

Topic:	Year group	Term
Soils	3	Spring

Background knowledge

Children should have opportunities to explore different types of soil, such as sandy, clay, peat and chalky soils. They can undertake simple practical activities such as closely observing the soils using hand lenses and drawing what is seen, sieving the soils to separate the larger and smaller matter and adding water to the soil to see if any parts float or sink. Testing different types of soil will allow children to describe their features and compare them.

Children should have opportunities to research the importance of soil and ask relevant questions of their peers and adults to further their understanding. There is also an opportunity within this step for children to learn about how human activities such as deforestation and construction work may cause soil loss and the impact this has on both animals and plants.

Children in Year 3 do not need to be specifically aware of the terms independent, dependent and controlled variables. However, they should be able to identify what they will change, measure and keep the same in the experiment.

Common misconceptions

- Children may think that only plants benefit from soil and animals do not. Highlight to them that many animals depend on soil and that it provides habitats for animals, such as worms and insects.
- Children may think that the loss of soil from human activity only has an impact on animals and plants. Clarify to them that soil absorbs lots of water and if soil loss occurs due to human activity, then flooding may increase, which can impact humans.
- Children may think soil is just "mud" or "dirt". Clarify to them that soil is a complex mixture of small rocks, organic matter (remains of dead animals and plants) and water.
- Children may think that animals cannot live in soil. Discuss animals that do live in soil, such as worms.

What should I already know?

I can distinguish between an object and the material it is made from.
 I can explain the materials an object is made from.
 I can name wood, plastic, glass, metal, water and rock.
 I can describe the properties of everyday materials. (hard, soft, stretchy, stiff, shiny, dull, rough, smooth etc.)
 I can group objects based on the materials they are made from. (year 1 materials)

I can identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard.
 I can suggest why a material might or might not be used for a specific job. (year 2 materials)

National Curriculum Objectives / Key Skills	The Journey
Recognise that soils are made from rocks and organic matter. <u>Working scientifically</u> Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Using straightforward scientific evidence to answer questions or to support their findings. Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. <u>Scientific enquiry</u>	- Explore soil - The importance of soil - Plan - soil experiment - Investigate - soil experiment - Evaluate - soil experiment



Outcomes

Working towards: Recognise that soils are made from rocks.

Expected: Recognise that soils are made from rocks and organic matter.

Exceeding: Recognise that soils are made from rocks and organic matter. Explain giving examples of these.

Key Vocabulary

Soil - a mixture of small rocks, organic matter and water

Sandy soil - a soil made up of lots of sand and some clay

Clay soil - a soil containing lots of clay which becomes sticky when wet

Peat soil - a soil that contains lots of water and organic matter

Chalky soil - a soil that contains lots of chalk and limestone

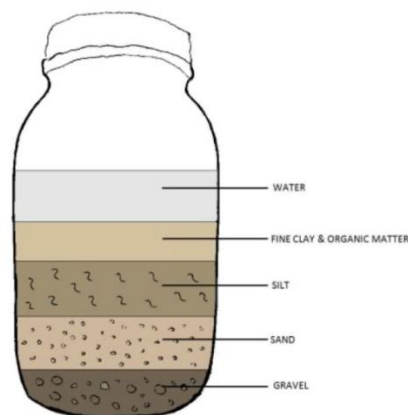
Organic matter - the remains of dead animals and plants

Nutrients - substances found in soil which help plants grow

Habitat loss - the decrease in resources, such as space, for a living thing to survive

Deforestation - the removal of large areas of trees or plants by humans

Timeline / Diagrams



Habitat - an area where animals and plants live Filter paper - a piece of equipment that is used to separate materials Filter funnel - a piece of equipment that allows liquids such as water to enter the measuring cylinder Measuring cylinder - a piece of equipment that allows measurements of liquids Absorb - to take in water Conclusion - what has been found out during an investigation based on measurement and observation	
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Key people / places

STEM jobs; geologist
Famous scientist; Mary Anning.
"It was large and heavy but.....it is the first and only one discovered in Europe."

Assessment questions / outcomes

• What is your experiment plan? • What are you changing? • What are you measuring? • What are you keeping the same? • What was the volume of water in the measuring cylinder? • What was the mass of the soil? • What will you use to measure the amount of soil? • What will you use to measure the volume of water? • What types of soil are you using in this experiment? • What will you change in this experiment? • What will you measure in this experiment? • What will you keep the same? • How will you record your results? • Why do plants need soil? • What does soil provide plants with? • Why do animals need soil? • What does soil provide animals with? • What impact has human activity had on soil? • How does this impact animals, plants and humans? • What is soil? • What are the different types of soil? • What is soil made up of? • What are the features of chalky soil? • What are the features of sandy soil? • What are the features of clay soil? • What are the features of peat soil? • What are the differences between these types of soil?