



Year 5 –Materials (Mixtures and separation)



Working Scientifically	Sticky Knowledge	Linked Texts	Key Scientists										
- Recall and use specific scientific vocabulary accurately (year group key vocabulary) - Plan different types of scientific enquiries to answer questions, include recognise and control variables where necessary - Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why - Take measurements, use a range of scientific equipment, with increasing accuracy and precision, take 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, include 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. - Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas	When two or more substances are mixed and remain present the mixture can be separated. Some changes can be reversed and some can't. Materials change state by heating and cooling. <table><tr><th>Separating technique</th><th>Difference in property required</th></tr><tr><td>Filtration and sieving</td><td>A solid that does not dissolve in a liquid. Different sized solid bits</td></tr><tr><td>Magnets</td><td>Some materials magnetic others not</td></tr><tr><td>Evaporation</td><td>A solid dissolved in water and the solid has a high boiling temperature</td></tr><tr><td>Floating</td><td>Some materials float and other sink</td></tr></table>	Separating technique	Difference in property required	Filtration and sieving	A solid that does not dissolve in a liquid. Different sized solid bits	Magnets	Some materials magnetic others not	Evaporation	A solid dissolved in water and the solid has a high boiling temperature	Floating	Some materials float and other sink	<i>Itch</i> (Simon Mayo) <i>Kensuke's Kingdom</i> (Michael Morpurgo) <i>The BFG</i> (Roald Dahl)	Spencer Silver, Arthur Fry and Alan Amron (Post-It Notes) Ruth Benerito (Wrinkle-Free Cotton) Jamie Garcia (BP website)- Invention of a new plastic
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Key Question(s):	Key Question(s):	WS vocabulary											
Can you describe the process of filtering? What are the properties of a liquid? How can solids, liquids and gases be classified?	What are mixtures? What does dissolving mean? Which of the following dissolve in water: sugar, bicarbonate of soda, oil, chocolate, coffees, dark vinegar and wax? How does the amount of water used affect how much sugar will dissolve in it? Which sweets dissolve in water? How can we separate mixtures? How can we clean our dirty water?	Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion, graph, patterns, distance, data, theory, fair test, reasoning											

Teaching suggestions in Enquiry types

<u>Comparative tests</u>	<u>Identify & Classify</u>	<u>Observation over time</u>	<u>Pattern Seeking</u>	<u>Research</u>	<u>BIG Question – Problem solving</u>
How does the temperature of tea affect how long it takes for a sugar cube to dissolve? Which type of sugar dissolves the fastest? 	Can you group these materials based on whether they are transparent or not? 	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? 	Do all stretchy materials stretch in the same way? How does temperature affect how much solute we can dissolve? 	What are microplastics and why are they harming the planet? 	How can we separate a mixture of water, iron filings, salt and sand? (Also use EXPLORIFY) <u>Assessment Opportunity</u> 