



Topic name	Term	Skills developed	Link to NC subject content and beyond	Prior knowledge	Next link in curriculum
Chemical Reactions	Autumn	<ul style="list-style-type: none">Estimating risksTest hypothesesCollecting dataPresenting dataDraw conclusionsConstructing explanationsJustifying opinionsDraw conclusionsConstruct explanations	<ul style="list-style-type: none">Chemical reaction or Physical changeRepresenting chemical reactions using formulae and using equationsThe chemical properties of metal and non-metal oxides with respect to acidityChemical reactions as the rearrangement of atomsConservation of mass changes of state and chemical reactionsCombustion, thermal decomposition, oxidation and displacement reactionsExothermic and endothermic chemical reactionsReactions of acids with metals to produce a salt plus hydrogenMaking clean, dry soluble saltsReactions of metal compounds with acidThe 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">FiltrationEvaporation	<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 <p>Year 10:</p> <ul style="list-style-type: none">Strong and weak acidsTitrations <p>Links to GCSE Topic 5 – Energy Changes Year 11:</p> <ul style="list-style-type: none">Endothermic and Exothermic reactionsCatalysts <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
The Periodic Table and an Introduction to Chemical Bonding	<i>Spring</i>	<ul style="list-style-type: none">Justify opinionsReview theoriesDraw conclusionsMake observationsConstruct explanationsDiscuss limitationsCollecting dataAnalyse patternsDraw conclusionsEstimate risksPlan variablesTest hypotheses	<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 formulaeThe principles underpinning the Mendeleev periodic tableThe periodic table: periods and groups; metals and non-metalsHow patterns in reactions can be predicted with reference to the periodic tableTrends in physical propertiesExplaining trends in reactivity in group 1, 7, and 0	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 ConfigurationStructure 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 & CompoundsGroup 1, 7 & 0 Links to GCSE topic 2 – Structure & Bonding Year 10: <ul style="list-style-type: none">Why do elements react?Ionic BondingCovalent bonding



<p>Material Science</p>	<p><i>Summer</i></p>	<ul style="list-style-type: none"> Analyse patterns Review theories Discuss limitations Draw conclusions Construct explanations Collect data Present data Communicate Ideas Justify Opinions Estimate risks Examine consequences Review theories 	<ul style="list-style-type: none"> The identification of pure substances Carbon 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 dioxide Greenhouse 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. 	<p>Prior Knowledge from KS2</p> <p>Students should be able to:</p> <p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter.</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Links to GCSE Topic 9 – Chemistry of the Atmosphere</p> <p>Year 10:</p> <ul style="list-style-type: none"> Combustion Composition of the atmosphere Climate change Greenhouse effect <p>Links to GCSE Topic 10 –</p> <p>Using resources</p> <p>Year 11:</p> <ul style="list-style-type: none"> Finite resources Crude oil Materials
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