

### Topic Summary: LKS2 Rocks and Soils

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| <p><b><u>National Curriculum Objectives</u></b></p> <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>   | <p><b><u>Substantive knowledge</u></b></p> <ul style="list-style-type: none"> <li>❖ Know that rock is a naturally occurring material and that there are different types of rock e.g. sandstone, limestone, slate etc. which have different properties.</li> <li>❖ Know that rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Rocks can be different shapes and sizes (stones, pebbles, boulders).</li> <li>❖ Know that soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter).</li> <li>❖ Know that the type of rock, size of rock pieces and the amount of organic matter affect the property of the soil.</li> <li>❖ Know that some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.</li> </ul> | <p><b><u>Vocabulary</u></b><br/>Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb, water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</p> <p><b><u>Phonics / polysyllabic words</u></b><br/>appearance<br/>crystalline<br/>criteria</p>   |
| <p><b><u>Working Scientifically Skills</u></b></p> <ul style="list-style-type: none"> <li>❖ Focus: Use straightforward scientific evidence to answer questions or to support their findings.</li> <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</li> <li>❖ gathering, recording, classifying and presenting data in a variety of ways to help in answering questions, recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>❖ identifying differences, similarities or changes related to simple scientific ideas and processes</li> </ul> | <p><b><u>Disciplinary knowledge</u></b></p> <ul style="list-style-type: none"> <li>❖ Classify rocks in a range of different ways, using appropriate vocabulary.</li> <li>❖ Devise tests to explore the properties of rocks and use data to rank the rocks.</li> <li>❖ Link rocks changing over time with their properties e.g. soft rocks get worn away more easily</li> </ul>   | <p><b><u>Reading support</u></b></p> <ul style="list-style-type: none"> <li>❖ Word mats</li> <li>❖ Scaffolded recording / choice of recording</li> <li>❖ Pre teaching of vocab</li> </ul> <p><b><u>Extension deeper thinking</u></b><br/>Map where different rocks come from e.g. marble, slate. How are rocks quarried? Suggest uses for different kinds of rocks based on their properties.</p> <p><b><u>Key People</u></b><br/>Dr Anjana Khatwa: An Earth scientist<br/>Mary Anning</p> |
|  |  | <p><b><u>Possible misconceptions</u></b></p> <ul style="list-style-type: none"> <li>❖ Rocks are all hard in nature</li> <li>❖ Rock-like, man-made substances such as concrete or brick are rocks</li> <li>❖ Materials which have been polished or shaped for use, such as a granite worktop, are not rocks as they are no longer 'natural'</li> </ul>  |

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| <p><b><u>Prior learning</u></b></p> <ul style="list-style-type: none"> <li>❖ Distinguish between an object and the material from which it is made. (Y1 - Everyday materials)</li> <li>❖ Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)</li> <li>❖ Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)</li> <li>❖ Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)</li> <li>❖ Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)</li> </ul> | <ul style="list-style-type: none"> <li>❖ Present in different ways their understanding of how fossils are formed</li> <li>❖ Identify plant/animal matter and rocks in samples of soil.</li> <li>❖ Devise a test to explore the water retention of soils</li> </ul>  | <ul style="list-style-type: none"> <li>❖ Certain found artefacts, like old bits of pottery or coins, are fossils</li> <li>❖ A fossil is an actual piece of the extinct animal or plant</li> <li>❖ Soil and compost are the same thing.</li> </ul>  |
| <p><b><u>Future learning</u></b></p> <ul style="list-style-type: none"> <li>❖ Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Y6 - Evolution and inheritance)</li> <li>❖ The composition of the Earth. (KS3)</li> <li>❖ The structure of the Earth. (KS3)</li> <li>❖ The rock cycle and the formation of igneous, sedimentary and metamorphic rocks. (KS3)</li> </ul>   | <p><b><u>British Values</u></b></p> <ul style="list-style-type: none"> <li>❖ <b><u>Democracy</u></b> Take the views and opinions of others into account. Take turns and instructions from others.</li> <li>❖ <b><u>The rule of law</u></b> Understand the importance of safety rules when working scientifically make choices when planning an investigation as others may have different points of view as to where to start.</li> <li>❖ <b><u>Tolerance</u></b> Scientific discoveries have come from other cultures and religious beliefs often compete with scientific understanding.</li> <li>❖ <b><u>Mutual respect</u></b> Work as a team, discuss findings and Offer support and advice to others.</li> </ul> | <p><b><u>Christian Values</u></b></p> <ul style="list-style-type: none"> <li>❖ <b><u>Spirituality</u></b>: Living in awe and wonder, asking questions, being inspired by the world and being aware of something ‘bigger’ outside of ourselves.</li> <li>❖ <b><u>Everyone Achieving</u></b>: In Science lessons, we explore and celebrate research and developments that take place in many different cultures, both past and present. We explore how scientific discoveries have shaped the beliefs, cultures and politics of the modern world.</li> <li>❖ <b><u>Everyone Believing</u></b>: We ask our own questions to support our own understanding of the world and understand that sharing ideas, data, and results (for further testing and development by others) is a key principle of the scientific method.</li> <li>❖ <b><u>Everyone Caring</u></b>: Learning about the importance of rocks to human life, both in the past and now and how we need to preserve Earth materials.</li> </ul> |