

TOPIC	NATIONAL CURRICULUM	KEY VOCABULARY	POSSIBLE TRIP
ROCKS	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 rock. Recognise that soils are made from rocks and organic matter.	TIER 2 (Academic): Compare, group, observe, analyze, classify, absorb, density, process. TIER 3 (Topic Specific): Soils, organic matter, fossil, crystal, sandstone, granite, marble, pumice, absorbent, crumble, sedimentary, layer, sediment, igneous, magma, lava, gas bubbles, metamorphic, change, squeeze, pressure.	Horniman Museum & Gardens: features hands-on school workshops where children handle real fossils, examine rock types, and investigate soil composition. Natural History Museum: The Earth Galleries and Mary Anning displays provide an unmatched look at igneous, sedimentary, and metamorphic rocks, alongside real fossil specimens.
PRIOR LEARNING	Y1 & Y2: Identifying rock as a material and testing simple physical properties (hard, soft, rigid, waterproof).		

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
ENQUIRY QUESTION	How can we group rocks based on their visual appearance?	Which rocks are the hardest and most absorbent?	How are igneous, sedimentary, and metamorphic rocks formed?	How do fossils form inside sedimentary rock over millions of years?	What is soil actually made of?	Which type of soil allows water to run through it fastest?
LEARNING OBJECTIVES	To observe and classify rocks by physical appearance criteria.	To test and rank rocks for hardness, buoyancy, and absorbency.	To research and model the formation processes of the 3 main rock types.	To sequence and describe the stages of fossil formation.	To separate and identify rock particles and organic matter in soil.	To conduct a fair test on soil permeability and drainage rates.
ACTIVITY WORKING SCIENTIFICALLY SKILLS	CLASSIFYING: Examine granite, marble, chalk, pumice, sandstone using hand lenses; sort by color, grain size, crystal presence.	COMPARATIVE TESTING: Perform scratch tests (using nails/coins) and drop water onto rock samples to measure absorbency/hardness.	MODELLING & RESEARCHING: Use chocolate/wax block models to demonstrate cooling magma (igneous), layering (sedimentary), heat/pressure (metamorphic).	RESEARCHING & SEQUENCING: Create storyboards of fossilization (animal dies → sinks to seabed → buried by sediment → mineral replacement).	OBSERVING OVER TIME: Shake soil samples in water containers; observe settling into organic debris, clay, silt, sand layers.	COMPARATIVE TESTING: Pour equal water volumes through funnels of sandy, clay, and loam soil; measure drainage time and volume.

ASSESSMENT	Sort rocks accurately based on grain structure and visible crystals.	Rank rocks from hardest to softest and waterproof to absorbent.	Explain how cooling rates create crystals in igneous rocks.	Sequence the 4 key stages of fossilization correctly.	Identify organic matter (decayed leaves/bugs) and inorganic rock fragments in soil.	State which soil type has the highest permeability based on collected data.
END POINT ASSESSMENT	Pupils can classify rocks as igneous, sedimentary, or metamorphic based on appearance/testing, detail the multi-stage process of fossil formation within sedimentary rock, and prove that soil comprises rock particles and organic matter.					
HIGHER ORDER QUESTIONS	Why does pumice float in water while granite sinks?	Why would sandstone be a poor choice of rock for building a outdoor sculpture?	Why are fossils almost exclusively found in sedimentary rock rather than igneous rock?	What would happen to a fossil if the surrounding rock underwent extreme metamorphic heat and pressure?	Why do different plants thrive in different types of soil?	How does soil permeability affect flooding risks in urban vs rural environments?
FURTHER OPTIONAL QUESTIONS/BIG QUESTIONS FOR DISPLAY	Are all rocks hard, heavy, and indestructible? How did an ancient sea creature turn into solid stone high up on a mountain? What is the difference between dirt and rock?					
INCLUSION & ADAPTATION	Tactile rock samples with magnifying glasses and visual sorting grids (Shiny/Dull, Rough/Smooth).	Simple scratch test mats using plastic tools vs metal tools with symbol scoring sheets.	Visual flashcards displaying Volcano (Igneous), Layers (Sedimentary), Squeeze (Metamorphic).	Pre-cut 4-stage picture cards showing dinosaur death to museum skeleton discovery.	Clear settling jars with pre-labelled height marker lines for organic vs rock layers.	Color-coded measuring cylinders with stop-watch visual cues.
GREATER DEPTH	Analyze crystal lattice sizes in intrusive vs extrusive igneous rocks.	Design an erosion test evaluating rock wear over time under running water.	Research how metamorphic change alters limestone into marble.	Research the work of palaeontologist Mary Anning and evaluate historical fossil evidence.	Calculate percentage volume of organic matter vs mineral fragments across soil types.	Plot soil drainage rates on line graphs and analyse particle size correlation.