Year 3 and 4 Science Medium Term Planning – Rocks and Soil

Autumn Term 2	N.C. EXPECTATIONS	Learning question	Associated Substantive Knowledge	Disciplinary Knowledge and skills	Key Vocabulary
1	I compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. I describe in simple terms how fossils are formed when things that have lived are trapped within rock. I recognise that soils are made from rocks and organic matter.	**LQ: Can I compare and identify types of rock.**	**Children learn to identify the three types of rock: igneous, sedimentary, and metamorphic.** **Children learn to explain the processes by which each type of rock is formed.** **Children learn different examples of each type of rock and describe their characteristics, such as texture, colour, and formation.**	Identifying, Grouping and Classifying **Making systematic and careful observations** - Encourage children to closely examine the rocks they find, noting colour, texture, size, and any signs of weathering. Use prompts like "What do you see?" and "How does it feel?" to guide their observations. **Gathering, recording, classifying** - have children group rocks in various ways (e.g., by colour, texture, or type). Discuss the criteria they used for grouping and record these on the whiteboard.	igneous, sedimentary and metamorphic, minerals, rock, sediment
2		**LQ: Can I group rocks based on their properties by making careful and thorough observations?**	Children will learn that the key properties of rocks include texture, colour, hardness, and permeability, and how to observe these properties in detail. Children will learn that rocks can be grouped and classified based on specific criteria, such as composition, formation process, and physical characteristics. Children will learn that there are patterns and connections between the properties of	Pattern seeking **Setting Up Simple Practical Enquiries, Comparative and Fair Tests –** Discuss what a fair test is and why it's important. **Making Systematic and Careful Observations and Taking Accurate Measurements** – Show examples of how to measure and record data accurately. **Gathering, Recording, Classifying, and Presenting Data -** Provide templates and examples of data recording methods, such as tables and charts.	Impermeable, permeable, marble, slate, granite, sandstone, basalt, chalk, clay, group, durable, buoyancy,

			different rock types and their formation processes, linking rock characteristics to environmental conditions.		
3		LQ: Can I understand the terms 'weathering' and 'erosion' and identify evidence of these processes through observations?	Children will learn that weathering and erosion are processes that break down and transport rocks and materials.		Weathering
4		LQ: Can I explain how fossils are formed?	Children will learn that a fossil is the preserved remains or traces of a living organism from the past. Children will learn that fossils can provide evidence to help identify and understand past living things. Children will learn that fossilisation occurs in distinct stages, including the processes	Research including secondary resources. Making Systematic and Careful Observations - Show examples of fossils and point out key features. Recording Findings Using Simple Scientific Language - teach children to use scientific language to describe fossils and the fossilisation process.	Fossilisation, fossil, living things, bones, layers, footprints, pressure, body fossil, trace fossil, coprolite, palaeontology, decay, erosion

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			of burial, preservation, and the eventual formation of fossils over time.		
5		LQ: Can I explain how soil is formed and identify different types of soil?	Children will learn that soil is composed of various materials, including mineral particles, organic matter, air, and water. Children will learn that they can observe and analyse soil samples over time to identify their composition and characteristics. Children will learn that there are different types of soil, such as clay, sand, silt, and loam, and be able to identify and name them based on their properties.	Observing changes over time. **Making Systematic and Careful Observations:** Teach children to observe soil samples at intervals, recording detailed observations using magnifying glasses. **Gathering, Recording, Classifying, and Presenting Data:** Guide children to gather data from their observations, classify soil components, and present findings using labelled diagrams and tables. **Using Scientific Evidence to Answer Questions:** Encourage children to use their observations to answer questions about soil composition and support their findings with evidence.	compost, air, water, formation, properties, minibeast, organic matter, microorganism, decay, nutrients, clay-based soil, sandy soil, chalky soil, topsoil, subsoil, bedrock
6		LQ: I can explain how the Earth is made up of different layers of rocks and soils.	Children will learn that the Earth is composed of several layers: the crust (which contains rocks and soils), the mantle, the outer core, and the inner core. Children will learn that the Earth's crust contains three main types of rocks: igneous (formed from cooled magma or lava), sedimentary (formed from	Identifying, Grouping and classifying. **Modelling**: Teach children to create a physical representation of the Earth's layers using 'dirt pudding' to visualize and understand geological concepts.	

			compressed sediments), and metamorphic (formed from existing rocks transformed by heat and pressure).Children will learn that soil is made up of organic matter (decaying plants and animals), minerals from broken-down rocks, and air and water that support plant growth.	**Observation and Description**: Guide children to observe the different layers in their 'dirt pudding' and describe each layer's characteristics. **Recording and Labelling**: Instruct children to draw and label their 'dirt pudding' model, reinforcing their understanding of the Earth's layers and the components of soil.	