



Modelling a Wetland Activities

I. Wetlands are a Natural Filter

Overview:

Students make a simple model to observe how wetlands act as natural filters for water pollutants.

Pollution of water is when harmful or unnatural materials are introduced to a waterway. Pollution can be in many forms, and pollution happens as a result of human activities.

Broadly pollution can be:

- Organic – too much of some nutrients or natural material (such as fertiliser or sediment) can be pollutants
 - The key is *unnatural* amounts of organic material in waterways where they normally wouldn't be
 - This can come from fertiliser running off farms or gardens, or soil eroding away from riverbanks that have been cleared of trees and vegetation
- Chemical – we use a lot of chemicals in our daily lives such as detergents, engine fuels, etc which end up in waterways
- Physical – rubbish and debris

Wetlands are natural filters for removing these pollutants. Wetlands have many plants, soil structures and animal life which purify water.

This activity shows how a wetland cleans water using a sponge to mimic filtration. You may wish to make one model in advance to use as a demonstration for a whole class if you have younger students.

Age Groups:

Lower Primary

Upper Primary

Materials:

Each group will need:

- Large bread loaf pan (or other large flat dish)
- Large sponge (clean and dry, at least 1/2 inch thick)
- Scissors
- Measuring cup
- 3/4 cup water
- 1 Tbsp. pepper

Instructions

1. Cut the sponge so that it can be pressed into the middle of the pan and fit snugly (you can do this in advance). Be sure the sponge is pressed firmly against the bottom of the pan. (Explain that the sponge represents a healthy wetland filled with plants).



2. Pour the water into the measuring cup. Add the pepper, which represents pollutants.
3. Slowly pour the water into the space on one side of the sponge. Stop pouring if water rises above the top of the "wetland."



4. Slowly tilt the pan so the water flows through the "wetland" to the other side.



Discuss how the water looks when it flows out of the "wetland." Students should notice that most of the pepper is trapped by the sponge. They can observe this by looking at the water as well as by lifting the sponge.

Extension Idea:

Ask students what would happen to the wetland's ability to clean water if part of it were destroyed. Find out by helping students cut away a piece of the sponge, either from one end or from the middle, and repeat the experiment.

2. Wetlands Protect us from Flooding

Overview:

Students perform an experiment to compare the ability of different habitat models to absorb "floodwaters."

Wetlands catch and absorb huge amounts of water. Water collects in wetlands because they occur in naturally shallow basins in the landscape. The soils and plant life in wetlands act like a sponge, collecting water and filtering it down through layers to be slowly released into the landscape and groundwater stores.

This sponge-like function of wetlands provides a buffer from flooding. Wetlands are able to catch and absorb extra water in flood events where other landscapes, such as mountains, grasslands, and urban streets can't. Having healthy wetlands to soak up floodwaters means the effects of flooding are not as bad across these other parts of the landscape.

Age Groups:

Lower Primary

Upper Primary

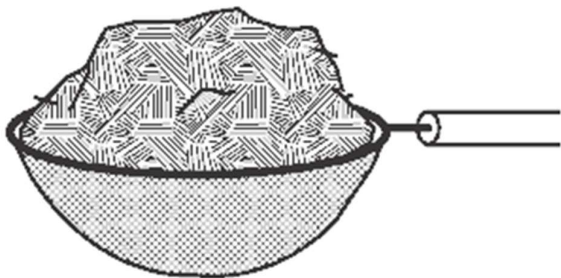
Materials

Each group will need:

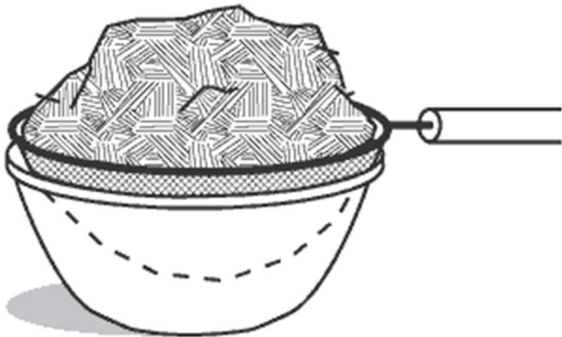
- Cheesecloth/ linen cloth
- Round fish net OR butterfly net OR sieve OR colander
- bowl
- measuring cup
- sphagnum moss
- water timer or clock
- grass w roots + soil
- sand
- large rock

The students can collect different soils and plants from outside to do this experiment. Rocks, sand and grass are suggestions but they should ensure they have some absorbent examples such as moss (with soil/bark attached), and collect enough to fill the net/sieve/colander they are using.

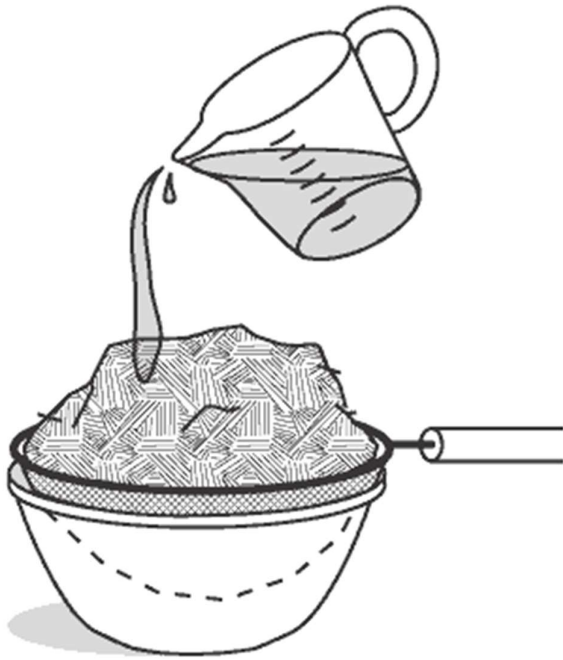
1. Press a piece of cheesecloth inside a fish net.



2. Rest the net on the rim of a bowl as shown.



3. Fill the net with a handful of sphagnum moss.
4. Fill a measuring cup with water to the 1-cup mark. Pour the water into the net with the moss. Wait 30 seconds.



5. Remove the net from the bowl. Pour the water from the bowl back into the measuring cup. Record how much water is in the cup.
6. Clean the moss from the cheesecloth and replace it in the net.
7. Repeat Steps 4 through 6, testing the sod, sand, and rock samples.

When students have completed the experiment, ask the following questions: Which material is the best at absorbing water? (Moss.) How do you know? (It allowed the least amount of water to flow into the bowl.) Which material absorbed the least water? (Rock.) What can you say about replacing plant-filled wetlands with paved surfaces? (The ground cannot absorb as much water, which makes the effects of flooding worse.)

Adapted from http://www.ehow.com/info_7959424_science-projects-watersheds.html#ixzzIsGd8KlgY