

The Story of Frannie The Fish

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How does pollution hurt Frannie and other fish like her?

Frannie loves to tell her story! Follow the instructions below to make Frannie's story come to life! Fish, like Frannie, need cool, clear water to live in. One sunny, summer day Frannie decided to go on an adventure! Learn about water pollution and how it can affect a clear stream and eventually make it unhealthy for wildlife such as Frannie. The story begins on a day when Frannie left her shady, cool pool and headed downstream.

Key Topic: Surface water, Wildlife, Water quality, Contamination/pollution prevention

Grade Level: K - 6 (For younger audiences, consider using fewer contaminants and/or excluding some of the more complex contaminants [acid rain for example])

Duration: 30 minutes

Objectives:

Learn about fish habitat, water quality, and how pollution can affect the health of fish and other wildlife. Learn ways you can help reduce potential contamination risks.

Items Needed:

- Frannie: a fishing lure - one that looks like a fish, with hooks removed, preferably a weighted or sinking lure that is colorful. Frannie is on a fishing line suspended in a gallon jug or fish bowl of clear water.
- Gallon jug, fish bowl, or small fish aquarium.
- Gravel for the bottom of the bowl/aquarium (optional).
- Fishing line.
- Pencil or ruler placed on the top of jar to hold Frannie suspended halfway in the jar, underwater.
- 10 small containers to hold contaminants. See provided list of items needed for the contaminants.



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Items Needed for the Contaminants:

1. Sediment - Potting soil, sand, or gravel mix
2. Manure - Raisins, dry beans, or chocolate-puff cereal
3. Fertilizer - Green powdered drink mix
4. Road Salt - Denture cleaner, antacid tablet, or ice cream salt
5. Litter - Torn paper and plastic bits
6. Motor Oil - Vegetable oil or baby oil
7. Acid Rain - Cider or white vinegar tinted orange with food dye
8. Pesticide - Baking soda or salt mixed with instant coffee or tea
9. Leaking Storage Tank - Film canister or similar small container with a cracked/open lid with red/blue food dye and water
10. Industrial Waste - Liquid dish soap, hand soap, or lotion, and nails or screws

Activity Steps:

Introduce Frannie. Use as much humor and animation as possible. Make Frannie the same age as your audience and get the students to appreciate how bored Frannie is stuck up in the headwaters of a clean, cold stream and how she wants to go on an "adventure." Ask students if Frannie should go exploring, etc. Make her into a lively, adventurous fish. Talk about Frannie's home. Use a local river or stream as Frannie's home to make the story more real to the students. The students will love Frannie and be motivated to keep her home clean!

Sample Intro:

"This is my friend Frannie. Can everyone say hi to Frannie? Today I am going to help tell Frannie's story. She doesn't talk very loud and sometimes the words are hard to understand through the water. Frannie is 7 years old and sometimes she gets bored in her home, Holmes Lake. Do you ever get bored and wish you could go some place else? Well, Frannie thought she should go on an adventure. Let's go along with Frannie on her adventure."



Begin Frannie's Adventure!

"Frannie leaves her shady, cool pool and heads downstream on her adventure.

After a little while, Frannie noticed that the sun was shining and the stream was no longer as cool and dark. She looked out of the water and saw that all the trees had been cut down and sediment (soil) from the banks was washing into the water."

Add first item to bowl - sediment: Ask a volunteer to sprinkle some sediment over the water and allow it to settle over Frannie.

Topics to discuss: Do you like to get sand in your gills... eyes? Fish breathe through gills. The sandy grit from the soil can hurt fish gills. The sediment can also cover rocks where fish lay their eggs, making it difficult for new fish to hatch.

'Oh no! Poor Frannie!' (The students can repeat this every time something "bad" happens to Frannie.)

"After a while Frannie poked her nose out of the water and do you know what she saw? Big black and white animals coming down to visit her. Cows. As they walked into the water they stirred up mud and left some smelly 'presents.'"

Add second item to bowl - manure: Ask a volunteer to pour in the raisins and let them sink.

Topics to discuss: Animal waste can be harmful to aquatic life. Decomposing animal waste uses up oxygen and releases pollutants (like nutrients, phosphorous, and ammonia) in the water. Fish like Frannie are not able to survive without enough oxygen and cannot survive with the added pollutants in the water.

