clay (land)? What would happen to the water body (lake)? Write down your prediction: \_\_\_\_\_

\_\_\_\_\_

**Next, pour the water on the clay.** Was your prediction accurate? \_\_\_\_\_

**Now place a sponge(s) in the pan at the base of the clay to represent a wetland. The wetland acts like a buffer zone between the land and body of water. Pour some water on the land again.** Write down your observations: \_\_\_\_\_

\_\_\_\_\_

**Wetlands are shallow basins that collect water and slow the rate of flow down. This slowing process helps prevent flooding and soil erosion.**

What might happen if a wetland is destroyed and houses or other developments are built in its place? \_\_\_\_\_

\_\_\_\_\_

**Next, pour the water out of the pan and rinse your sponge. Spread soil over the clay, place the sponge back at the base of the clay, and pour some muddy water onto the clay. This represents polluted water.** Write down your observations: \_\_\_\_\_

\_\_\_\_\_

Compare the remaining muddy water in the jar to the water that you just poured. Are there any differences? \_\_\_\_\_

\_\_\_\_\_

**Remove water and sponge and repeat the last step.** What has changed? \_\_\_\_\_

\_\_\_\_\_

**Wetlands are incredibly important features of the environment. Without them a tremendous amount of silt and pollutants would end up in our bodies of water.** How would this pollution affect human health? \_\_\_\_\_

\_\_\_\_\_