



Topic name	Term	Skills developed	Link to NC subject content and beyond	Prior knowledge	Next link in curriculum
Chemical Reactions	<i>Autumn</i>	<ul style="list-style-type: none"> Estimating risks Test hypotheses Collecting data Presenting data Draw conclusions Constructing explanations Justifying opinions Draw conclusions Construct explanations 	<ul style="list-style-type: none"> Chemical reaction or Physical change Representing chemical reactions using formulae and using equations The chemical properties of metal and non-metal oxides with respect to acidity Chemical reactions as the rearrangement of atoms Conservation of mass changes of state and chemical reactions Combustion, thermal decomposition, oxidation and displacement reactions Exothermic and endothermic chemical reactions Reactions of acids with metals to produce a salt plus hydrogen Making clean, dry soluble salts Reactions of metal compounds with acid The tests for oxygen, carbon dioxide and hydrogen gas 	<p>Prior Knowledge from KS2</p> <p>Students should be able to:</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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 and the action of acid on bicarbonate of soda.</p> <p>Prior Knowledge from KS3</p> <p>Y8 Separating Mixtures</p> <ul style="list-style-type: none"> Filtration Evaporation 	<ul style="list-style-type: none"> Y9 Spring: The Earth & Materials <p>Links to GCSE Topic 3 – Quantitative Chemistry Year 10:</p> <ul style="list-style-type: none"> Conservation of mass <p>Links to GCSE Topic 4 – Chemical Changes Year 10:</p> <ul style="list-style-type: none"> Reactions of metals and acids Strong and weak acids Titrations <p>Links to GCSE Topic 5 – Energy Changes Year 11:</p> <ul style="list-style-type: none"> Endothermic and Exothermic reactions Catalysts <p>Links to GCSE Topic 8 – Chemical Analysis Year 10:</p> <ul style="list-style-type: none"> Testing for gases <p>Links to GCSE Topic 9 – Year 10:</p>



				Y8 Atoms, Elements & Compounds Y8 The Periodic Table	Chemistry of the Atmosphere <ul style="list-style-type: none">Combustion
Introduction to Bonding	<i>Spring</i>	<ul style="list-style-type: none">Justify opinionsReview theoriesDraw conclusionsMake observationsConstruct explanationsDiscuss limitations	<ul style="list-style-type: none">Why do elements react?How can we identify a chemical reaction?Types of Chemical bondRepresenting Ionic bondsRepresenting Covalent bondsRepresentation of compounds using Chemical and Ionic formulae	Prior Knowledge from KS3 Y8 Atoms, Elements & Compounds topic: <ul style="list-style-type: none">Structure of the atom and the properties of the subatomic particlesElectron Configuration	<ul style="list-style-type: none">Y8 Spring: The Periodic Table Links to GCSE Topic 1 – Atomic structure & the Periodic Table Year 10: <ul style="list-style-type: none">Atomic structureAtoms, Elements, Mixtures & Compounds Links to GCSE topic 2 – Structure & Bonding Year 10: <ul style="list-style-type: none">Why do elements react?Ionic BondingCovalent bonding



The Earth & Materials	<i>Summer</i>	<ul style="list-style-type: none">Analyse patternsReview theoriesDiscuss limitationsDraw conclusionsConstruct explanationsCollect dataPresent dataCommunicate IdeasJustify OpinionsEstimate risksExamine consequencesReview theories	<ul style="list-style-type: none">The identification of pure substancesCarbon is recycled through natural processes in the atmosphere, ecosystems, oceans and the Earth's crust (such as photosynthesis and respiration) as well as human activities (burning fuels).Crude oil is a mixture of hydrocarbons resources that are used as a fuel and to make other materials. The burning of hydrocarbons releases carbon dioxideGreenhouse gases reduce the amount of energy lost from the Earth through radiation and therefore the temperature has been rising as the concentration of those gases has risen.Scientists have evidence that global warming caused by human activity is causing changes in climate.Sedimentary, igneous and metamorphic rocks can be inter converted over millions of years through weathering and erosion, heat and pressure, and melting and cooling.	Prior Knowledge from KS2 Students should be able to: Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Links to GCSE Topic 9 – Chemistry of the Atmosphere Year 10: <ul style="list-style-type: none">CombustionComposition of the atmosphereClimate changeGreenhouse effect Links to GCSE Topic 10 – Using resources Year 11: <ul style="list-style-type: none">Finite resourcesCrude oilMaterials
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