'Oh no! Poor Frannie.'

"Frannie continued to swim downstream, but was no longer feeling very well. Frannie swam by a home with a very green yard. This homeowner had not read the instructions and applied too much fertilizer."

Add third item to bowl - fertilizer: Ask a volunteer to sprinkle green powdered drink mix into the bowl.

Topics to discuss: Did you know, fertilizers can wash off the grass from rain or watering and run off into the stream? Fertilizer is food for plants. It is often given to plants so they can grow bigger and faster. Fertilizer will also make plants and algae in the water grow. Too many plants in the water can be bad for fish like Frannie.

'Oh no! Poor Frannie.'



"Frannie wasn't ready to go home and continued to swim downstream. Frannie noticed that the river had a salty taste. It was early spring, right after all the snow and ice melted, and the road salt that had been applied during the winter to keep the roads safe ran into the stream with the melting snow."

Add fourth item to the bowl - road salt: Ask a volunteer to pour in the salt.

Topics to discuss: Road salt can help melt ice and is good for traffic safety but bad for wildlife, trees, and water under the ground. Have you ever gotten salt in a cut? Ouch! Have you ever drank salt water? Did you like it?

'Oh no! Poor Frannie.'

"Frannie began to swim faster to escape the salt."

Downstream Frannie passed a picnic site. Someone left their trash behind. Right then, a big gust of wind came and pushed most of the trash right into the stream. Frannie doesn't like this mess at all! Frannie tried to push the litter out of the stream but couldn't get it all with her little flippers."

Add fifth item to bowl - litter: Ask a volunteer to add the litter into the bowl with Frannie.

Topics to discuss: What is a more responsible action you would do instead of leaving trash behind?

'Oh no. Poor Frannie!'

"She continued to swim downstream. Determined to continue her adventure."

Frannie heard a lot of commotion up on the bank of the stream. She peeked out of the water and saw an overturned oil truck. Some of the oil from the truck had spilled into the stream!"

Add sixth item to bowl - oil: Ask a volunteer to pour in the vegetable oil.

Topics to discuss: Oil can harm wildlife like Frannie by coating her scales and clogging her gills, if this happens she would have trouble breathing. Oil can also coat Frannie's food.

'Oh no. Poor Frannie.'

"As Frannie continued to swim away from the oil spill, she noticed storm clouds overhead. The rain that began to fall into the stream from the storm clouds wasn't clean water. Frannie's scales begin to itch!"



Add seventh item to bowl - acid rain: Ask a volunteer to pour vinegar dyed with food coloring into the bowl.

Topics to discuss: When air pollutants react with water drops this can cause rain to be polluted. This is called acid rain.

'Oh no! Poor Frannie.'

"Frannie passed a leaky, rusty old barrel. An unknown substance was leaking out. An old factory dumped the tank into the river many years ago. But now the barrel was leaking. As Frannie swam by she took in a gulp of water."

Add eighth item to bowl - leaky storage tank: Ask a volunteer to add the small container with a cracked lid, filled with colored water to the bowl.

'Oh no! Poor Frannie!'

"Frannie swam as quickly as she could away from the leaky storage tank. Frannie was starting to get a little tired. She yawned and tasted something funny. Yuck! The land nearby had recently been sprayed for bugs. Some of the spray, called pesticides, had gotten into the stream."

Add ninth item to bowl - pesticide: Ask a volunteer to add the baking soda and instant tea mix.

'Oh no! Poor Frannie.'

Topics to discuss: Pesticides help protect our food from bugs, but if too much is applied it can kill the bugs that Frannie likes to snack on.

"Frannie kept on swimming and almost ran into a big chunk of metal that was in the stream!"

Add tenth item to bowl - industrial waste: Ask a volunteer to add the dish soap and nails.

'Oh no! Poor Frannie.'

"Frannie was exhausted from her wild day. She was ready to go back home to her cool, clear pond!"

Topics to Discuss: Fish, especially Frannie and her other aquatic friends, like cool, clean water to live and play in. They like vegetation along the bank to shade the water and keep it cool. The cooler the water the more oxygen for her to breathe. Plus, insects and leaves from vegetation fall into the water providing food for Frannie and her friends.

What can you do to help keep Frannie's home and all water clean?

