

Slope Erosion and Prevention

Materials:

2 Baking trays	Soil	Water
Measuring jug	Watering can	Ruler
Gardening gloves	Small plants with roots (optional)	Sticks, bark, leaves, small rocks, mulch, books or bricks



Instructions:

- 1 Fill the trays with soil and press it down with your hands to flatten it a little.
- 2 Prop the trays up at one end by placing a stack of books or bricks underneath them. Make one tray with a gentle slope. Make the other tray with a steep slope.
- 3 Measure out the amount of water (rain) you would like to fall on one soil slope and add it to the watering can.
- 4 Pour the water onto one of the slopes, taking notice of the height that you pour it from, and observe what happens.
- 5 Repeat steps 3 and 4 on the other soil slope. Remember to pour the water (rain) from the same height as the first slope.
- 6 Next, create a mound of soil on a flat area.
- 7 On one side of the mound, cover it with sticks, bark, leaves, small rocks or mulch. If you have small plants, place them in this side of the mound too. Leave the other half of the mound with bare soil.
- 8 Measure out some water into the watering can and pour it on to the mound. Observe what happens.
- 9 Empty the trays and repeat steps 1-3 but this time place sticks, bark, leaves, small rocks or mulch over the soil.
- 10 Measure out the same amount of water (rain) you poured on the soil slopes before and add it to the watering can.
- 11 Pour the water onto the slopes from the same height as before and observe what happens.

Safety Note:

Always keep soil away from your eyes, ears and mouth. Make sure you wash your hands carefully after touching soil.

Modifications:

- Use a cup instead of the watering can. Poke a hole near the base of the cup and place a straw in the hole. Seal around it with modelling clay. Place the cup at the top of the sloping trays with the straw facing down the slope. Add water to the cup and observe the changes to the soil.
- Replace the trays with stiff cardboard or planks of wood.

Explanation:

Erosion is the process of gradual destruction or wearing away by wind, water or other natural sources. The tray of bare soil with the steepest slope should have lost more soil. This is because the water moved faster and carried more soil with it. The steeper the slope the more erosion.

The side of the mound covered with sticks, leaves, small rocks or mulch saves the soil underneath from erosion. The side of the mound with bare soil washes away.

Roots from vegetation can help prevent erosion because they reach down into the soil. This helps to make slopes sturdier and hold the soil in place. They also help break the fall of rain drops, easing the erosion from above and they catch soil that is blown by the wind.

