

## 31. Soil compaction effects on erosion

### Aim

To compare the success of revegetation on compacted compared to non-compacted sites.

### Materials

- Two soil trays.
- Grass or wheat seeds that easily germinate.
- Resource sheet 31: Erosion and vegetation.

### Activities

1. Set the soil trays flat with all protection removed. One will contain compacted soil, the other should be neatly dug and raked.
2. Sprinkle the seeds over both surfaces. Water them in lightly with a fine spray.
3. Keep these watered regularly. The seeds should germinate after a week, depending on temperature and care conditions.
4. Record the rate of germination of seeds in both trays.
5. What conclusions can you make about the effect of compacted soil on vegetation establishment?

### GENERAL CONCLUSIONS

1. Read the resource sheet: Erosion and vegetation. Together with your conclusions from the experiments answer the following questions.
2. Why might exposed areas of soil be a concern in areas where wind and water erosion can occur? Describe what could happen here?
3. Where does runoff that also carries increased levels of solid particles eventually go in a natural area? Why might this be a problem?
4. What might happen on an exposed section of soil if there was a storm and very heavy rainfall?
5. Discuss in groups the ways in which you might solve erosion problems in a natural area. What other factors would you need to know? Report back to the class. Take a note of possible solutions to this problem.



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## 31. Erosion and vegetation

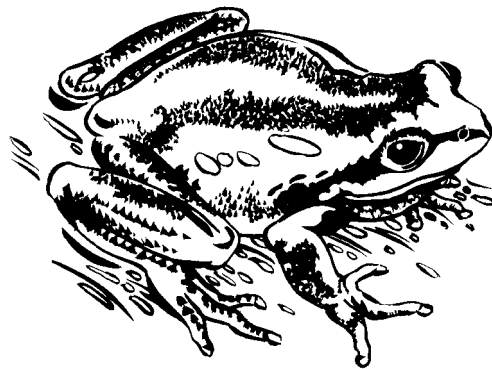
**EROSION** can be defined as the removal of material usually soil and rock particles by wind, water, ice and other means.

The speed with which water runs off a slope is determined by the volume of water, how steep the slope is, and how much water can be trapped by the soil. When water runs down a slope, it picks up loose soil particles, gaining speed. The movement loosens soil particles, which increases sediment in the runoff.

**COMPACTION:** Any process by which soil loses air spaces in its mass and becomes more dense or solid. The most common means of compaction is by animals, humans, or vehicles continually moving over the one site.

Once soil becomes less porous its ability to absorb water is decreased. Plants get less water and will eventually die. It also means that when it rains, water will runoff at a faster rate because very little is being absorbed by the soil.

**TURBIDITY:** A measure of the amount of suspended solids (or soil particles) in water. As soil is eroded the particles get transported into streams and rivers, lakes, and finally the sea. Other nutrients, minerals and even litter can also be transported in this process. When rivers receive too much sediment, turbidity increases and suspended solids block out sunlight, so affecting plants, algae and animals living in the water.



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