



Soil Formation

Soil

What is soil?

What is soil
made from?



What Is Soil Made Of?

Soil is the uppermost layer of the Earth. It is a mixture of different things.

Air

Soil contains gases such as carbon dioxide, oxygen, nitrogen, methane and radon.

Water

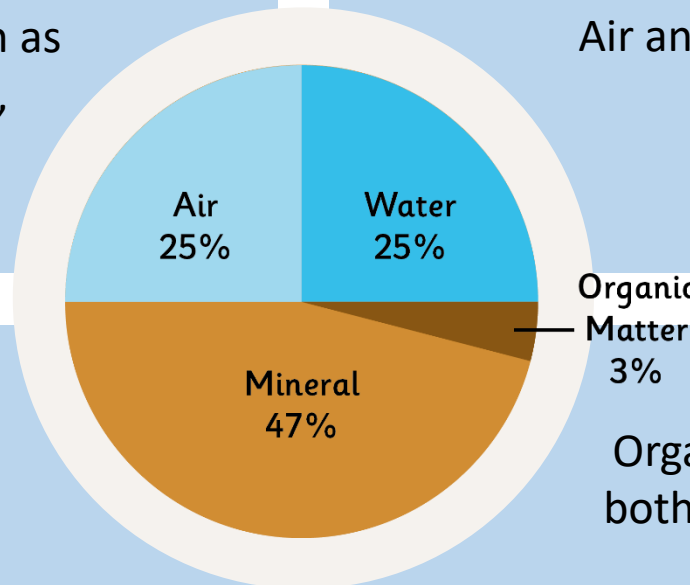
Air and water fill the gaps between particles of soil.

Mineral

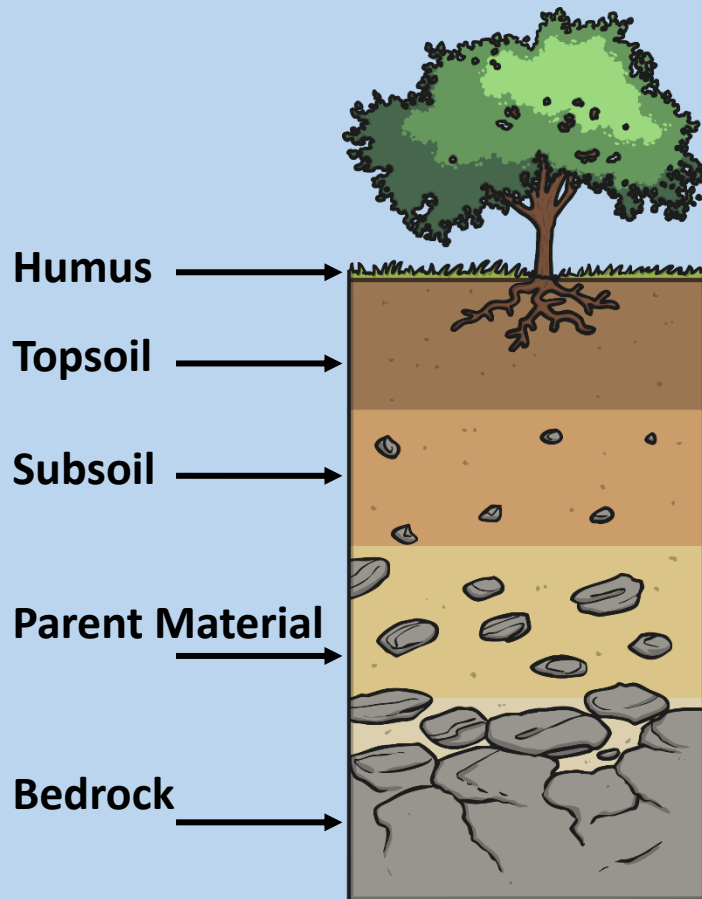
The minerals in soil come from finely broken down rock.

Organic Matter

Organic matter includes both living and decaying animals and plants.



Layers of Soil



Humus = is the very thin top layer which is made up of dead leaves and animals.

