St George's School
SCIENCE Department
Year 9 Curriculum Map

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
THE BIG IDEAS & KNOWLEDGE *Overview of topics or key questions*	Atomic Structure Atoms, elements and compounds Structure of the atom History of structure Electronic structure Ions and isotopes Balancing equations	The Atmosphere Composition of atmosphere now History of the atmosphere Evolution of the atmosphere Greenhouse gases Climate change Atmospheric pollution	Crude OIl and Fuels (after completion of Atmosphere topic) Hydrocarbons and alkanes in particular Formation of crude oil Fractional Distillation of crude oil Properties of fractions of crude oil Burning hydrocarbon fuels Cracking hydrocarbons		Earth's Resources Pure substances and mixtures Finite and renewable resources Water safe to drink - desalination of sea water Treatment of groundwater (rivers and lakes) Treatment of waste water (sewage) Life cycle assessment Recycling (metals and plastics) Project on water	
SKILLS & STRATEGIES *Procedural knowledge, literacy and numeracy skills*	Describing concepts using models Explaining and sequencing Scientific method - linking experiment to hypothesis Numerical and logic skills	Describing, explaining and sequencing Data interpretation from tables and graphs Linking causes to effects Knowledge of key facts	Describing, explaining and sequencing steps in a process Describing concepts using models Knowledge of key facts		Describing, explaining and sequencing steps in a process Knowledge of key facts Practical skills (required practical) Interpretation of data in tables and graphs Research skills	

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FEEDBACK *Noteworthy tasks and assessments*	End of topic test Assessed homework task on the history of the structure of the atom and related experiments	End of topic test Assessed homework task on changes to the atmosphere to develop skills in answering 6-8 mark GCSE questions requiring continuous prose	End of topic test Assessed homework task - exam questions on fractional distillation including further practice of 6 mark extended answer		End of topic test Assessed homework task - exam questions requiring data analysis skills End of Year exam covering all 4 topics	
BREADTH *Opportunities, trips, wider reading, cultural capital*	Understanding the scientific process - refining a hypothesis through new experimental evidence	Cultural capital: Understanding our carbon footprint and how to reduce it. Knowledge of current issues on climate change DVDs like 'Inconvenient Truth' and 'Climate change - the facts'	Cultural capital: Atmospheric pollution - the impacts and how to reduce it		Cultural capital: citizenship - conservation of finite resources and recycling	
KEY VOCABULARY *Important words and phrases*	Atom, element, molecule, compound, nucleus, electron, proton, neutron, electron shell, ion, atomic number, mass number, isotope, reactant, product, period, group	Atmosphere, locked up, condense, greenhouse gas, climate change, carbon footprint, carbon capture, complete combustion, incomplete combustion, particulate, global dimming	Crude oil, hydrocarbon, saturated, alkane, fractional distillation, fraction, flammability, viscosity, vaporisation, condensation, boiling point, volatility, complete combustion, incomplete combustion, cracking, thermal decomposition, alkene, unsaturated		Pure, mixture, formulation, finite resource, renewable resource,potable, desalination, evaporate, condense, distillation, reverse osmosis, sludge, effluent, filtration, sedimentation, sterilisation, Life Cycle Assessment (LCA), recycling, reusing	