# 12. Run-off surfaces

## Summary

Students construct different surfaces to observe differences in run-off and absorption levels.

## Key Learning Outcomes

| | |
|---|---|
| SOSE | Geography 5.2 |
| Science | Earth and space sciences 3.1 |
| | Chemical Science 4.1 |
| | Earth Science 5.2 |

## Aim

To develop students understanding of permeable and impervious surfaces and the impact human change to surfaces can have on environments.

## Materials

- Plastic bottles (1.25L or 2L soft drink bottles are ideal)
- Stanley knife (use with adult supervision)
- Soil
- Grass/plants such as mondo grass
- Mulch material
- Stones
- Measuring jug
- Water
- Activity sheet 12a: Run-off records
- Activity sheet 12b: Run-off comparisons

*NB: Mondo grass, a low growing grass-like plant, is readily available from nurseries.*

## Advanced preparation

Collect bottles, grass/plants, soil, mulch, water, stones.

Photocopy the Run-off record sheet.

## Activity

1. Prepare three plastic bottles by cutting the base off each, as shown in the diagram on the next page.
2. Use the top half of each to create three different 'surfaces' to test. Fill one bottle with soil. Plant out with mondo grass or similar. Cover any bare soil with at least 10mm of mulch material.
3. Fill another bottle with soil mixed with a few stones. Cover this with a thin layer of mulch material (5mm).
4. Fill a third bottle with stones with very little soil.

   Teacher could prepare these three samples for younger students.
5. Sit each simulated 'surface' into the bottom half of a cut bottle (as shown).
6. Using a measuring jug, pour 250ml of water onto each 'surface'.
7. Time how long it takes for the water to percolate through each 'surface'. Students record the results on activity sheet 12a. Which took the longest?
8. In small groups students complete the questions of activity sheets 12a. Discuss the results and questions as a class.
9. Students complete activity sheet 12b.