

Virtual Festival
Follow Up Activity



Urban Stew

Theme: Water Protection

Curriculum:

- Understanding Earth and Space Systems, Grade 2 (Air and Water in the Environment)
- Understanding Life Systems, Grade 2 (Growth and Changes in Animals)
- Understanding Earth and Space Systems, Grade 3 (Soils in the Environment)
- Understanding Life Systems, Grade 4 (Habitats and Communities)
- Understanding Life Systems, Grade 5 (Human Organ Systems)

Activity Overview:

All water is connected, and we are connected to the water and to the wildlife that live in it. Water is continually moving downstream in a watershed, and as it moves it is being affected by the various land uses and people that border the waterways. In this activity, students will travel through a watershed with a trout to learn about the impacts of various land use practices and non-point source pollution on water quality.

Key Messages:

- Understanding what a watershed is and how water drains to a common stream, river, lake, etc.
- What we do on the land affects water quality (and how storm drains add to this effect).
- There are lots of things we can do to keep our local water body healthy.

Background Information:

You will be looking at a watercourse on the map. This creek is flowing downstream. This creek is part of a watershed. A watershed is an area of land where all the rain water drains to a common river, lake, or stream. We are in a watershed right now. The water that falls outside your window moves from your house to the storm drain and eventually to the river.

The fish you see is a trout. Trout are special because they are very sensitive to water quality. Trout can only live in water that is very clean and cold, especially baby trout. So if we find trout in a stream that tells us that the water is pretty clean.

Vocabulary:

Storm drain - the grate/drain on the road that carries water away from your house so flooding doesn't occur. The storm drain leads directly to a nearby creek or river and the water inside is not cleaned before it gets to its destination.

Watershed - an area of land where all the rain/snow water drains to a common river, lake, or stream.

Materials Required:

- Map of Kettle Creek, printed or on computer screen to look at
- Printed picture of a Trout or view on screen
- Clear container that can hold water
- Measuring cup of water
- Small glasses / containers to hold household items (to represent non-point source pollution)**:
 - 1 Tbsp vegetable oil

- 1 Tbsp bag brown sugar
- A few drops red food colouring
- A few drops green food colouring
- Small amount of Soil
- Small amount of Confetti or small scraps of paper
- 1 Tbsp box salt
- Strainer (to pour dirty water through to stop the confetti from going in the water)

****As an alternative to the household items, a student could gather a variety of materials from outside in nature and use these (and imaginations) to represent the pollution sources e.g. pine needles instead of confetti, sand instead of brown sugar, small pebbles instead of salt...**

Preparation – Getting Ready:

- Pour approximately 2” of clean water into a clear container
- Find a picture of a trout on the computer, print it off (or show it on the screen) so you can reference it in the story.
- Show the picture of the Kettle Creek watershed
- Collect all of the ingredients for the Urban Stew demonstration, and place ingredients in smaller containers.

Looking at the Kettle Creek map, read aloud the following Urban Stew story script. If your school is in a different watershed, you could show a different map (ie. map of the Thames River):

1. This is a story about a trout. Imagine a clean river as it meanders through a protected wilderness area. In this river lives this trout. The trout has lived in this stretch of the river all of his life. Now he decides to go on an adventure and explore the area downstream.

2. The trout swims into farm country. He passes a freshly plowed farm field next to the riverbank. It begins to rain and some soil erodes into the river. (Dump the soil into the bowl.) Discuss the effect. Even though the soil may settle to the bottom of the stream what else may be carried into the stream with the soil (fertilizer, herbicides, pesticides)?

3. The trout nears a suburban housing development. Fertilizer on the lawns gets washed into the river with the rain water. (Place one drop of green food colouring in the bowl.) The fertilizer made the plants in the river grow very fast and thick. Soon, the river couldn't give all the plants the nutrients they needed. The plants have died and are starting to decay. As the plants decompose they use up some of the trout's oxygen.

Explain that the fertilizer entered the river by way of the storm drain. Does anyone know what a storm drain is? Storm drains are the rectangular grates at the sides of roads and in parking lots. They are there so that our streets don't flood when it rains and when the snow melts. Storm drains direct water that runs off our roads and parking lots to underground pipes that take the water right to the closest stream, river or lake. The water doesn't get cleaned before it goes into the river, so it is our responsibility to make sure that we don't spill things onto our roads or property that could get washed into the storm drains.

4. The trout swims under a highway bridge. Some cars travelling across it are leaking oil. The rain is washing the oil into the river below. (Pour small amount of vegetable oil into the bowl.)

5. During a recent cold spell, ice formed on the bridge. The municipality road trucks spread salt on the road to prevent accidents. The rain is now washing the salt slush into the river. (Put salt into the bowl.)

6. The trout swims past the city park. Some picnickers didn't quite get all their trash into the garbage can. The wind is blowing it into the river. (Sprinkle the paper dots into the bowl.) They also had their dog with them, but they didn't "scoop the poop". Now it's raining and it's being washed into the river. (Add brown sugar.)

7. Finally, the trout swims past a hazardous waste dump located on the bank next to the river. Rusty barrels of toxic chemicals are leaking. The rain is washing these poisons into the river. (Squeeze one drop of red food coloring into the jar for every leaking barrel.)

How would you feel if you were the trout?

Reflection and Extension:

1. Did all of the pollution in this water come from one place or many places? (All of this pollution came from many sources, and so we call it non-point source pollution. Point source pollution comes out of a pipe from a place such as a factory or from a farm).
2. What might some of the impacts of the pollution be on human organ systems, or on the growth of plants? (They can disrupt feeding, their ability to have babies, alter their behavior so they avoid areas, it can change the temperature of the water, it can remove oxygen from the water, etc).
3. What are some things that we can do to make sure that the water stays clean for the fish and other animals that live in it, and for humans to drink?
 - Plant trees and shrubs along stream, river, and lakes in order to filter water before it enters the stream.
 - Encourage farmers to plant grass and tree buffers between their fields and the water's edge.
 - Have a pesticide-free lawn.
 - Wash your car at the carwash or on the lawn instead of on the street or driveway.
 - Maintain your vehicles to prevent oil or gas leaks.
 - Pick up litter and pet waste.
 - Take household hazardous waste (e.g., paint, cleaners, motor oil, etc.) to your city's toxic waste dump instead of throwing them in the trash can or dumping them down the storm drain.

Rainbow Trout



Kettle Creek Watershed

