



Soil

Investigating
the Characteristics
of Soils

twinkl

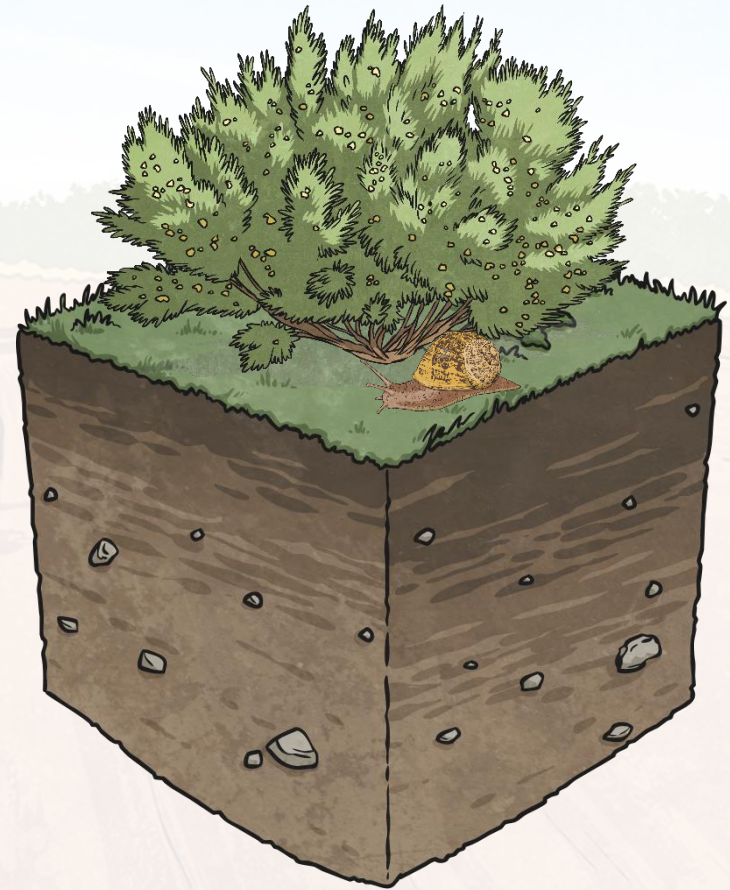
Do You Think There Is Only One Type of Soil?

There are different types of soils. Soils can be different because it depends on:

- the type of rock they were made from;
- the plants, animals or other organisms that live in or near them.

Did You Know?

Even soils that feel dry have water in them. It's just that the water is not available for plants to use.



Soil Senses

Collect some soil from different places and use your senses to examine it. Explain what you can:

- **see** - use a magnifying glass or sieve;
- **feel** - use your fingers;
- **hear** - rub the soil onto paper or between fingers.

Remember to be safe around soil.

It is important to:

- always wear gloves;
- always wash your hands;
- keep the soil away from your nose and mouth;
- not smell or taste the soil.



Classifying Soil by Colour

Did You Know?

You can tell a lot about soil by just looking at its colour.



Black or Dark Brown

This soil can usually grow plants easily and is fertile.

Plain Brown or Yellow

This soil has a low level of nutrients and organic matter making it more difficult to grow plants. It is not very fertile and mulch or compost would need to be added to make it more fertile.

