

The Turbidity Test Activity - Answers to Questions

Pre-Activity Questions:

1. What is erosion?
The washing away of the surface of the ground. Put differently, it is the geological process by which the surface of the earth (soil, rock) is worn away by the action of water, glaciers, winds, waves, etc.
2. What is turbidity?
When water in a pond, lake, ocean, stream or river is cloudy, not clear. The degree to which it is cloudy is described as its turbidity.
3. Have you ever seen a strip of grass in or along a crop field? Why is it there?
The strip of grass is there to trap sediment from leaving the crop field. Sediment is a result of soil dislodged in the crop field due to the process of erosion.

What does that have to do with turbidity?

Most of the cloudiness or turbidity seen in water is due to sediment suspended in it. A grass strip would help trap sediment, keeping it out of the water. The result is less turbidity.

Post-Activity Questions:

What could be happening in a stream with the amount of turbidity that is in your cup of water?

The chart representing levels of turbidity (**A to E**), below it is some outcomes for plants and animals found in the stream. People and animal using the stream also can be affected by the amount of turbidity. For humans to drink the water, work has to be done to clean it up to make it acceptable for consumption. Turbidity level (**A**) would take a significant amount of effort to make the water safe to drink.

What is the thick material in the other cup?

In the water that was poured off, it is the smallest of soil particles that is making the turbidity in the water. Soil is made of the basic particle sizes. Sand (the largest size), silt (medium size) and clay (the smallest). In swift moving water, all three sizes make up what is visible. As the water slows, the sand and silt sizes tumble along or are deposited in the bottom of the stream or water body. The thick material after pouring the water off is soil made up of mostly sand and silt soil particles with some clay.

What are ways to slow erosion on an agriculture field?

The first approach is to provide growing plants and crop residue to intercept raindrops from directly hitting the soil surface. If it hits the soil surface it will cause the soil to splash up. Succeeding rain drop then washes the soil away. Next if the soil does start to wash away, use methods to slow the speed of the water and to trap the sediment on the field. The use of terraces, grassed waterways and grass filter strips are a few methods that will do this.

What are ways to slow erosion from construction sites?

Much the same approach as agricultural land. Bare soil erodes at a significantly higher rate compared to soil protected by plants or some other kind of cover. But where in an agricultural field the effort starts at the top of the field, construction sites the work begins at the bottom. With the unknowns found with construction schedules, a sediment basin or silt fence is generally installed first. Bare soil is then seeded to a temporary cover of grass or other means to protect it.

What are ways to slow erosion along a stream?

Maintaining a filter strip of trees and/or grass along a stream will slow erosion. There are structural means in some cases but it can be very expensive.