Topsoil = is where most of the nutrients are found and is where plants grow their roots.

Subsoil = is made up of sand and clay that has not been fully broken down.

Parent Material = is mostly rock. Only the biggest tree roots grow down here.

Bedrock = is the lowest level of soil. It is rock.

Soil Formation

There are 4 main processes involved in soil formation:

Additions



Losses



Translocations



Transformations



Soil Formation

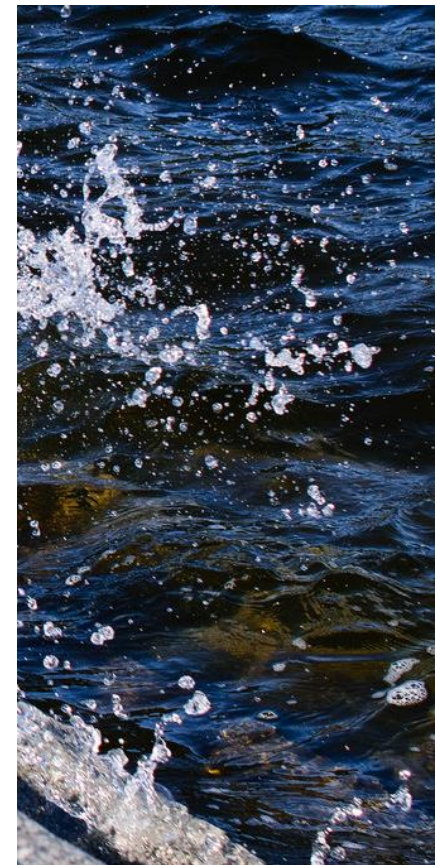
Additions

Rainfall adds water.

Dust adds minerals.

Animal waste adds organic matter and nutrients.

Decaying plants and animals add organic matter which act as a natural fertiliser.



Soil Formation Losses

Water evaporates (turns into gas when hot) and is lost into the air.

Soil particles can be lost by washing away in storms.

Organic matter can be lost by turning into the gas carbon dioxide.

Nutrients and Minerals are lost when they are taken up by plants and can drain into groundwater.



Soil Formation

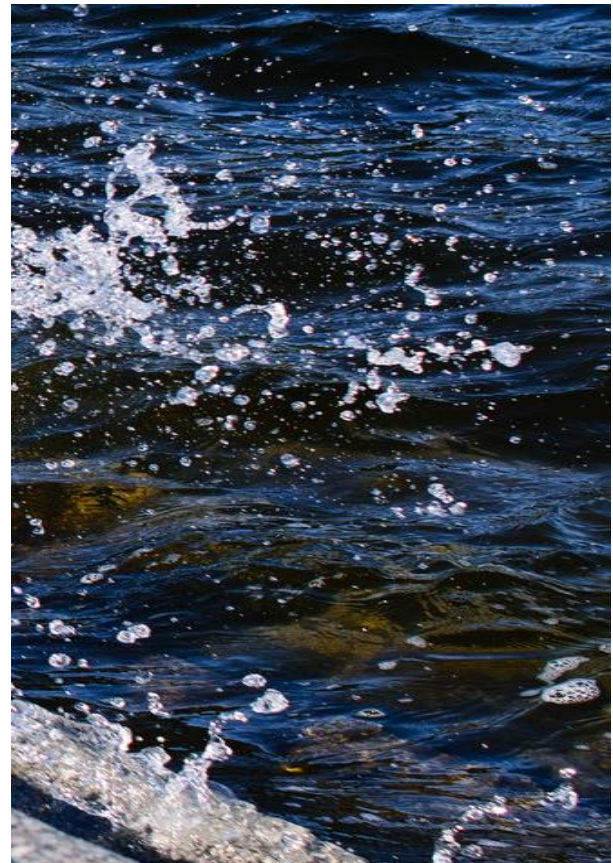
Translocations

Translocations are movements within the soil.

Gravity pulls **water** down from the top of the soil to the bottom.

