Year 3– Materials (Rocks)

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National Curriculum Objectives	**Declarative Knowledge**	**Procedural Knowledge**
<u>Rocks</u> Pupils should be taught to: • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. • Describe in simple terms how fossils are formed when things that have lived are trapped within the rock. • Recognise that soils are made from rocks and other organic matter.	**Prior Learning** *Suitability of different materials. Manipulating materials.* **What are the different types of rock?** • Know the name of the three types of rocks. • Know the properties of sedimentary rocks. • Know the properties of igneous rocks. • Know the properties of metamorphic rocks. **How can you categorise the different types of rock?** • Know how to group rocks by their properties and identify simple similarities and differences. • Know examples of natural and human-made rocks. **What is the process of fossilisation?** • Know the difference between a bone and a fossil. • Know the main processes of fossilisation. **How is soil formed?** • Know the four different types of matter that soil is composed of. • Know how soil is formed and be able to explain using scientific language. **Who is Mary Anning?** • Know the importance of Mary Anning's work in the field of palaeontology.	• To be able to observe rocks, including those used in buildings and gravestones, • To be able to exploring how and why they might have changed over time. • To be able to use a hands lens or microscope to help them identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. • To be able to research and discuss the different kinds of living things whose fossils are found in sedimentary rock • To be able to explore how fossils are formed. • To be able to explore different soils and investigate similarities and differences between them • To recognise that soils are made from rocks and organic matter
Prior Learning	**Key Questions**	**Future Learning**
In Year 2 children should have: • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **Children may**:	• How are the soils different? • Which do you think has best drainage? • Which is more likely to lead to flooding? • How many soil types have we found? • Where might you find more? • How might the soil be different in different countries? • What rock is best for a kitchen chopping board? What might be the issues with various materials and what they must withstand? • What types of rocks are there?	**In Year 4 children will**: • Compare and group materials together, according to whether they are solids, liquids or gases. • Observe that some materials change state when heated or cooled, and measure and research the temperature at which this happens in degrees Celsius. • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **In Year 6 children will**:

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• May have some understanding of a variety of different rocks in the natural world. • Some understanding of what soil is. (how to identify soil etc) • May have some knowledge of what a fossil is.	• How do rocks change? • What would grow best in your soil? • Why do you think worms are important to the creation of soil? • How can we use composting to make our own soil? • Does it currently look like real soil? • How long do you think this process will take and why? • How are fossils created? • Why do fossils help us find out about historical events? • If you could fossilise an object what would it be?	• Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
Vocabulary	**Key Scientists**	**Linked Texts**
Rocks, igneous, metamorphic, sedimentary, anthropic, permeable, impermeable, chemical fossil, body fossil, trace fossil, Mary Anning, cast fossil, mould fossil, replacement fossil, extinct, organic matter, topsoil, sub soil, base rock.	**Mary Anning** (Discovery of Fossils) **Inge Lehmann** (Earth's Mantle)	**The Pebble in My Pocket** (Meredith Hooper) **Stone Girl, Bone Girl** (Laurence Anholt) **The Street Beneath My Feet** (Charlotte Guillain & Yuval Zommer)

Teaching Ideas

Comparative tests	Identify & Classify	Observation over time	Pattern seeking	Research	Big Question
How does adding different amounts of sand to soil affect how quickly water drains through it? Which soil absorbs the most water?	Can you use the identification key to find out the name of each of the rocks in your collection?	How does tumbling change a rock over time? What happens when water keeps dripping on a sandcastle?	Is there a pattern in where we find volcanos on planet Earth?	Who was Mary Anning and what did she discover?	What are rocks and soils like?

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