

Experiment and Materials

Freddy the Fish is a good visual experiment to do with children to illustrate the effects of pollution on water sources. To do this experiment, the teacher reads or has the children read the story of Freddy as written below. At the end of each section is a direction to add something else to the water to simulate pollution. After each item is added, the class can discuss the effects or the teacher may choose to wait until the end.

Each group will need:

- A sponge fish
- A jar with water in it
- Soil
- Brown sugar
- Syrup
- Salt
- Paper dots
- Soapy water
- Red food coloring
- Green food coloring

Imagine a clean river as it meanders through a protected wilderness area. In this river lives Fred the Fish. How is Fred? Fred has lived in this stretch of the river all his life. But now he is going on an adventure and travel downstream.

Fred swims into farm country. He passes a freshly plowed riverbank. It begins to rain and some soil erodes into the river. (Dump soil in into Fred's jar.) How is Fred.

Fred nears a housing development. Some fertilizer from the pastures and lawns washed into the river awhile back. (Place brown sugar in Fred's jar.) The fertilizer made the plants in the river grow very fast and thick. Eventually the river could not furnish them with all the nutrients they needed, and so they died and are starting to decay. Their decomposition is using up some of Fred's oxygen. How is Fred?

Fred 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 Fred's jar.) How is Fred?

During a recent cold spell, 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 Fred's jar.) How is Fred?

Fred swims past the city park. Some picnickers didn't throw their trash into the garbage can. The wind is blowing it into the river. (Sprinkle paper dots into Fred's jar.) How is Fred?

Several factories are located downstream from the city. Although regulations limit the

amount of pollution the factories are allowed to sump into the river, factory owners are not abiding by them. (Pour warm soapy water into Fred's jar.) How is Fred?

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 Fred's jar.) How is Fred?

Finally, Fred swims past 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. (For each leaking barrel, squeeze one drop of green food coloring into Fred's jar.) How is Fred?

Taken from Gammar, Debbie. (1997). *Environmental Teaching Guide Vol. 2*. TNRCC. pg. 35-36.