Evaporating water draws the **minerals** up from the bottom to the top.

Animals living in the soil move the soil around in every direction.



Soil Formation Transformations

Transformations occur when something changes into something else.

Humus is what is left when dead leaves decompose.

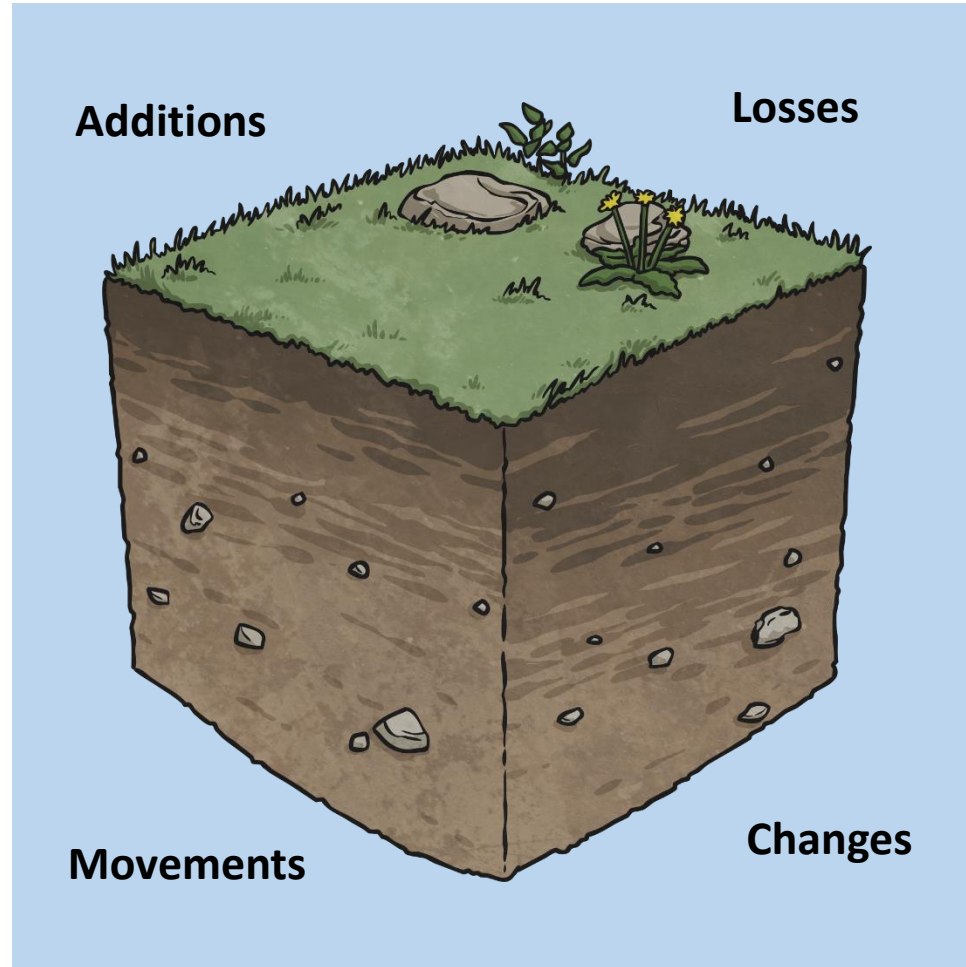
Weathering causes hard rock to erode and turn into smaller and smaller pieces of rock.

Oxygen reacts with minerals such as iron which can make the soil look a reddish, 'rusty' colour.



Soil Formation

All four processes are taking place at the same time, all of the time!



Compost

Compost is organic matter that has been decomposed so that it can be recycled as natural fertiliser.

Many people choose to have a compost bin at home, as it is more environmentally friendly way to recycle food waste, rather than throwing it away.

It also means they can create their own fertiliser for soil in their garden or for plants, rather than buying it.



Activity: Soil Layers

Create a diagram or model showing the different layers that soil is made up of. You can use the activity sheet provided on the school website or create your diagram/model in another way. Here are some ideas:

