

**Project FOCUS
Best Lessons
FIRST GRADE**

Title of Lesson: Water Pollution with Freddy the Fish

Theme: water pollution

Unit Number: **Unit Title:**

Performance Standard(s) Covered (enter codes):

Earth Science

S1E1

S1E2

Enduring Standards (objectives of activity):

the students will identify the different types of pollutants present in our water supply

the students will identify the ways man pollutes our water supply

the students will determine the harmful effects of our careless habits

the students will state the effects water pollution has on plant and animal life

the students will be able to define the term pollution

Content (key terms and topics covered):

pollution

oxygen

wastewater

hazardous waste dump

poison

river

downstream

soil

fertilizer

oil

salt

garbage

Learning Activity (Description in Steps)

First, we will go through the “hook” activity, which will involve discussing what water pollution is.

Next, we will begin the “Freddy the Fish” activity. After attaching the string and washer to the sponge fish, the teacher will put Freddy the Fish inside the empty soda bottle.

Then, the teacher will fill the soda bottle 3/4 full of water.

The teacher will begin to tell the story of Freddy the Fish. As the story progresses, the teacher will add the “pollution” at each step of the way and ask how Freddy is doing. It may be helpful to ring a bell or have a visual cue for the students so they know when it is time to move on to the next part of the story.

The Story of Freddy the Fish

- Imagine a clean river as it runs through a protected wilderness area. In this river lives Freddy the Fish. How is Freddy? Freddy has lived in this stretch of the river all his life. But now he is going on an adventure and travels downstream.
- Freddy swims into farm country. He passes a freshly cut riverbank. It begins to rain and some soil runs into the river. (Dump soil into Freddy's jar.) How is Freddy?
- Freddy nears a housing development. Some fertilizer from the lawns washed into the river awhile back. (Place brown sugar in Freddy's jar.) The fertilizer made the plants in the river grow very fast and thick. Eventually the river could not give them all the nutrients they needed, and so they died and are starting to rot. Because they are rotting they are using up some of Freddy's oxygen. How is Freddy?
- Freddy swims beside a large parking lot. Some cars parked on it are leaking oil. The rain is washing the oil into the river below. (Pour pancake syrup into Freddy's jar.) How is Freddy?
- During some cold weather, ice formed on a bridge. County trucks spread salt on the road to prevent accidents. The rain is now washing salty slush into the river. (Put salt in Freddy's jar.) How is Freddy?
- Freddy swims past the city park. Some picnickers did not throw their trash into the garbage can. The wind is blowing it into the river. (Sprinkle paper dots into Freddy's jar.) How is Freddy?
- Several factories are located downstream from the city. Although there are laws or rules that limit the amount of pollution the factories are allowed to dump into the river, the factory owners are not following them. (Pour warm soapy water into Freddy's jar.) How is Freddy?
- The city's wastewater treatment plant is also located along this stretch of the river. Also a section of the plant has broken down. (Squirt two drops of red food coloring into Freddy's jar.) How is Freddy? (Giving an example of what wastewater is may be helpful as some students may not know the term. The teacher can say that wastewater is water that goes down the toilet and/or the water that goes down the drain after you wash your hands.)
- Finally, Freddy swims past a hazardous waste dump located on the bank next to the river. Rusty barrels of poisonous chemicals are leaking. The rain is washing these poisons into the river. (For each leaking barrel, squeeze one drop of green food coloring into Freddy's jar.) How is Freddy?

After we finish the story of Freddy the Fish, we will ask the students to list the "bad things" that Freddy had to swim through. We will also ask where these pollutants came from and how they affected Freddy.

Materials Needed (Type and Quantity):

- 1 plastic two or three-liter clear soda bottle 3/4 full of water
- 1 sponge cut in the shape of a fish
- 1 piece of thin string
- 1 washer
- small amounts of soil, pancake syrup, salt, paper dots, brown sugar, soapy water, red and green food color
- a copy of the "Freddy the Fish" story

Notes and Tips (suggested changes, alternative methods, cautions):

I did this activity in three separate groups therefore, I was more time efficient with three bottles, three sponges, three washers, etc.

Sources/References:

- 1) my teacher gave me this activity
- 2) http://pan.intrasun.tcnj.edu/501/projects/Cruz/water_pollution.htm

