

## 29. Vegetation and its effects on rates of erosion

### Aim

Erosion is a park management concern. Erosion can occur naturally but is more often accelerated by human action. This activity allows students to investigate the process of erosion and the effect vegetation has on erosion rates.

### Materials

- Boxes or long trays of soil the same size.
- Watering can.
- Stopwatch.
- Funnel.
- 2 beakers, with millilitre measurements ranging to 1 litre.
- 2 stands (or even bricks) which can hold the boxes of soil at a constant diagonal angle.
- 2 litres of water.

Or

- Two banks or sloping area of land in the school ground. One should be grassed and one should be bare soil.
- Water from garden hose (timed amount of water).
- Device to measure water runoff at the bottom of both slopes.

### Activities

1. Conduct the following experiment.

Step 1: Angle both the boxes to form a steep slope. Make sure the notches are facing the lowest end of the incline.

Step 2: Arrange the funnel under the boxes' notch, and place the beaker under the funnel.

Step 3: Pour 1 litre of water via the watering can into the upper area of the box.

Step 4: Wait 30 seconds (using the stopwatch) for the water to trickle through the funnel and into the beaker, removing the container after 30 seconds.

Step 5: Repeat the previous three steps to the other box, attempting to pour the other litre at a similar speed. Use the other beaker to catch the water. You may need to use extra water but keep a record of the volume.

2. In pairs keep a record of the process occurring in each box. Write this into your record book. Measure the volume of water in each beaker. Which has the most runoff and why?

3. What were the differences between the speed of water flow at both sites?

4. What would happen if the water speed was increased on both sites?

5. Compare the colour of the water in the two beakers. Note which has more suspended solids.

6. RETURN TO THE EXPERIMENT.

Step 6. Pack the soil down solidly in the tray with no protection.

Step 8. Repeat the experiment. Note the process occurring. Note the amount and speed of runoff and the colour of the water in the beaker.

7. What conclusions could you make about the effect of compaction of the soil on water runoff and erosion? What factors cause this to happen?