

Curriculum Map Year 9 – Chemistry

	Topic	Key Knowledge <i>What will students know by the end of this topic?</i>	Key Skills <i>What skills will students have developed by the end of this topic?</i>	Assessment Opportunities <i>How will student progress be measured? What are the key assessment pieces?</i>
Half Term 1	Atomic structure and the Periodic Table	A simple model of the atom The development of the model of the atom including: • The Dalton Model • The plum pudding model • The nuclear model and • The Bohr model including associated evidence The difference between atoms, elements and compounds Sizes, locations, masses and charges of sub-atomic particles including relative atomic mass The electronic structure(s) of elements up to and including calcium How chemical reactions are represented using word and symbol equations	Fluency in the use of IUPAC nomenclature regarding element symbols, atomic numbers and mass numbers and electronic structures. Construction and use of word and symbol equations. Explaining how new evidence can lead to changes in accepted models. Application of key mathematical skills: calculating numbers of sub-atomic particles, the relative size of atoms, using extremely small and large numbers and the associated use of standard form, SI units and standard prefixes	Elemental recognition against the clock Past paper questions
Half Term 2	Atomic structure and the Periodic Table	The development of the periodic table The structure of the modern periodic table The chemistry of the elements of: • Group 1	Fluency in the use of IUPAC nomenclature regarding element symbols and electronic structures. Construction and use of word and symbol equations. Explaining how new evidence can lead to changes in accepted models. Application of key mathematical skills: Processing data to reveal patterns within elemental properties, plotting data accurately into graphs constructed from scratch, interpreting data and graphs of elemental data.	Past paper questions Elemental recognition against the clock Part topic test: Atomic Structure & Periodic Table 1

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Half Term 3	Atomic structure and the Periodic Table Chemical Analysis	The chemistry of the elements of: • Group 1 • Group 7 • Group 0 Properties of some of the transition metals The difference between pure substances and mixtures and formulations Physical separation processes including: • Filtration, crystallisation, simple and fractional distillation and chromatography	Fluency in the use of IUPAC nomenclature regarding representations of apparatus Construction and use of word and symbol equations. Be able to explain how chromatography separates mixtures. Interpretation of chromatograms Describing how to carry out tests for gases Application of key mathematical skills: Processing data to reveal patterns within elemental properties, plotting data accurately into graphs constructed from scratch, interpreting data and graphs of elemental data.	Past paper questions
Half Term 4	Chemical Analysis	Physical separation processes including: • Filtration, crystallisation, simple and fractional distillation and chromatography • Reasons why these separation techniques work and examples of mixtures that can be separated by these methods The gases: • Hydrogen • Oxygen • Carbon dioxide and • Chlorine can be identified by simple laboratory tests and the positive test results for these gases	Fluency in the use of IUPAC nomenclature regarding representations of apparatus Construction and use of word and symbol equations. Be able to explain how chromatography separates mixtures. Interpretation of chromatograms Describing how to carry out tests for gases	Past paper questions Part topic test: Atomic Structure & Periodic Table 2 Required Practical 6
Half Term 5	Chemistry of the atmosphere	The proportions of the different gases in the atmosphere The theory of how the Earth's early atmosphere was generated, how it has changed and what has and is currently changing it. Specifically: • Combustion reactions • Carbon dioxide production • Other pollutants	Fluency in the use of IUPAC nomenclature regarding construction and use of word and symbol equations. Explaining how (new) evidence can lead to changes in and/or re-enforcement of, accepted models.	Past paper questions Year 9 examination

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Half Term 6	Chemistry of the atmosphere	Principles behind the greenhouse effect How human activities contribute towards the greenhouse effect Principles behind and effects of climate change The definition of a carbon footprint, how it's value is arrived at and how it can be reduced A range of common atmospheric pollutants, their sources and effects	Fluency in the use of IUPAC nomenclature regarding construction and use of word and symbol equations. Explaining how (new) evidence can lead to changes in and/or re-enforcement of, accepted models and how peer review is an essential part of this process. Describing the difficulties in the use of large data sets and modelling complex systems Be able to evaluate the quality of evidence Be able to describe uncertainties in evidence Be able to describe how a range of pollutants are formed and predict the products of combustion reactions Be able to describe and explain the problems caused by increased levels of pollutants Be able to describe effects of global climate change Be able to discuss the scale, risk and environmental implications of climate change Be able to describe actions to reduce greenhouse gas emission but also why these may be limited	Past paper questions End of topic test