

Everyday Materials / Rocks / States of Matter – Scientific enquiry

	Year 1 Everyday Materials	Year 2 Everyday Materials	Year 3 Rocks	Year 4 States of matter	Year 5 Properties and changes of materials	Year 6
Investigations	What materials are suitable to use to make a? Why?	What materials can be manipulated?	Investigation on permeability	What happens to materials when the temperature is changed? Investigate evaporation	Purpose vs materials – compare with conductivity/ transparency/ response to magnets etc. Investigate what is soluble. How can materials be separated?	
Working scientifically • Research	How are bricks made? Which materials can be recycled?	How are plastics made? How have the materials we used changed over time? John Dunlop, Charles Macintosh, John McAdam	Who was Mary Anning and what did she discover?	How does the mass of a block of ice affect how long it takes to melt? How does the surface area of a container of water effect how long it takes to evaporate? Spencer Silver, Ruth Benerito	What are microplastics and why are they harming the planet?	
Working scientifically • How scientific ideas have changed over time	How are building materials different now to when Victoria was on the throne?	How have the materials that humans use for tools changed since? How has glass making changed since it was first made in ancient Egypt?	What were James Hutton's ideas about how rocks were made and what was his evidence? How did Mary Anning's work help us to understand prehistoric life?	How have scientific tests for predicting the weather changed over time?	What did Stephanie Kwolek discover (Kevlar) and why was it important?	
Working scientifically • Identifying and classifying	We need to choose a material to make a Which materials are waterproof? Which materials will float and which will sink?	Which materials are shiny and which are dull? Which materials will let water go through them, and which will not?	Can you use the identification key to find out the name of each of the rocks in your collection?	Can you group these materials and objects into solids, liquids, and gases? How would you sort these objects/materials based on their temperature?	Can you group these materials based on whether they are transparent or not?	
Working scientifically • Pattern seeking	Is there a pattern in the types of materials that are used to make objects in a school?	Is there a pattern in the materials that were made to make a step pyramid and Bent pyramid? Was this pattern expected?	Is there a pattern in where we find volcanoes on planet Earth?	Is there a pattern in how long it takes different sized blocks of ice to melt?	Do all stretchy materials stretch in the same way? Do all objects fall through water in the same way?	

Working scientifically <ul style="list-style-type: none"> • Observing over time 	What happens to materials over time if we bury them in the ground? What happens to shaving foam over time?	How long do bubble bath bubbles last for? What would happen to our snowman? Would a paper boat float forever?	How does tumbling change a rock over time?	Which material is best for keeping our hot chocolate warm? How does the level of water in a glass change when left on the windowsill? How does the mass of an ice cube change over time?	How does a container of salt water change over time? How does a sugar cube change as it is put in a glass of water? How does a nail in salt water change over time?	
Working scientifically <ul style="list-style-type: none"> • Comparative tests 	Which materials are the most flexible? Which materials are the most absorbent?	Which material would be best for? Which shapes make the strongest paper bridge?	Which rock would be best for...?	Does seawater evaporate quicker than fresh water? How does the average temperature of the pond water change in each season? (Link to habitats)	Which type of sugar dissolves the fastest?	
Working scientifically <ul style="list-style-type: none"> • Fair tests 	Which brand of paper towel is best at absorbing water?	How does changing a variable affect how long an object will float for?	How does adding different amounts of sand to soil affect how quickly water drains through it?	How does the mass of a block of ice affect how long it takes to melt? How does the surface area of a container of water affect how long it takes to evaporate?	How does the temperature of tea affect how long it takes for a sugar cube to dissolve?	
Specialist Vocabulary	Object, material, made, wood, plastic, glass, metal, water, rock, brick, paper, fabrics, elastic, foil properties, everyday materials, physical properties, Hard/soft, stretchy/stiff, shiny/dull, rough/smooth, bendy/not bendy, waterproof/not waterproof, absorbent/not absorbent, opaque/transparent	Suitability, compare, wood, metal, plastic, glass, brick, rock, paper, cardboard, change, squash, bend, twist, stretch, properties, suitable, unsuitable	Appearance, physical properties, fossils, organic matter, sedimentary, metamorphic, igneous, permeable, impermeable, sand, gravel, clay, chalk, flint, granite, sandstone,	Solid, liquid, gases, change state, heat, cool, temperature, degrees Celsius, evaporation, condensation, water cycle	Hardness, solubility, transparency conductivity (electrical and thermal) magnetic, dissolve, solution, recover, separated, filter, sieve, evaporate, evidence, reversible changes,	
Equipment to be used	Measuring jug Measuring cylinder	Newton/force metre Stop watch	Hand lens, microscope	Thermometer Stop watch Different sized containers	Stop watch Measuring cylinder/jugs Thermometer Magnets Petri dishes Sieve Filter paper, beakers, funnels	