



Topic name	Term	Skills developed	Link to NC subject content and beyond	Prior learning	Next link in curriculum
Atoms, Elements & Compounds	Autumn	- Collecting data - Analyse patterns - Justify opinions - Review theories - Draw conclusions - Make observations - Estimate risks - Plan variables - Test hypotheses - Construct explanations - Discuss limitations	- Differences between atoms, elements and compounds - Chemical symbols and formulae for elements and introduced to the formula for compounds - The structure of the atom including the subatomic particles - The properties of subatomic particles - Electron configuration - Using the periodic table to determine atomic structure - The varying physical and chemical properties of different elements - The properties of metals and non-metals - Elements can combine in a Chemical reaction to make compounds - How do we name compounds? - Representing reactions with simple word equations	Prior Knowledge from KS2 Students should be able to: Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Compare and group materials together, according to whether they are solids, liquids or gases. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	- Y8 Spring: Links to GCSE Topic 1 – Atomic structure & the Periodic Table Year 10: - Atomic structure - Atoms, Elements, Mixtures & Compounds - Development of the periodic table - Trends in group 1, 7, & 0 - Properties of alkali vs transition metals - Separating mixtures Links to GCSE Topic 8 – Chemical Analysis Year 11: - Pure and impure substances



Introduction to Energy and Rates of Reaction	<i>Spring</i>	• How energy transferred in a chemical reaction. • What is an exothermic reaction • What is an endothermic reaction • What is collision theory • How do we measure rate of reaction • What factors affect rate of reaction • How do we plan an investigation to determine what affects the rate of a reaction • What are the variables considered in an investigation	Links to GCSE Topic 5 – Energy Changes Year 11: • Endothermic and Exothermic reactions • Catalysts Links to GCSE Topic –4.5 Energy Changes and 4.6 Rates of Reaction Year 11: • Exo and Endo • Collision Theory • Rate Graphs • Rates practicals.	Prior Knowledge from KS3 Y7 Investigative Skills - Drawing Tables - Variables - Drawing Graphs - Conclusions and evaluations. Y7 Particles - Particle Theory - Particle Diagrams	Links to GCSE Topic 5 – Energy Changes Year 11: • Endothermic and Exothermic reactions • Catalysts Links to GCSE Topic –4.5 Energy Changes and 4.6 Rates of Reaction Year 11: • Exo and Endo • Collision Theory • Rate Graphs • Rates practicals.
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Chemical Reactions (Part 1)	<i>Summer</i>	• Estimating risks • Test hypotheses • Collecting data • Presenting data • Draw conclusions • Constructing explanations • Justifying opinions • Draw conclusions • Construct explanations	• Chemical reaction or Physical change • Representing chemical reactions 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 • The tests for oxygen, carbon dioxide and hydrogen gas	Prior Knowledge from KS2 Students should be able to: Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. 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, including changes associated with burning and the action of acid on bicarbonate of soda. Prior Knowledge from KS3 Y8 Separating Mixtures • Filtration • Evaporation Y8 Atoms, Elements & Compounds Y8 The Periodic Table	• Y9 Spring: The Earth & Materials Links to GCSE Topic 3 – Quantitative Chemistry Year 10: • Conservation of mass Links to GCSE Topic 4 – Chemical Changes Year 10: • Reactions of metals and acids Year 11: • Strong and weak acids • Titrations Links to GCSE Topic 8 – Chemical Analysis Year 10: • Testing for gases Links to GCSE Topic 9 – Year 10: Chemistry of the Atmosphere Combustion
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