Investigating soils

Measuring the moisture content of soil

The moisture content of a soil sample can be easily calculated by older classes. Children record the weight of their soil samples. These samples are then placed in an oven for an hour and weighed again. The process is repeated until there is no change in weight as all the moisture has evapourated. The moisture content is calculated by finding the difference in the first and final weight. It may be expressed as a percentage. If no oven is available samples can be placed on a sunny window ledge or near a radiator. The process of evaporation may be observed by placing a clear plastic bag over the sample. However it must be quickly removed to maintain the process.

Remember to remove all animal life before drying out the samples.

3. Measuring the permeability of soil

The permeability test determines whether soils allow water to permeate their surface or to run off. Consideration can be given to the implications this has for the suitability of this soil for farming and gardening.

Procedure

- Discuss the meaning of the term permeability
- Distribute soil samples as above with some droppers and water
- Discuss the importance of carrying out a fair test (amount of water, time allowed for soakage)
- Children record their predictions on the task card
- Teacher models the permeability test
- Children carry out the test and record their findings on the task card
- Discuss with the children the implications of this for gardening/farming practices

This test may be used to observe the effects of soil compaction on permeability. Children repeat the experiment having firmly pressed down each soil sample and observe the difference in results. The effects of soil compaction in the environment may be observed during Science habitat studies or on a walk in the school grounds. Compaction causes soils to become water-logged and grass cover to become poor or to disappear. The children list possible reasons for grass loss; children and adults taking short cuts across a lawn, cycling on grass, cars parking, overuse for football games etc. Pupils construct a map of the area and suggest possible ways to encourage conservation thus linking the Strand, Environmental awareness and care.

<table>
<tr><td colspan="4">Drop some water onto each sample and record if it soaks in (permeable) or runs off (non-permeable)</td></tr>
<tr><td>Soil sample</td><td>Predict</td><td>Test</td><td rowspan="2">The most permeable sample is</td></tr>
<tr><td>1</td><td></td><td></td></tr>
<tr><td>2</td><td></td><td></td><td rowspan="2">The least permeable sample is</td></tr>
<tr><td>3</td><td></td><td></td></tr>
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