






<p>Programme of Study Statements</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. • Know 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. 					<p>Key Vocabulary</p> <p>Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material</p>
<p>Investigations and Skills for thinking like a Scientist</p> <div style="display: flex; justify-content: space-around; align-items: center;">      </div>					<p>Sticky Knowledge:</p> <p>When two or more substances are mixed and remain present the mixture can be separated.</p> <ul style="list-style-type: none"> • Some changes can be reversed, and some cannot. • Materials change state by heating and cooling.
<p><u>Comparative Tests</u></p> <p>How does the temperature of tea affect how long it takes for a sugar cube to dissolve?</p> <p>Which type of sugar dissolves the fastest?</p> <p>Which material rusts fastest/slowest?</p> <p>How can we change the 'jelly-ness' of jelly?</p>	<p><u>Identify & Classify</u></p> <p>Can you group these materials based on whether they are transparent or not?</p> <p>Can you identify and classify these reactions and changes into reversible, and irreversible? Can you describe their groups similarities and differences?</p>	<p><u>Observation over time</u></p> <p>How does a container of saltwater change over time?</p> <p>How does a sugar cube change as it is put in a glass of water?</p> <p>How does a nail in saltwater change over time?</p>	<p><u>Pattern seeking</u></p> <p>How does temperature affect how much solute we can dissolve?</p> <p>What patterns can you notice in different reactions?</p> <p>How does the amount of bicarbonate of soda, washing up liquid and vinegar affect the reaction?</p>	<p><u>Research</u></p> <p>What are microplastics and why are they harming the planet?</p> <p>What are smart materials and how can they help us?</p>	<p><u>Prior Learning:</u></p> <ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials) • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. (Y3 - Forces and magnets) • Compare and group materials together, according to whether they are solids, liquids or gases. (Y4 - States of matter) • 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

					<p>(°C). (Y4 - States of matter)</p> <ul style="list-style-type: none"> Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Y4 - States of matter)
<ul style="list-style-type: none"> Potential Evidence to support our Scientists (I can..): <ul style="list-style-type: none"> Can create a chart or table grouping/comparing everyday materials by different properties Can use test evidence gathered about different properties to suggest an appropriate material for a particular purpose Can group solids based on their observations when mixing them with water Can give reasons for choice of equipment and methods to separate a given solution or mixture such as salt or sand in water Can explain the results from their investigations <p>Big Question: How can we separate a mixture of water, iron filings, salt and sand? How can we change materials reversibly and irreversibly?</p>					<p>Future Knowledge:</p> <ul style="list-style-type: none"> Chemical reactions as the rearrangement of atoms. (KS3) Representing chemical reactions using formulae and using equations. (KS3) Combustion, thermal decomposition, oxidation and displacement reactions. (KS3) Defining acids and alkalis in terms of neutralisation reactions. (KS3) The pH scale for measuring acidity/alkalinity; and indicators. (KS3)
Cultural Capital					
<p>Visits and visitors</p> <p>We the Curious (Bristol)</p>		<p>Experiences and events</p> <p>Baking and cooking (reversible and irreversible change)</p>		<p>Key texts</p> <p><i>Itch</i> (Simon Mayo) <i>Kensuke's Kingdom</i> (Michael Morpurgo) <i>The BFG</i> (Roald Dahl)</p>	
<p>Community events and links</p> <p>Macmillian Coffee morning Christmas fair – children make things using different 'changes'</p>		<p>Global issues</p> <p>Impact of Micro plastics on the world's oceans.</p>		<p>Famous people/ Key Scientists</p> <p>Spencer Silver, Arthur Fry and Alan Amron (Post-It Notes) Ruth Benerito (Wrinkle-Free Cotton)</p>	

Life Skills Curiosity Resilience Making Links	Key places School kitchen	