



Spring 1	Changes of materials					
Prior learning	Properties of Materials: Year 1 – identify materials and describe properties; Year 2 – identify and compare suitability of materials					
Lesson objective	Use evaporation to recover the solute from a solution	Recognise and describe reversible changes	Observe chemical reactions and describe how we know new materials are made	Investigate rusting reactions	Investigate burning reactions	Investigate chemical reactions - acids and bicarbonate of soda
Key vocabulary	pure substance solute solvent solution evaporate	reversible mixture physical change melting evaporate	irreversible chemical change compare effervescence product	fair test variable control variable corrosion rusting	combustion fuel oxygen extinguish smother	reaction predict acid bicarbonate of soda carbon dioxide
Creative context						
Substantive knowledge	Describe how to recover a substance from a solution	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	Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible	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.	Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated the action of acid on bicarbonate of soda
Disciplinary knowledge	Reporting and presenting findings from enquiries, including conclusions	Reporting and presenting findings from enquiries, including conclusions, in oral and written forms readings when appropriate	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Identifying scientific evidence that has been used to support or refute ideas or arguments	Using test results to make predictions to set up further comparative and fair tests



		Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	results, in oral and written forms such as displays and other presentations			
Recorded learning	Place two labelled containers of solution in a warm place for the water to evaporate. While the water is evaporating to complete handout to detail the method being used to recover the solute from the solution and use scientific ideas to explain what they expect to observe using the keywords.	Carousel of problems to solve. Each station has a mixture, solution or change of state to reverse. Explain each problem, describe what it is made up from and outline how they plan to reverse the change.	Explore 4 examples of chemical changes. Carry out/watch a range of practical demonstrations to look at the changes that take place in an irreversible change to show a new product has been made. Adding vinegar to bicarbonate of soda (observe a gas) Observe a candle burning (observe light and heat being given out) Add milk to vinegar (making a precipitate - curdled milk)	Plan and set up an experiment to investigate rusting. Record their investigation question, prediction, method, how they have ensured a fair test, control variables, observations and conclusion. Challenge Task: Discuss why rusting is an irreversible change, why it is a problem and how it can be prevented?	Summarise combustion reactions and how we can control them using the fire triangle. Make a fact sheet about the fire triangle and link this to fire extinguishers. Challenge Task: Apply knowledge to a different situation; e.g. explore natural and man-made fire breaks in forests.	Predict and test how different liquids react with bicarbonate of soda. Observe the reactions and record them in a table. Write a conclusion. Challenge Task: Task the children with drawing a diagram to explain the reaction taking place. Ask them to include what sort of change it is and the product of the reaction.



Science – Year 5



			Summarise how they can tell a new product has been formed.			
Future learning						