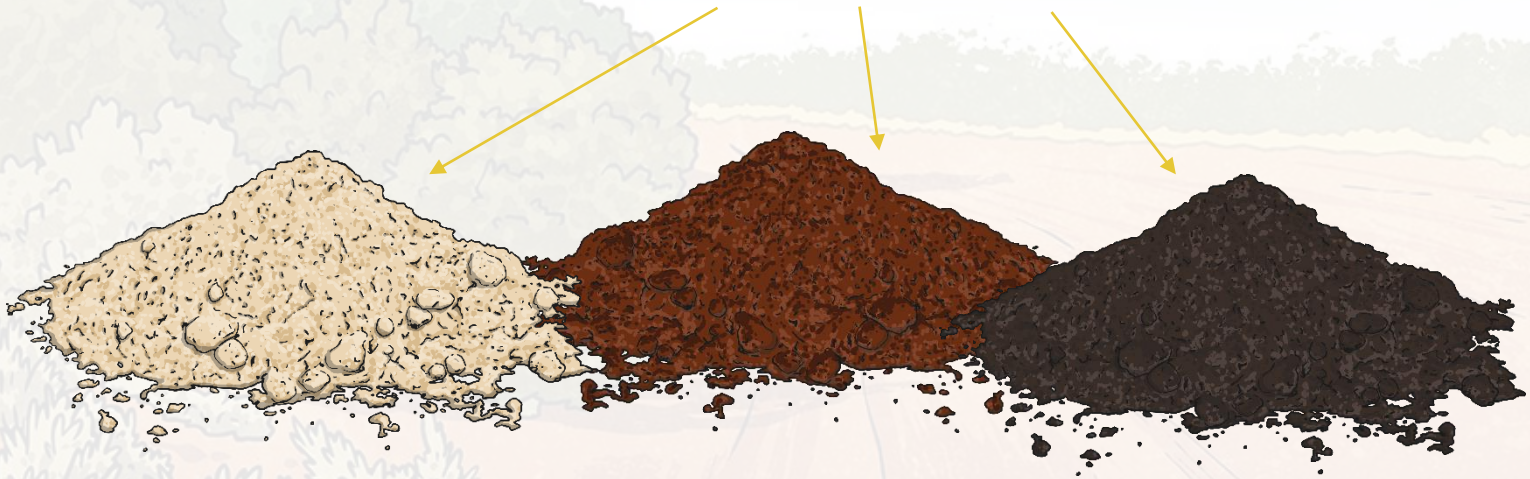
Red

The red colour is because oxygen reacts with the minerals, such as iron, which can make the soil look a reddish, 'rusty' colour. This soil has been exposed to the weather for a long time and will drain water well. To help plants grow, this soil must have nutrients and organic matter added to it.

Classifying Soil by Texture

Another easy way to classify soil is by its texture.
Soil texture means how coarse or fine a soil is.

This means finding out how much **sand**, **silt** and **clay** it contains.



You can find out soil texture by using the **ribboning technique**.

Ribbon Test

You Will Need:

Soil samples

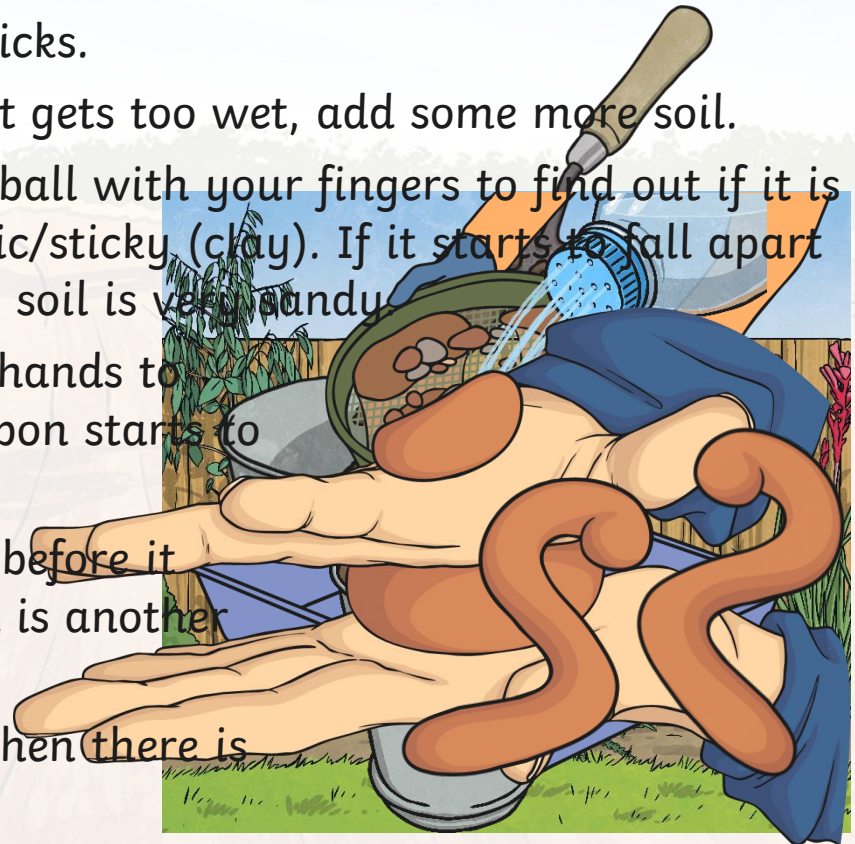
Water



Ribbon Test

Method:

- Get soil samples from different parts of your garden or school surroundings. A small handful of soil should be enough.
- Take out any leaves, stones or sticks.
- Slowly add water to the soil. If it gets too wet, add some more soil.
- Roll the soil into a ball. Feel the ball with your fingers to find out if it is gritty (sand), silky (silt) or plastic/sticky (clay). If it starts to fall apart and you cannot make a ball, the soil is very sandy.
- Next, roll the ball between your hands to start making a ribbon. If the ribbon starts to fall apart, you have sandy loam.
- If you can create a short ribbon before it starts falling apart, then the soil is another type of loam.
- If you can make a long ribbon, then there is definitely clay in the soil.

