

# Find out why the stuff beneath our feet is far more than mud

## What is soil?

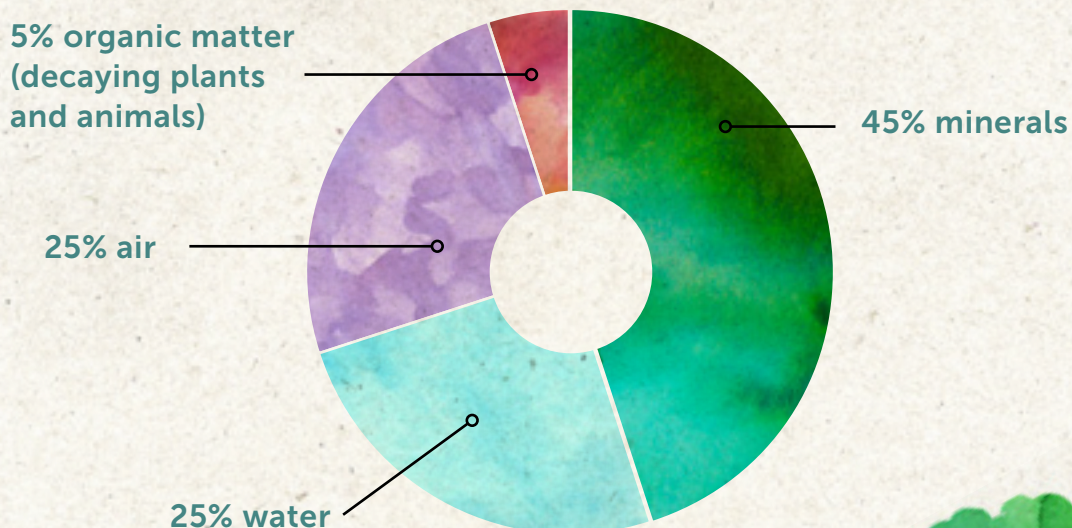
Soil is the top layer of the Earth's crust and where plants grow. It is formed from a mixture of mineral and organic matter that contains air, water, and micro-organisms. It provides a place for plants grow, a habitat for animals, and storage for water.

Many processes take place in soils including the recycling of nutrients, purification of water, and exchange of gases with the atmosphere. Soil is vital to life on Earth.

Soil is formed when rock is broken up by ice, frost, wind, and water over many years, this process is called weathering. Plants take root among the rock fragments and bind them together. When plants and animals die, they fertilize the soil. Soil takes hundreds of years to form, but it can be destroyed very quickly by bad farming methods and climate change.

A small patch of soil just 1 sq. m in area can hold a billion living things. These include insects, spiders, worms, centipedes, mites, fungi, and tens of thousands of bacteria.

## What is an average soil sample made up of?





### **Just what is underneath our feet?**

Plants, leaves and things like twigs that are on top of the Earth are called organic matter or humus. As we mentioned earlier, soil is formed from rock. Bursting with worms, fungi and teeming with bacteria, topsoil is where a plant's roots take hold. Topsoil is what we all probably think of as soil, it is the crumbly mud found in our gardens, parks and outdoor spaces.

Immediately below topsoil is the subsoil. Subsoil is full of less organic matter and is made up of sand, silt and weathered rocks. It is rich in minerals and less weathered than topsoil. As the name suggested weathered rock fragments are pieces of rock from which soil is developed and the final soil layer is bedrock, this is a solid mass of rock such as granite, limestone, or sandstone.

You might need to remember these layers for an exercise all about soil!

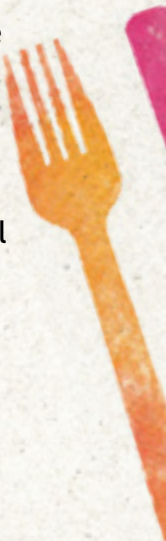
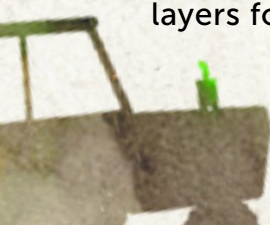
### **Why is soil important?**


At first you may think of soil as just dirt or mud. However, soil plays a very important role in supporting life on Earth and we as a planet are in danger of damaging it beyond repair. From fields to gardens, playgrounds to allotments, soil has a vital role to tackle climate change.

If we are to feed the world we must protect soil – over 95% of our food depends on the upper most layer of soil - called topsoil.


It has been said that, without making changes now to protect soil health, we could lose our ability to grow enough nutritious, good food to feed the world's population.

Many plants need healthy soil to grow. Plants use soil not only for nutrients (which helps nourish plants and help them thrive), but also as a way to anchor themselves into the ground using their roots.





Soil also impacts our atmosphere, releasing gases such as carbon dioxide into the air. Soil plays an important role in cycling nutrients including carbon and nitrogen. Nutrient cycling simply means reusing and recycling gases like nitrogen between plants, animals, bacteria, the atmosphere (the air), and soil in the ground.



Nitrogen is an important element to all life on Earth. As a planet we urgently need ways to keep carbon out of the Earth's atmosphere, and to build long-term food security for a rapidly growing global population. Soil can do both. Soils are integral to a healthy climate as they can store 10 times more carbon than forests. Many animals, fungi, and bacteria rely on soil as a place to live. Soil also helps to filter and clean our water.

So you can see how important it is.



### What's happening to our soil?

Billions of tons of soil are being physically lost each year by natural erosion from the action of water and wind, which is also made worse by climate change and changes in weather.

## Our Soil Ambassador

Seven-year-old climate change artist, poet, and wildlife documentary maker, Aneeshwar Kunchala, is our Soil Ambassador and proves that you can be any age to save the planet.

“It's great to work with the Soil Association to help everyone learn more about our amazing soil and make a difference to this world. I hope these resources make soil exciting for you too so we can all become Soil Saviours.”



Many soils are being degraded by increases in their salt content, by waterlogging, or by pollution through the application of fertilisers, chemicals and industrial waste. Good soil is being lost each year as it is being paved over for roads, driveways and buildings. It can take many centuries for useful nutritious topsoil to be created so we need to do all we can to protect what we have.

### How do we save our soil?

Sustainable farming practices, sympathetic building projects, efficient use of water and organic farming all help.

In organic farming, productivity depends strongly on the quality of the soil. The organic farmer cares for the soil, by using crop rotation and compost, they feed the soil and the soil in turn feeds the plants. Healthy soils mean healthy food.

We can play our part too – by protecting or even creating open spaces – such as school gardens, allotments and veggie patches.



## Why not use our resources for World Soil Day on 5th December?

[foodforlife.org.uk](http://foodforlife.org.uk) |  @SAfoodforlife

