



FREDDY THE FISH INSTRUCTIONS

(Recommended for grades 2 through 5)

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OBJECTIVE

Students will be able to understand the many factors that can cause water pollution. Students will also be able to visualize how pollution affects water quality and aquatic life.

RECOMMENDED AUDIENCE AND SETTING

This activity is suited for students in grades kindergarten through fifth grade. It can be performed indoors or outdoors at water days, fairs, or in school classrooms.

ACTIVITY

Time Required: 15 to 20 minutes, depending on the depth of instruction.

MATERIALS NEEDED

- ▶ A fishing lure, plastic fish or sponges in the shape of a fish.
- ▶ Small, plastic fishbowl or aquarium.
- ▶ Water for fishbowl or aquarium.
- ▶ Small plastic bottles to hold contaminants.
- ▶ Contaminants:
 - Fine soil – represents sediment.
 - Black food coloring or chocolate syrup – represents motor oil.
 - Small pieces of shredded paper – represents litter.
 - Instant coffee or potting soil – represents animal waste.
 - Green food coloring or gelatin mix – represents fertilizer.

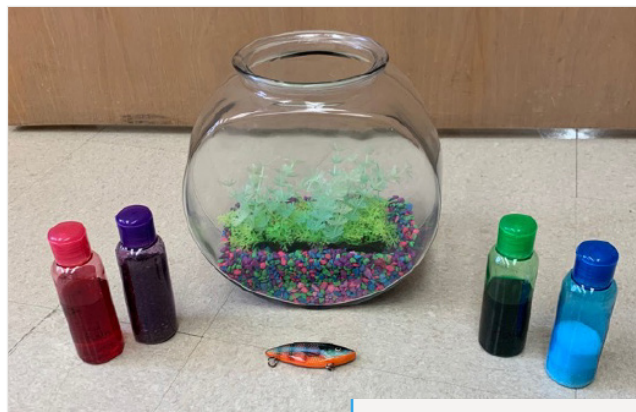


Figure 1. Materials Needed.

PREPARATION

Put a small fish in the aquarium. Fill the aquarium half full of clean, clear water. Gather all contaminants for easy access during the presentation (Fig. 1).

GETTING STARTED

Introduce yourself and tell students that today's lesson is about water quality and water pollution. **Say, "water pollution is a very serious issue that we face every day and it is important that we all understand how water gets polluted." Ask, "what does what pollution mean to you?" Say, "water pollution can come from many different places. In cities, the number one reason that our creeks, rivers, and streams get polluted is that when it rains, water carries different types of pollutants into the storm drains. Storm drains are rectangular openings you see by the curb along the streets. Ask, "what kinds of things can flow into storm drains?" Say, "today we are going to learn how pollution affects *Freddy the Fish*."**

Place the aquarium with *Freddy the Fish* at the front of the classroom. Ask students to observe how clear the water is and point out the physical appearance of *Freddy*. Tell the *Freddy the Fish* story. For each contaminant, add a small amount of the material into the container.

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THE FREDDY THE FISH STORY

“There is a new building being built near the stream where *Freddy* lives, and the trees have all been cut down. Because the trees have been cut down, the soils begin to erode or wash away when it rains. The water carries this **sediment** down the street, into the storm drain, and then into *Freddy’s* stream.” **SPRINKLE SOIL INTO THE AQUARIUM.** “Disturbed soil needs to be controlled by putting something around the soil to keep it from running into the storm drain.”

“Have you ever seen **motor oil** on the streets or in parking lots? If oil is not cleaned up properly, it gets picked up by the rain, heads down the street, and goes into the storm drain and *Freddy’s* stream. Yuck! Oil can clog *Freddy’s* gills, making it hard for him to breathe.” **SPRINKLER BLACK FOOD COLORING OR CHOCOLATE SYRUP INTO THE AQUARIUM.** “Some cars and parking lots need to be maintained properly so the motor oil will not be picked up by the rain and carried down the storm drain.”

“Does anyone have pets at home? Have you ever picked up after your pet? Cleaning up **animal waste** is not very fun, but it is important to pick it up and put it into the trash. If you leave it on the ground, it can be washed into the street and storm drain when it rains—eventually ending up in *Freddy’s* stream!” **SPRINKLE SOME INSTANT COFFEE OR POTTING SOIL INTO THE AQUARIUM.**

“People should clean up after their pets. Leaving animal waste on the ground is not a very responsible thing to do.”

“Do you have a green grass in your yard? **Fertilizer** is put on the ground to help grass grow healthy and green. Sometimes, people put too much fertilizer on their lawn and when it rains much of the fertilizer is carried away. Rain can then carry this fertilizer into the storm drain and into *Freddy’s* stream.” **SPRINKLER SOME GREEN FOOD COLORING OR GELATIN MIX INTO THE AQUARIUM.**

“It is important to not put too much fertilizer on the ground. There are other options that can be used, such as composting or using natural products that can help you have a healthy, green yard.”

FOLLOW UP QUESTIONS

1. How do you think *Freddy* feels?
2. What other plants or animals would be affected by water pollution?
3. How does the water look now compared to before it was polluted?
4. What are some signs that water may be polluted?
5. Is it safe to drink or swim in polluted water?
6. What can you do to keep creeks, streams, and rivers clean?

OPTIONAL ACTIVITY

Have students to draw a picture of *Freddy the Fish* swimming in a polluted stream.