



**St George's School**  
**SCIENCE Department**  
**Year 9 Curriculum Map**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>THE BIG IDEAS &amp; KNOWLEDGE</b>  <i>Overview of topics or key questions</i></p>	<p>Atomic Structure            Atoms, elements and compounds            Structure of the atom            History of structure            Electronic structure            Ions and isotopes            Balancing equations</p>	<p>The Atmosphere            Composition of atmosphere now            History of the atmosphere            Evolution of the atmosphere            Greenhouse gases            Climate change            Atmospheric pollution</p>	<p>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</p>		<p>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</p>	
<p><b>SKILLS &amp; STRATEGIES</b>  <i>Procedural knowledge, literacy and numeracy skills</i></p>	<p>Describing concepts using models            Explaining and sequencing            Scientific method - linking experiment to hypothesis            Numerical and logic skills</p>	<p>Describing, explaining and sequencing            Data interpretation from tables and graphs            Linking causes to effects            Knowledge of key facts</p>	<p>Describing, explaining and sequencing steps in a process            Describing concepts using models            Knowledge of key facts</p>		<p>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</p>	

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>FEEDBACK</b> <i>Noteworthy tasks and assessments</i>	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 assessment of knowledge (via multiple choice) and general scientific skills	
<b>BREADTH</b> <i>Opportunities, trips, wider reading, cultural capital</i>	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 - obtaining clean drinking water, conservation of finite resources and recycling	
<b>KEY VOCABULARY</b> <i>Important words and phrases</i>	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	