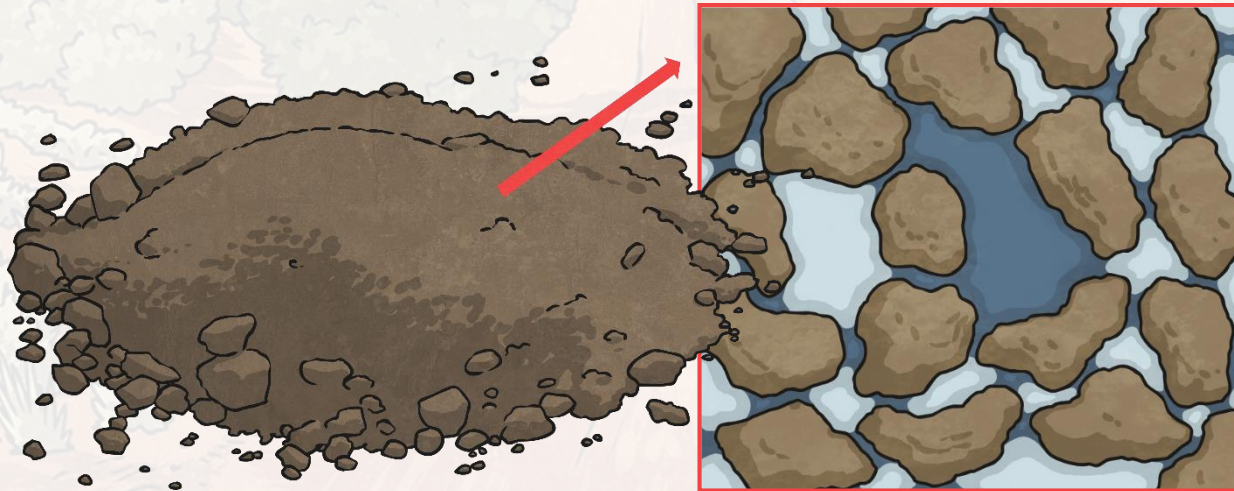


Ribbon Test

Did You Know?

The best soil texture for growing plants is loam, which is a mixture of clay, silt and sand.

Usually the more clay and silt in the soil, the more water the soil can hold. This is because the silt and clay are made up of smaller particles than sand. Sandy soil holds lots of air; clay soil holds a lot of water, but has no much room for air.

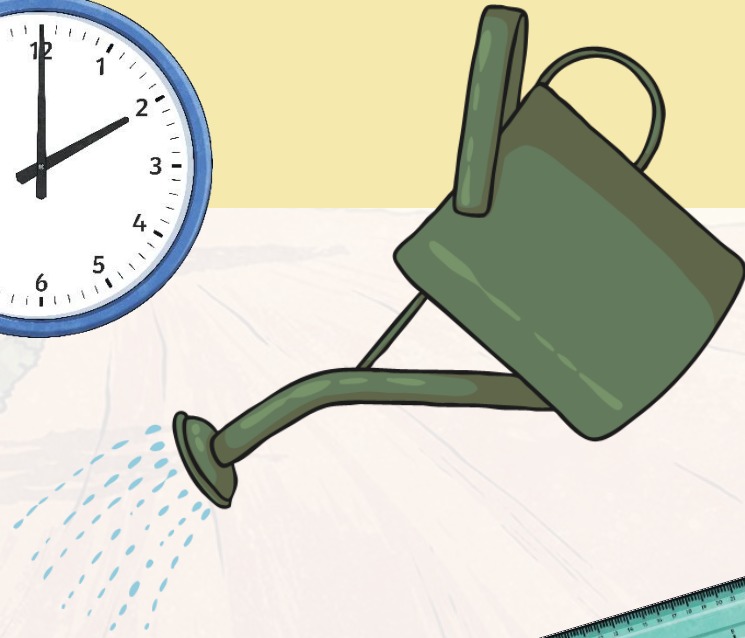


Soil Drainage Test

Drainage Test (Percolation Test)

