The Turbidity Test

Activity Purpose

In this lesson you will explore the effects of sediment on turbidity; compare the turbidity of muddy and clear water; and investigate ways to reduce erosion that leads to turbidity in rivers.

Pre-Activity Questions:

1. What is erosion? Write your best guess below.

2. What is turbidity? Write your best guess below. It's okay if you're not sure. You will learn about it in this lesson.

3. Have you ever seen a strip of grass in or along a crop field? Why is it there? What does that have to do with turbidity? Write your best guesses below.

Materials

Provided are a clear cup, a second clear cup with a lid and material inside. You will need a glass of drinking water and a paper towel.

Activity

Separate the two cups. Pour enough water to fill the empty cup half full.

Remove the lid from the cup with the material in it and pour the water from the cup you just filled half way into the cup with the material. Put the lid back on it. Now you have one empty cup and one cup that is half full of water with material in it and the lid on it.

Hypothesize: What do you think is going to happen to the water when you shake the cup with water and material in it? Write down your hypothesis below.

Holding the lid securely on it, shake the cup of water with soil in it for fifteen seconds.

Set it down and wait one minute to let it settle. Do not shake it again.

Was your hypothesis correct? What happened when you shook the container?

You may or may not have something floating on top. Notice the suspended particles (makes it cloudy) and the heavier materials at the bottom.

Carefully pour the liquid into the empty cup, leaving the solid particles in the first cup. It's okay if a little bit of liquid stays in the solids cup. Just do the best you can.

Put the lid on the cup with the liquid in it and set it on your chart next to circle A. Compare the color of the liquid to the color on the circles and continue down the row until you find the best match.

What could be happening in a stream with the amount of turbidity that is in your cup of water? Look at the chart below for possible answers.

What is the thick material in the other cup?

Erosion is everywhere. It may be very little or a lot, depending on the conditions. Soil, like the thick material in this activity, is an important natural resource. Plants, animals, and people depend on good soil.

What are ways to slow erosion on an agriculture field?

What are ways to slow erosion from construction sites?

What are ways to slow erosion along a stream?

Glossary

Conservation Practices: Cultural, mechanical, or structural activities that tend to sustain a natural resource such as soil or water for perpetual use. These activities work in a way to regenerate the natural resource in such a way that it can be used over and over without wearing out.

Erosion: The geological process by which the surface of the earth (soil, rock) is worn away by the action of water, glaciers, winds, waves, etc.

Soil: The upper layer of earth in which plants grow. The color can range from black, grey to red or reddish brown. It is made up of sand, silt and clay sized particles along with organic matter from decaying plant material.

Turbidity: The state or quality of being clouded or opaque, usually because of suspended matter or stirred-up sediment, similar to smoke in air. The measurement of turbidity is a key test of water quality.

This activity is an adaptation of *The Big Muddy* in *Discover a Watershed; The Missouri* provided to Shawnee County Conservation District by Kansas Association of Conservation and Environmental Education.