

Pond Ecology

Washing Your Water

Post-visit activity, grades 4+

Adapted from Hooked on Science, S. Sewall, 1990

Objective

Students will design and test a water cleaning device and discuss the hazards of water pollution. Students will consider the natural filtration of wetlands.

Materials

(will vary depending on experiments designed)

- Milk cartons
- Rocks
- Plastic or wire mesh
- Egg cartons
- Paper cups
- Sand
- Cotton balls
- Pieces of cloth
- Rubber bands
- Coffee filters
- Sawdust
- Funnels
- Pop bottles
- Dirt
- Water
- Beakers
- Scale

Procedure

1. After a discussion on water pollution and water resources, challenge your class to create a water cleaning device that can effectively remove dirt from water.
2. Divide the class into groups of three to four and allow them to research and discuss ideas for their device.

3. Post the contest rules:

Students will make a device that removes 10 grams of dirt from 250 ml of water. You may set a time limit or allow the experiments to sit overnight.

The device must return at least 125 ml of water to the collecting jar.

4. Mix 15 grams of dirt with 250 ml of water for testing in each device.

Rate each device by the following scale:

Clear - 10 to 9

Mostly clear - 8 to 7

Slightly dirty - 6 to 5

Dirty - 4 to 3

Very dirty - 2 to 1

No change - 0

NOTE: The water will not be drinkable at any time.

5. Define wetlands as places where water saturation is the dominant factor determining the nature of soil and types of plant and animals that can live there. Explain that natural wetlands filter pollutants from water. Ask students to brainstorm how plants that live in wetlands could help filter and clean water moving through them. As it flows over and through soil (especially spongy, plant-rich wetland soil), water filters through spaces among particles and around plant roots and vegetative matter. This process slows the movement of water and helps curb erosion as it traps pollutants. Compare successful student-designed water cleaning devices with natural plant characteristics.