You Will Need:

shovel or spade
clock
water
ruler

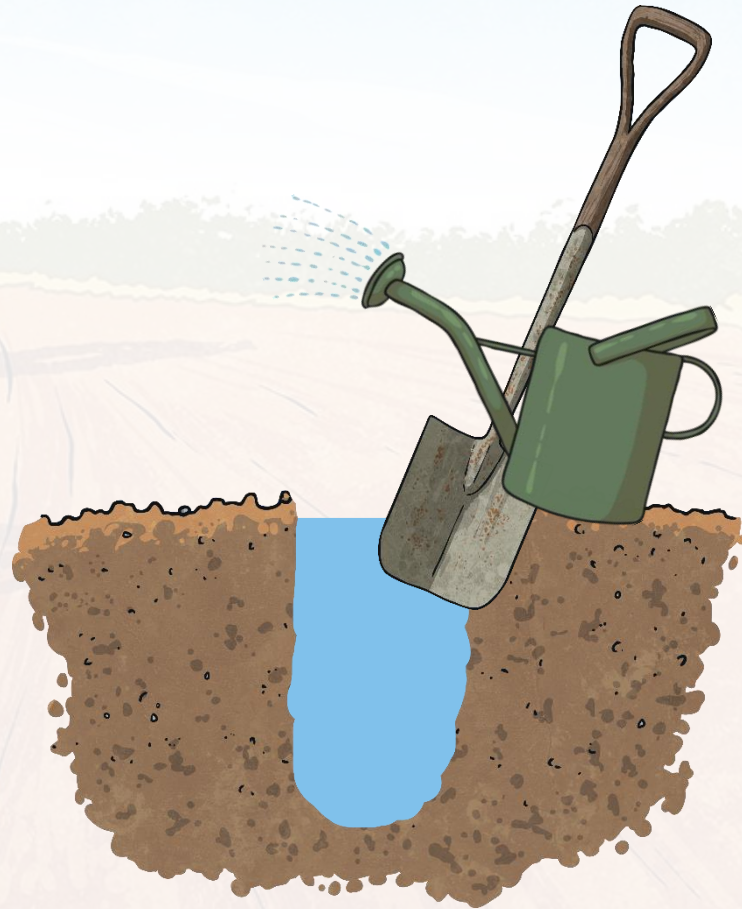


Soil Drainage Test

Drainage Test (Percolation Test)

Method:

- Dig a hole about 40cm deep and at least 15cm wide in the soil you want to test.
- Fill the hole up with water and leave it to drain overnight.
- Fill the hole with water again. This time carefully watch how fast the water drains.

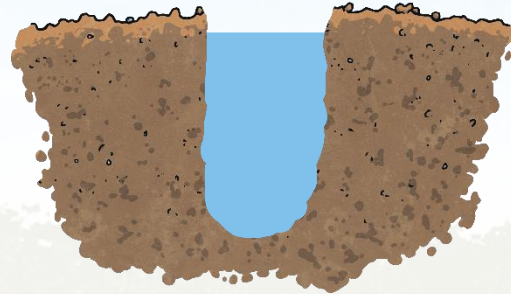


Soil Drainage Test

Drainage Test (Percolation Test)

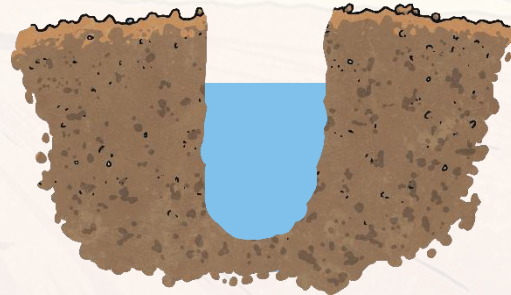
Poorly-drained

Water level does not drop and stays the same for longer than an hour.



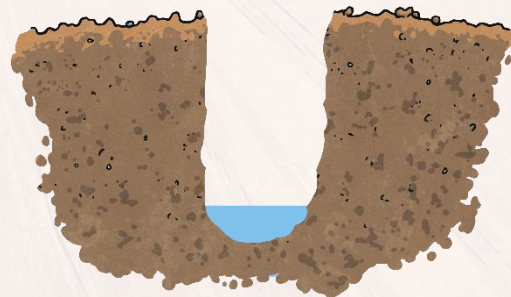
Moderately well-drained

After about an hour the water level drops by a couple of centimeters.



Very well-drained

Drains within a few minutes.



Australian Soil

Most of the soil in Australia is old, does not have much nutrients and takes a long time to form. This is because:

- there is not much water available for weathering rocks to make soil;
- there is only a small amount of plant life covering the land so decaying plants do not add much organic matter, making soil formation slow.

Places that have had past volcanic activity usually have fertile soil. The Liverpool Plains in New South Wales has fertile volcanic soil that is ideal for growing plants.





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