



Exploring Erosion



Raccoon Creek Explorers Activity #13

Supplies:

- Empty 2L Bottle x3
- Enough soil to fill all 3 bottles
- scissors
- 3 plastic cups or containers
- Tape
- Garden shovel
- Grass or other plant with roots still in tact
- Scraps of mulch, leaves, rocks or twigs
- Water
- Table or elevated surface



Vocabulary:

Soil: is the combination of organic matter, minerals, gases, liquids, and organisms that together support plant life.

Erosion: the process of eroding or being eroded/ destroyed by wind, water, or other natural agents

Sedimentation: process of settling down of the heavier particles present in a liquid

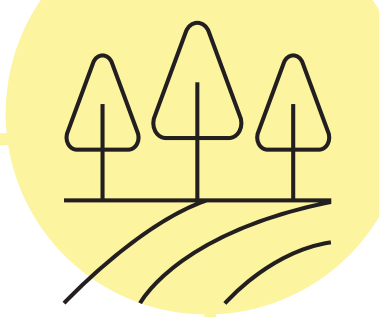
Detritus: Waste or debris of any kind

Compaction: The exertion or force on something so that it becomes more dense

Background:

Soil erosion occurs when wind, water or other natural agents wash or push away top soil. With increasing habitat destruction through deforestation there is also an increase in erosion. This is a problem because soil is washed into waterways increasing pollution and sedimentation in streams and rivers, and causes a decline in fish and other species. Without forested land there is less soil compaction. More compact soil is less likely to erode as fast as loose empty soil. Adding detritus or planting trees in the soil can help lesson erosion and prevent pollution.

In this activity, you will be able to observe how soil compaction effects erosion rate.



Let's Get Started:

- 1.) Cut out a large rectangle on one side of the 2L bottles using scissors.
- 2.) Tape the plastic cups to the side of the table in a line and line up the bottle neck with the cups. Later water will pour out the bottle and be collected in the cups.
- 3.) Collect grass by using a garden shovel to dig up a small patch of grass with the roots intact. Collect small detritus like leaves and sticks.
- 4.) Fill all 3 bottles with soil. One will have just loose soil, one with soil and detritus on top, and one with soil and planted grass.
- 5.) Pour water evenly over the surface of the soil in each bottle and observe the amount of soil flowing out of the bottle and into the collection cups.



Reflect:

How does this activity compare to the actual situation of rain eroding soil?

What would happen if you used a different type of soil? What about using plants with longer or thicker roots?

Which cup had the most dirty water at the end of the experiment and why?

Apply:

Where does the eroded soil go in reality?

Why does more compact soil erode slower than loose soil?

How can we slow soil erosion in reality?

Wrap-Up:

Soil compacted with plants and detritus help to slow erosion. Clearing land for farms or buildings makes the soil less compact, which in-turn makes soil more likely to erode faster and cause pollution in waterways.

