

Science Progression in Materials

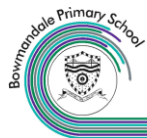
Essential characteristics of scientists

- The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings
- Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations
- Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings
- High levels of originality, imagination or innovation in the application of skills
- The ability to undertake practical work in a variety of contexts, including fieldwork
- A passion for science and its application in past, present and future technologies

Year Group	Key Skills	Key Vocabulary
EYFS	• Explore the natural world around them, making observations and drawing pictures of animals and plants • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	
Year 1/2	• Distinguish between an object and the material from which it is made • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses	• properties • materials • liquid • surface • object • reflect • wood • plastic • glass • metal • rock • water • various • rubber • inflatable • fabric • transparent

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		• squash • bend • twist • stretch
Year 3/4	• Compare and group together different kinds of rocks on the basis of their simple, physical properties • Relate the simple physical properties of some rocks to their formation (igneous or sedimentary) • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock • Recognise that soils are made from rocks and organic matter • Compare and group materials together, according to whether they are solids, liquids or gases • Observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	• erosion • magma • tectonic plates • solidify • dissolve • sedimentary • metamorphic • igneous • temperature • Celsius • boils • container • evaporate • condensate/condensation • melt • freeze
Year 5/6	• Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal), and response to magnets • Understand how some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • Demonstrate that dissolving, mixing and changes of state are reversible changes • Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning, oxidation and the action of acid on bicarbonate of soda	• dissolve • separating • evaporate/evaporation • properties • solution • mixture • reversible • irreversible
KS 3	• Chemical reactions as the rearrangement of atoms	



Straight... True... Successful

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| | <ul style="list-style-type: none">• Representing chemical reactions using formulae and using equations• Combustion, thermal decomposition, oxidation and displacement reactions• Defining acids and alkalis in terms of neutralisation reactions• The pH scale for measuring acidity/alkalinity; and indicators |
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