



Subject: Science (Materials and states of matter)

Year Group	What knowledge would we like to know?	What skills would we like to know?	How else could we challenge the pupils?	Vocabulary
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Y1	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Ask simple questions and recognise that they can be answered in different ways Use simple equipment to observe closely Perform simple tests Identify and classify Use his/her observations and ideas to suggest answers to questions Gather and record data to help in answering questions 	<p>What is a carrier bag, what is it made of? What is a mug, what is it made of?</p> <p>Identify everyday materials giving them their names, are there any who have the same name as the material they're made from?</p> <p>How can we identify glass?</p>	<p>Y1</p> <p>material fabric wood plastic metal object glass property brick elastic property opaque transparent dull stiff natural man made factory rubber polyester predict float sink submerge buoyant absorbent sponge waterproof umbrella soak solid strong brick clay wind transparent opaque suitable window pane window frame</p>
Y2	<ul style="list-style-type: none"> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, 	<ul style="list-style-type: none"> Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum 	<p>What is your chair made from? Why? What do we need to be able to do with that chair?</p>	<p>Y2</p> <p>material property suitable object brick bridge triangle obstacle structure construction</p>

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	<p>brick, rock, paper and cardboard for particular uses</p> <ul style="list-style-type: none"> Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching 	<ul style="list-style-type: none"> Use simple equipment to observe closely including changes over time Perform simple comparative tests Identify, group, and classify Use his/her observations and ideas to suggest answers to questions noticing similarities, differences, and patterns Gather and record data to help in answering questions including from secondary sources of information 		<p>stretchy elastic floppy hinder limit bend twist squash stretch force mackintosh protective fluorescent safety waterproof</p>
Y3	<p>Not on the NC for this year group, though it will be taught.</p>	<ul style="list-style-type: none"> Ask relevant questions and use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gather, record, classify and present data in a variety of ways to help in answering questions Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions 		

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		<ul style="list-style-type: none"> Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support his/her findings 		
Y4	<ul style="list-style-type: none"> 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 or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<ul style="list-style-type: none"> Ask relevant questions and use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gather, record, classify and present data in a variety of ways to help in answering questions Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support his/her findings 	<p>What is the definition of a solid. Liquid and gas? How can you identify them? Look at examples. Classify accordingly.</p> <p>What happens to water when it is cooler/heated? Are these reversible changes?</p> <p>How can we see the water cycle in action?</p>	<p>Y4</p> <p>matter solid liquid gas volume particle bond arranged cooled heated particle melting melting point temperature thermometer freezing reverse boiling sublimation deposition evaporation condensation absorb water vapour process water cycle precipitation surface runoff transpiration groundwater</p>

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<p>Y5</p>	<ul style="list-style-type: none"> • Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • Recognise that 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 and the action of acid on bicarbonate of soda 	<ul style="list-style-type: none"> • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • Use test results to make predictions to set up further comparative and fair tests • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • Identify scientific evidence that has been used to support or refute ideas or arguments 	<p>Classify materials according to their properties, what similarities do the items made from plastic have? Why are radiators made from metal?</p> <p>What happens to salt in water? Why? How can we take the salt out again?</p> <p>What is the difference between a reversible and an irreversible change, can you give examples? Can you test your theory?</p> <p>What is a fair test? What do we need to ensure a fair test?</p>	<p>Y5</p> <p>pure substance solute solvent solution evaporate reversible mixture physical change melting evaporate irreversible chemical change compare effervescence product fair test variable control variable corrosion rusting combustion fuel oxygen extinguish smother reaction predict acid bicarbonate of soda carbon dioxide</p>
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<p>Y6</p>	<p>Not on the NC for this year group, though it will be taught.</p>	<ul style="list-style-type: none"> • Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • Use test results to make predictions to set up further comparative and fair tests • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • Describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources • Group and classify things and recognise patterns 		

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