

Advent 1
Science Year 5: Properties and Changes of Materials (Chemistry)

Scripture Link:

National Curriculum Objective

Enquiry Question: How can materials change?

	Lesson 1	Lesson 2	Lesson 3
Learning intention for each lesson	To investigate how to separate mixtures of materials.	To explore dissolving	To explore melting
Recall and Retrieval	Can name some synthetic and man made materials. Can define what is meant by synthetic and man made. What waterproof means.	Know what a magnet is and how it works how to use my knowledge of solids, liquids and gases to decide how mixtures might be separated through filtering, magnetic attraction, sieving and evaporating.	know that some solids will dissolve in liquid to form a solution That the shape of some materials can be changed when they are stretched, twisted, bent and squashed.
Sequence of substantive knowledge throughout the lesson	I know how to group together everyday materials of the basis of their properties. I know how to use my knowledge of solids, liquids and gases to decide how mixtures might be separated through filtering, magnetic attraction, sieving and evaporating.	(use first part of lesson 2) I know what dissolving is. I know that some solids will dissolve in liquid to form a solution	(continuing lesson 2) I know what melting is I know the difference between dissolving and melting I know that some things melt when heat is applied.
Key Skills/disciplinary knowledge	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; using test results to make predictions to set up further comparative and fair tests; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations; identifying differences, similarities or changes related to simple scientific ideas and processes; 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; using test results to make predictions to set up further comparative and fair tests; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations; identifying differences, similarities or changes related to simple scientific ideas and processes; 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; using test results to make predictions to set up further comparative and fair tests; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations; identifying differences, similarities or changes related to simple scientific ideas and processes;

Key Vocabulary	change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, change, burning, rusting, new material	change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, change,	change of state, mixture, melting, solution, soluble, insoluble, filter, change,
Main teaching activity <i>If the school has another short term planning format, this does not need to be included.</i>	Children to separate drawing pins, paper, soil, rice and paper clips using different techniques. Children to describe how they separated the mixture.	Children to watch the BBC video of dissolving. Children to complete sentences using the key vocabulary explaining the process of dissolving. Key words: soluble salt dissolves insoluble sugar solvent water solution solute	Children to recap what dissolving is. Children to investigate how long it takes for chocolate, butter and ice to melt using three different approaches: hold it in your hand, hot water and leaving it alone.
Scaffolding	Children to work in mixed ability groups.	Focus group can be taken to support any misconceptions or support with language. Vocabulary cards could be provided to support scientific language.	Provide children with differentiated tables if needed- depending on the level they are working on.
Challenge	What other processes could be used to separate mixtures?	Children to identify whether some statements about dissolving are true or false.	Can the process of melting be reversed? If so, how?
Diversity Links			
Catholic Social Teaching Principles			
British Values			
Wider links			

Advent 1
Science Year 5: Properties and Changes of Materials (Physics)

	Lesson 4	Lesson 5	Lesson 6
Learning intention for each lesson	To investigate solubility.	To investigate how evaporation works.	
Recall and Retrieval	Can identify some natural and synthetic materials know what melting is know the difference between dissolving and melting know that some things melt when heat is applied.	know what soluble and insoluble means. know some materials that are soluble or insoluble Acids like fruit juice, vinegar, cola dissolve the enamel on teeth. The outsides of our teeth are covered with enamel The insides of our teeth have blood vessels and nerves.	
Sequence of substantive knowledge throughout the lesson	I know what soluble and insoluble means. I know some materials that are soluble or insoluble	I know that the original solid material is recoverable from some solutions through the process of evaporation. I know that the addition of heat increases the rate of evaporation	
Key Skills/disciplinary knowledge	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; using test results to make predictions to set up further comparative and fair tests; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations; 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations; identifying differences, similarities or changes related to simple scientific ideas and processes; 	

	<ul style="list-style-type: none"> identifying differences, similarities or changes related to simple scientific ideas and processes; identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> identifying scientific evidence that has been used to support or refute ideas or arguments 	
Key Vocabulary	change of state, mixture, dissolve, solution, soluble, insoluble, change,.	change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, change,	
Main teaching activity <i>If the school has another short term planning format, this does not need to be included.</i>	<p>Investigation</p> <p>Children to investigate which substances are soluble and which are insoluble: salt, sugar, flour, sand, coffee, rice, chalk and gravy.</p> <p>Children to record their findings as an investigation write up.</p>	<p>Children to watch how evaporation works using a cold piece of cardboard and a kettle.</p> <p>Children to record their observations.</p>	
Scaffolding	<p>Children to work in mixed ability groups.</p> <p>Focus group can be taken to support any misconceptions or support with language.</p> <p>Vocabulary cards could be provided to support scientific language.</p>	<p>Children to work in mixed ability pairs.</p> <p>Vocabulary cards could be provided to support scientific language.</p>	
Challenge	Can you identify any further substances that would be soluble or insoluble?	Consider how the rate of evaporation is affected by heat.	
Diversity Links			
Catholic Social Teaching Principles			
British Values			
Wider curriculum links			