



Classroom Activity

Big Question: How will we conserve species diversity?

Soil erosion after fire

As fire sweeps through an area it not only burns all the living vegetation, but also the accumulated leaf litter on the ground. In this activity, you'll witness the effect of this loss on erosion by water.

For this activity you will need:

- Three empty and clean large plastic bottles with lids on. Rectangular 2 L juice bottles work well as they won't roll around.
- Three clear plastic cups
- Scissors and/or a knife to cut the plastic bottles
- Modelling clay
- Regular garden soil
- Leaf litter or mulch
- A section of turf or grass
- Water
- Measuring jug
- Small watering can

Set up

1. Cut a rectangular section of plastic from the length of each bottle such that you retain the bottle neck and bottle bottom and the cut sides are higher than the neck. These are your soil troughs.
2. Place the bottles lying down so that the trough is facing up and fill all three with the same amount of soil.
3. Cut the turf to fit the bottle trough and press into the surface of the soil. You may need to remove some soil from this bottle so that the turf can be accommodated depending on how much is clinging to the bottom of your turf. Spread a thick layer of leaf litter on the surface of another of the bottles and leave the third bare. This third bottle will mimic the soil surface after a fire.
4. Carefully place the three bottles together on a table, ledge or on low box on a table. Raise the end of the bottle slightly using modelling clay so that it will drain towards the neck. Position a cup under the spout of each bottle. If you're using a low box to elevate your bottles from a table, these may just be lined up on the table underneath the spout. If you are using a ledge where there's no surface to hold your cups below you can easily attach string handles to your plastic cups and hook them over each spout to form catchment buckets.

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5. Remove the bottle lids and clear out any debris from the cups that may have fallen out in the process.

The experiment

1. Measure out 100 ml of water (or more/less depending on the size of your bottle) and, using the watering can, pour this over the surface of the soil only bottle towards the bottle bottom end. Pour equal amounts into the remaining two bottles.
2. Wait a couple of minutes for the water to drain through.

What do you observe? What are the differences between the contents of the cups (colour, sediment, amount of liquid)? Explain these outcomes. Which trough do you think would erode fastest?

This can be the end of the experiment, or water can be added repeatedly over the next few days or weeks to see the ongoing result.