

<b>Year 3 – Rocks and fossils</b>	<b>Main Outcomes:</b> <ul style="list-style-type: none"> <li>• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</li> <li>• Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> <li>• Recognise that soils are made from rocks and organic matter.</li> </ul>	<b>Focus:</b> Science – biology, chemistry and physics
-----------------------------------	--	--

What should I already know?
Not studied until year 3.
What I will do
<p>I will have weekly or blocked science lessons. In lessons, I will be taught a skill and I will gain knowledge and understanding through the process of scientific enquiry (observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources).</p> <p><u>Possible lines of enquiry</u></p> <ul style="list-style-type: none"> <li>• Explore different kinds of rocks and soils, including those in the local environment.</li> <li>• Observe rocks, including those used in buildings and gravestones, and explore how and why they might have changed over time.</li> <li>• Use a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them.</li> <li>• Research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed.</li> <li>• Explore different soils and identify similarities and differences between them.</li> <li>• Investigate what happens when rocks are rubbed together or what changes occur when they are in water.</li> <li>• Raise and answer questions about the way soils are formed.</li> </ul>

Vocabulary	Meaning
appearance	the way that something looks
data	any kind of information (such as facts, observations, numbers, graphs or measurements) that has been collected and can be analysed
erosion	when tiny pieces of the Earth's surface are moved from one place to another; usually caused by moving water or wind
fossil	the shape of a long dead animal or plant found in a rock
hard	difficult to scratch or break down
identification key	a key to identify or decide which group something belongs to by answering the questions
igneous rock	a rock that is formed when lava or magma cools, hardens, and forms new rock
impermeable	does not let water soak through
metamorphic rock	a rock formed from pre-existing rock that has changed through heat and pressure
minerals	solid substances that occur naturally
organic matter	anything that came from living things
permeable	lets water soak through
petrologist	a scientist who analyses rocks
property	a quality of a material, e.g. 'hard' or 'shiny'
sedimentary rock	a rock made from layers of mud and sand; can contain fossils
soil	a mixture of minerals, organic material, water and air that covers much of Earth's surface
strong	can hold a lot of weight
survey	a data collection tool in which a list of questions is used to gather information about something

Resources
Hamilton Science planning: rocks and fossils <a href="https://www.hamilton-trust.org.uk/science/year-3-science/rocks-rocks-and-fossils/">https://www.hamilton-trust.org.uk/science/year-3-science/rocks-rocks-and-fossils/</a> (all planning also saved on SharePoint).

Knowledge to understand		Skills to learn	
<p>Different kinds of rocks have different <b>appearances</b> and physical <b>properties</b>.</p>	<p>Rocks can be grouped by their <b>properties</b> or by the way they look, e.g. colour, grains, smoothness.</p> <p>Rock types include chalk, sandstone and limestone (soft, <b>permeable</b> and <b>sedimentary</b>), marble, slate and granite (hard, <b>impermeable</b> and <b>strong</b>).</p> <p><b>Properties</b> include being <b>permeable</b>, <b>impermeable</b>, smooth, soft, hard, <b>strong</b>.</p> <p>Pebbles are small bits of bigger rocks.</p>		<ul style="list-style-type: none"> <li>➤ asking relevant questions and using different types of scientific enquiries to answer them</li> <li>➤ setting up simple practical enquiries, comparative and fair tests</li> <li>➤ making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>➤ gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>➤ recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>➤ reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>➤ using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>➤ identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>➤ using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>
<p><b>Fossils</b> are the shape of a long dead animal or plant found in a rock.</p>	<p>Dead animals and plants get buried in mud or sand. Over millions of years, this hardens into layers of rock. The soft parts of the animals and plants rot away. Only their shapes are left in the rock – these are the <b>fossils</b>.</p>		
<p><b>Soil</b> is made up of four things.</p>	<ol style="list-style-type: none"> <li>1. Broken down rocks</li> <li>2. <b>Organic matter</b></li> <li>3. Water</li> <li>4. Air</li> </ol> <p>There are different types of <b>soil</b>, e.g. sandy, gravelly and clay and they have different <b>properties</b>.</p>		
		Equipment to become familiar with	
		<p>Magnifying lenses</p> <p>Microscopes</p> <p>Pasteur pipettes</p> <p>Plastic beakers, funnels and measuring cylinders</p> <p>Protective goggles (for Acid Test)</p> <p>Digital cameras</p>	

Evidence of Learning	How will I know what I've learnt?
<p>Science books</p> <p>Photos</p> <p>Videos</p> <p>Pupil conferencing</p> <p>Teaching and learning observations</p> <p>Learning walks</p> <p>Data analysis</p>	<p>See KS2 teacher assessment exemplification for science</p> <p><a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/763065/2018_key_stage_2_teacher_assessment_exemplification_science.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/763065/2018_key_stage_2_teacher_assessment_exemplification_science.pdf</a></p> <p>See also Hamilton Science_Assessment_Y3 (saved in planning folder on Sharepoint).</p> <p>KS2 quizzes:</p> <p><a href="https://gcequiz.com/quiz/ks2-science-quizzes">https://gcequiz.com/quiz/ks2-science-quizzes</a></p> <p><a href="https://churchfieldsjunior.com/test-your-skills-science/">https://churchfieldsjunior.com/test-your-skills-science/</a></p>