

Year Group	5
Term	Autumn
Subject	Science

Topic	Properties and Changes to materials
Curriculum Intent	Compare and group together everyday materials on the basis of their properties, including their hardness, transparency, and conductivity

Key Vocabulary	Transparency, conductivity, hardness, properties, investigate, dissolve, classify, variables, soluble, reversible, irreversible, solutions, liquids, gases, thermal, conductivity
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Skills	Sorting and classifying materials, undertaking fair tests, prediction, using scientific equipment
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Knowledge	• To understand that materials can conduct electricity • To understand that there are three states of matter, gas, liquid and solid • To understand the process of melting • To understand the process of freezing • To understand what transparency means in terms of materials • To understand the benefits of different materials • To understand the qualities of different materials • To know how to complete a fair test and how to use this to test materials • To know how to use data to infer results
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Autumn 1			
Week	Learning Objective	Activities	Outcomes
1 and 2	LO: To investigate which materials are soluble	Children will explore what happens to substances when they are mixed with water. In their activities, they will conduct a fair test to find out which substances are soluble, and which are insoluble.	For children to predict and then test materials to see if they are soluble and insoluble. This will be presented as a detailed experiment in books.
3 and 4	LO: To understand how mixtures can be separated	Children will explore ways in which the original materials in some mixtures and solutions may be recovered, by the process of evaporation, or by sieving or filtering	A fair experiment to be created and written in books, predicting and then testing which materials can be separated from liquids.
5	LO: To understand reversible and irreversible changes	Children will understand what is a reversible and what is an irreversible change. They will use their knowledge to understand whether the changes in materials can be reversed using the previous two lessons.	Predictions to be made in books to see which changes children think are reversible. These to be discussed in groups and in class and some testing taking place.
6	LO: To understand the process of heating and cooling	Children will learn about reversible and irreversible changes caused by heating or cooling materials. They will then either predict and sort materials according to what may happen when they are heated or cooled, or explore irreversible reactions by cooking.	Experiments using heat and ice on solutions and solids to take place and be written up into books as a fair test.
7	LO: To understand thermal conductors and insulators	Children will understand what a thermal conductor and insulator are. They will conduct tests on different	Children to create predictions in their books about what

		materials to see if they conduct heat. Can they already think of materials that conductor and insulate?	materials conduct and insulate and then create a list/table of insulating materials.
8	LO: To identify which materials are the best electrical conductors	What is an electrical conductor? Children to look at which materials will allow electricity to light a lightbulb? What materials are electrical conductors?	Fair experiment to test electricity with write up in books to show predictions and results.
9	LO: To explore how chemists create new materials	To research key scientists Spencer Silver and Ruth Benerito and what they did to create new materials. What other scientists can they research that have worked on changing materials?	Research inline and then presented in poster and fed back to the rest of the class to spread knowledge.
10	LO: To prepare and group everyday materials	Children will identify and discuss several different properties of a range of materials (conductive, magnetic, soluble, flexible, transparent etc.), then either sort and group given sets of materials, or use their scientific enquiry skills to explore the properties of some materials.	Children to have created a table showing the properties of each material following some fair testing
11	LO: To understand how materials can be used in everyday situations	children will use their knowledge and reasoning skills to explain how the properties of a material make it useful for a specific purpose.	Children to create a table of materials that can be used for certain key purposes.