

Water in the Soil

Experiments designed to help students think about water and air in the soil.

Equipment:

- Variety of soil samples
- Magnifying glass / microscope
- Squeeze bottle – eg old detergent bottle which will allow small amounts of water to be added to soil
- Lots of plastic cups
- Nail for making hole in bottom of plastic cups
- Blotack
- Pebbles
- Bucket to catch water
- Ruler
- Texta
- Paper towel
- Timer

Activity 1:

- Look at 3 different soils through a magnifying glass. Can you see any air spaces? Which soil has most air spaces?

Activity 2:

- Take a handful of one soil and make it into a ball. Poke a hole in the ball of soil with your finger, then fill the hole with water. What happens to the water?
- Do the same for 2 other soils
- Record what happens.

Developed from ideas from British Society of Soil Science Soil Safari

Activity 3:

- Put a hole in the bottom of a plastic cup. Use Blu-tack to cover the hole on the outside of the cup.
- Fill the cup with pebbles. The pebbles are a bit like giant sand particles. What is in the gaps between the pebbles?
- Add water to the cup until half of the pebbles are covered with water. What happens to the water when you pour it into the cup?
- Pick up the cup and hold it over a bucket. Remove the Blu-tack plug. What happens to the water?

Activity 4:

- Mark the half way mark on 6 plastic cups
- Make a hole in the bottom of 3 of the cups with a large nail, then cover each hole with a circle of paper towel.
- Fill the cups to the half way mark with different soils
- Balance each cup in the top of a larger container - jam jar, bigger cup etc
- Fill the other 3 cups to the half way mark with water
- Pour half a cup of water into each cup of soil
- Time and record how long it takes for the water to start dripping out of the bottom of the cups
- Time and record how long it takes for all the water to drip through the soil?
- When the cups have stopped dripping lift them off the container and pour the water back into the plastic cup. Is there more or less water than you poured into the soil?
- Is there the same amount of water in each cup?
- Why do you think this is?
- What colour is the water that has been through the soil?

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