

Advent 2
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 what a reversible change is.	To investigate examples of irreversible change.	To investigate the importance of materials used in electrical circuits.
Recall and Retrieval	Can explain what is meant by condensation and evaporation know that the addition of heat increases the rate of evaporation	know that some good conductors include: many metals, such as copper, iron and steel. know that some materials do not allow electricity to pass through them. These are known as insulators. know that plastic, wood, glass and rubber are good insulators. That is why they are used to cover materials that carry electricity. know that the plastic covering those surrounds wires is an electrical insulator and it stops you from getting an electrical shock.	know what reversible means. know that dissolving, mixing and changes of state are reversible changes know that a simple electrical circuit needs: a battery (or other energy source), a light bulb (or other device that uses energy) and wires
Sequence of substantive knowledge throughout the lesson	I know what reversible means. I know that dissolving, mixing and changes of state are reversible changes	I know that some changes result in the formation of new materials and that this kind of change is not usually reversible (burning, acid on bicarb)	I know what a 'conductor' is. I know what a 'thermal insulator' is. I know which materials are thermal conductors and insulators. I know why thermal conductors and insulators are used.
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 	<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 	<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

	<p>explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;</p> <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 	<p>degree of trust in results, in oral and written forms such as displays and other presentations;</p> <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 	<p>degree of trust in results, in oral and written forms such as displays and other presentations;</p> <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
Key Vocabulary	change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/not reversible, change, new material	change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/not reversible, change, burning, rusting, new material	Thermal/electrical insulator/conductor, change of state, , reversible/not reversible, change, burning, rusting, new material
Main teaching activity <i>If the school has another short term planning format, this does not need to be included.</i>	<p>Children to complete the milk carton experiment as a class.</p> <p>Children to explain what reversible means.</p> <p>Children to cut and stick reversible change images into their book.</p>	<p>Children to complete the bottle and balloon experiment as a class.</p> <p>Children to explain what irreversible means.</p> <p>Children to cut and stick irreversible change images into their book.</p>	<p>Children to make predictions about which materials will be conductors or insulators of electricity.</p> <p>Children to test the materials and record their results.</p> <p>What have we learnt? Share their observations.</p>
Scaffolding	<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>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 groups</p> <p>Provide a table for the recording of results.</p> <p>Vocabulary cards could be provided to support scientific language.</p>
Challenge	What other reversible changes can you identify?	Complete the reversible and irreversible changes quiz.	Why are thermal conductors and insulators used? Discuss as a class.
Diversity Links			
Catholic Social Teaching Principles			
British Values			
Wider links			

Advent 2
Science Year 5: Properties and Changes of Materials (Physics)

	Lesson 4	Lesson 5	Lesson 6
Learning intention for each lesson	To know why metal wire is used in electrical circuits.	To find out about glue.	
Recall and Retrieval	know what a 'conductor' is. know what a 'thermal insulator' is. know which materials are thermal conductors and insulators. know why thermal conductors and insulators are used. Can group materials according to their properties.	know that some scientists work to develop our knowledge of electricity. know that Alessandro Volta, Michael Faraday were scientists involved in the early development of electricity know that Henry Snaith is a modern scientist involved in the development of solar electricity..	
Sequence of substantive knowledge throughout the lesson	I know the reasons for the use of metal wire compared to wood and plastic in an electrical circuit.	I know about a famous scientific discovery. I know how glue is made and its properties.	
Key Skills/disciplinary knowledge	<ul style="list-style-type: none"> • 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 scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> • 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 scientific evidence that has been used to support or refute ideas or arguments 	
Key Vocabulary	Thermal/electrical insulator/conductor, change of state, sieve, reversible/not reversible, change, burning, rusting, new material	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, reversible/not reversible, change, new material	

Main teaching activity <i>If the school has another short term planning format, this does not need to be included.</i>	Children to write sentences to explain why metal wires are important within circuits as a fill in the missing gaps task.	Children to write some key facts about the history of glue/ timeline. Children to design and make their own glue using their own choice of substances.	
Scaffolding	Children to work in mixed ability pairs. Vocabulary cards could be provided to support scientific language.	Children to work in mixed ability groups. Vocabulary cards could be provided to support scientific language.	
Challenge	Why wouldn't wood and plastic wires be beneficial in an electrical circuit?	Share your findings about the work of Spencer Silver and Arthur Fry with someone else.	
Diversity Links			
Catholic Social Teaching Principles			
British Values			
Wider curriculum links			