

5 Soil

Soil is formed from fine rock particles mixed with air, water and particles from dead plant and animal matter. There are six main types of soil in the UK which are classified according to the amount of sand and clay in them. These are:

- Clay
- Sandy
- Silty
- Peaty
- Chalky
- Loamy

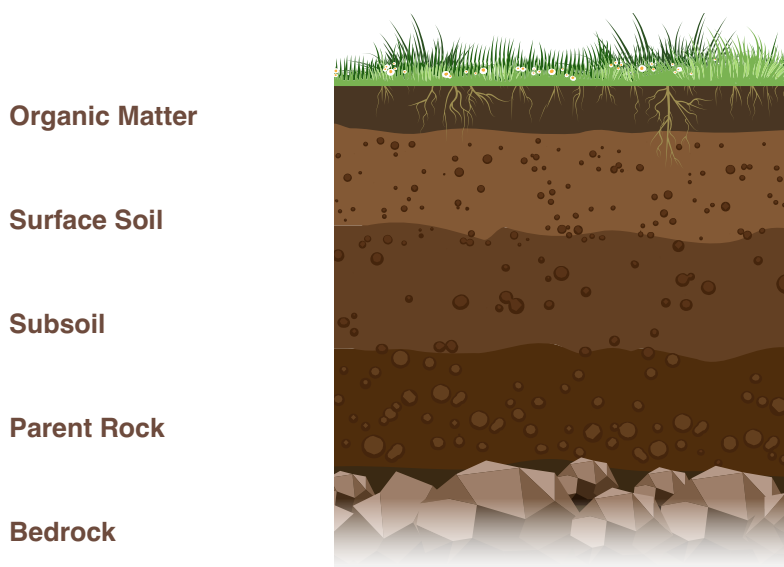
Rocks are made of one or more minerals. There are three main classifications of rock, based on the way the rock was formed:

- Sedimentary
- Metamorphic
- Igneous

HOLYWELLS PARK

Holywells Park is situated near the River Gipping. Ipswich is sited on a geological matrix and changes regularly between sandy gravel and glacial clay. Holywells Park contains both soil types, with clay more prevalent in the lower areas and sand in the higher areas.

Soil layers



SECRETS OF THE EARTH

Soil is important for storing nutrients for plants to grow and plays a vital role in sustaining life. Different types of soil, whether sandy or clay, wet or dry, will affect what types of plant grow in that area.

ACTIVITY 1 SOIL RECIPE

MATERIALS

- Trays
- Pots
- Jug of water

INSTRUCTIONS

Look for something vital for life that you are standing on. What can it be?

1. Ask if anyone knows what ingredients make up the soil i.e. leaves, twigs, stones, sand (organic matter and mineral particles), water and air
2. Become chefs for the morning and make your own special soil mixture. Give each group a tray. Collect the ingredients for the soil recipe, avoiding any live creatures
3. When students return, give each group a pot and transfer the contents of the trays into the pots
4. Ask students why they don't have soil yet - because it needs mixing
5. Ask each group to mix the ingredients. Does it look like soil yet? No - it needs some water
6. Add water to each pot and ask each group mix thoroughly. Does it look like soil yet? No. Why not, what is missing? - time
7. Explain that soil takes thousands of years to form, which is why we could never make it in a day.
8. Write out a soil recipe including ingredients, method and 'cooking time'.

STAY SAFE

Always remember that seemingly clean soil contains many millions of bacteria and other micro-organisms. Most are harmless although some are potentially very dangerous. Try not to let students have contact with soil if they have a cut; ensure all children have up-to-date tetanus inoculation; be vigilant students are not sucking their fingers and insist on good hand-washing.



ACTIVITY 2 SOIL PARTICLE TRAIL

INTRODUCTION

This activity introduces the concept of recycling and demonstrates there are no rubbish tips in nature.

MATERIALS

- Magnifying glass

INSTRUCTIONS

1. Start by following the trail of a soil particle on its very special journey. Find a stone or pebble and study closely with a hand lens, focusing on the individual particles that make it up.
2. Focus on one particle and explain that eventually this particle would undergo weathering and be eroded from the main rock. Carried along by rainwater, it is taken up by a plant root.
3. Find a visible root and explain this is where the particle is now. Using its roots, the plant has taken up the particle which has been dissolved in the rain water. The dissolved minerals are moved up to the leaves where, with energy from the sun and carbon dioxide, they are made into food for the plant.
4. Find a leaf that has been munched. The particle has now gone into the leaf muncher e.g. a caterpillar.
5. The leaf muncher then gets munched itself e.g. by a bird (spot a bird).
6. Explain the particle is now inside a bird. The bird then has a poo or dies and eventually the particle gets passed back into the ground where it gets churned up by earthworms in the soil ready to start the trail again. The particle changes form on its journey but still gets recycled.

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REVIEW

If there are about 250,000 worms in a back garden making a tonne of soil each year, why aren't we drowning under soil?

This is because the worms are recycling the soil all the time. The message behind this activity is that we need to be more like worms and be better recyclers.