Cress Rainforests

A science experiment to show the effect of deforestation on the soil

You will need:

John Innes loam-based seed compost
4 boards or solid squares of plastic (they will need to be carried outside later)
A water sprayer
2 packets of cress seed
Scissors
Watering cans with a fine rose

What to do

Pupils will make four mountains out of compost and plant them with cress seeds. After about a week, when the cress has grown, they will water them with watering cans to see the effect of water on differently planted soils.

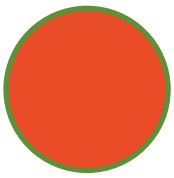
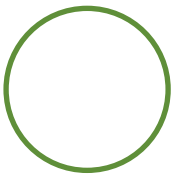
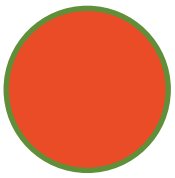
A fair test

The cress seeds will be the variable

Some suggestions:

Draw a circle on each board so that all the hills are the same size
Make sure there are no lumps in the compost
Weigh the compost
Where cress is sown, sow it thickly
Water the mountains every day with the same amount of water in the sprayer
Ensure the mountains get the same amount of light whilst growing

Sow the seed as follows:

			
Mountain 1 all over	Mountain 2 none at all	Mountain 3 over one half only	Mountain 4 all over

Once the seed has grown, cut the cress on mountain 4 to represent deforestation. Water each mountain in turn, using the same amount of water and holding the watering can at the same height for each mountain. This represents the rain.

Ask pupils to observe, record and discuss what is happening. They could take photographs or films of the process.

What can you expect?

Mountain 1 The rainforest mountain – it still has all its trees

The canopy of leaves prevents the rain from hitting the soil so there will be hardly any erosion. The roots will also hold the soil but pupils may not notice this yet.

Mountain 2 The deforested mountain – the trees and roots have all been cleared

This mountain will wash away as there is nothing to hold the soil.

Mountain 3 The partly deforested mountain

There will be a landslide on the unplanted side of the mountain, leaving the roots of the planted half clearly visible. This shows how the roots also hold the soil in place.

Mountain 4 The harvested mountain

The trees have been cut down and the roots are still there to hold the soil but the canopy has gone so there will be some erosion. As the roots die however, they will be less able to hold on to the soil.

Repercussions of Deforestation

The canopy of trees helps to keep the forest warm at night and stops it getting too hot during the day. The loss of the canopy can be harmful to animals and plants as the temperatures change.

Some people have lived in or near rainforests for generations and depend on it for food and medicines. When the forest is cut down they can lose everything, including their homes.

Sometimes people may lose their homes in a landslide, as pupils will have observed in Mountain 3 or 4. This has historically been a particular problem in Mbale, Uganda, where Size of Wales has one of their projects.

Trees absorb carbon dioxide - the main greenhouse gas causing global warming. Fewer forests mean larger amounts of greenhouse gases remaining in the atmosphere and increased speed and severity of climate change.

The soil can be dried out by the sun and turned into a desert if trees are cut down.