

Roots are Underground Superheroes

Weathering, Erosion & Deposition Series

Experiment

Safety

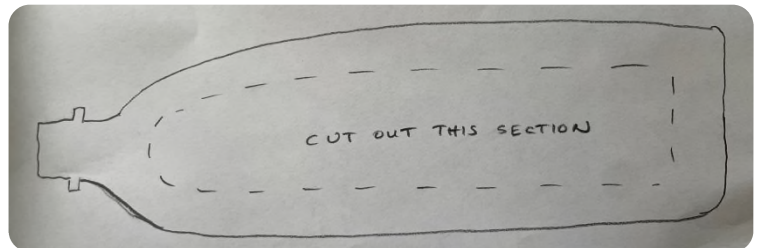
Adult supervision or assistance may be required. Wash your hands after handling the soil.

Aim

In this experiment we will explore the role of plants and leaf litter in reducing weathering, erosion, deposition, and turbidity.

Materials / Equipment

- 3 x 1.5L plastic bottles
- 3 clear cups
- Soil
- 1 packet of Cress seeds
- A large handful of leaf litter (collected from your garden)
- A large tray
- A measuring cup
- Water
- A cardboard box
- Gloves, a mask and safety goggles (optional)



Method (Part 1)

1. Cut long windows on the 3 bottles to look like the images above. Ask an adult to help.
2. Place the 3 x 1.5L plastic bottles with their lids on the tray. Their windows should be facing up. Put soil in all three bottles. Gently press the soil down. The top of the soil should be just underneath the neck of each bottle.
3. Label one bottle: Soil.
4. Label your second bottle: Leaf litter. Spread a large handful of leaf litter across the soil so that you can no longer see the top of the soil.
5. Label your third bottle: Plants. Sprinkle cress seeds across the surface of the soil. Gently water the seeds.
6. Place the tray in a sunny position inside or outside. Water the "Plants" bottle daily for one month and watch the seeds grow.

Method (Part 2)

1. Place a cardboard box on the centre of your table.
2. Place the tray holding the bottles on top of the cardboard box.
3. Place three, clear cups on the table so that they are directly under the neck of each bottle.
4. Take the lids off your bottles.
5. You are about to add water to each of the bottles. Some of the water and soil will stay in the bottles and some will go into the cups.



Make a hypothesis by circling your choices.

The [Soil / Leaf Litter / Plants] cup will have the dirtiest * water.

The [Soil / Leaf Litter / Plants] cup will have the least amount of water.

6. Pour two cups of water into each of the bottles and observe what happens.

Results

Record the results in the table.

	Soil	Leaf Litter	Plant
Describe the dirtiness/cloudiness* of the water in the cups.			
Describe the amount of water in the cups.			

*The term for water that is dirty and cloudy with lots of sediments is high turbidity.

Conclusion

Use these words to complete the sentences below.

roots	leaf litter	plants'	most	least	soil
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The _____ cup has the cleanest water and the least water. It had the _____ weathering, erosion, deposition, and turbidity because the _____ hold the soil and water in place.

The _____ cup has the dirtiest water and the most water. It had the _____ weathering, erosion, deposition, and turbidity because there are no roots to hold the soil and water in place.

The _____ cup has less weathering, erosion, deposition, and turbidity than the soil cup, but more than the plant cup.

Did you know?

Special Areas are protected lands surrounding some of our water supply dams. They help to protect our drinking water. They are homes for native plants and animals including many endangered species. There is little human impact on these Special Areas.

Special Areas have lots of leaf litter, trees, and other plants with amazing roots. They work together like a superhero team to hold our soil and water in place.



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