



Subject: Science	Components			Composite	Mission statement
	What new knowledge do we introduce?			What do students <i>do</i> with this knowledge?	By the end of year 9 a Sybil Andrews Science student will...
	Year 7	Year 8	Year 9		
Autumn	<p>Being scientists How do we stay safe and get valid results from practical investigations?</p> <p>7.1a A living body (Biology) What are cells and how are they organised to make living things?</p> <p>7.1b Elements, mixtures and compounds (Chemistry) What are atoms? How they affect the properties of a substance?</p>	<p>8.1a How the body works (Biology) How do our bodies stay healthy?</p> <p>8.1b Physical and chemical changes (Chemistry) What common physical and chemical changes do we observe around us?</p>	<p>Cell biology (Biology) Atomic structure (Chemistry) Energy (Physics)</p>	<p>Throughout each topic we want our students to develop their scientific investigation and enquiry skills. By the end of Year 9 our students will be able to explore different phenomena using a range of methods and instruments. They will then use evidence to build and test and different theories or hypothesis.</p> <p>As students progress through the science course they should also be able to justify that applications of science often have ethical,</p>	<p>Identify science as a subject which attempts to make sense of the natural world. They will be able to confident in conduct and evaluating simple investigations to discover how one factor affects another.</p> <p>Understand biology as the science of life, based on cells.</p> <p>Understand chemistry as the science of matter based on atoms.</p> <p>Understand physics as the science of energy and matter and that everything that happens</p>
Spring	<p>7.2a Speed and forces (Physics) What are forces and</p>	<p>8.2a Energy (Physics) What is energy? How is it stored and</p>	<p>Infection and response (Biology) The Periodic Table</p>		



	<p>how are they related to speed?</p> <p>7.2b Habitats and organisation (Biology)</p> <p>How do we measure or represent how living things interact with each other?</p>	<p>transferred?</p> <p>8.2b Evolution and inheritance (Biology)</p> <p>How are is information passed from one generation to the next and why are we all different?</p>	<p>(Chemistry)</p> <p>Radioactivity (Physics)</p>	<p>social, economic and often political implications.</p>	<p>is the result of energy being transferred.</p>
Summer	<p>7.3a Common chemical reactions (Chemistry)</p> <p>What are chemical reactions and how can they be measured or affected?</p> <p>7.3b Electricity (Physics)</p> <p>What is electricity and how can do we use it?</p>	<p>8.3a Chemistry on Earth (Chemistry)</p> <p>How do chemical reactions affect our environment?</p> <p>8.3b Magnetism and waves</p> <p>How do different waves behave? How are magnets and electromagnets?</p>	<p>Organisation (Biology)</p> <p>Structure and bonding (Chemistry)</p> <p>Chemical changes (Chemistry)</p> <p>Electricity in the home (Physics)</p> <p>Particle model of matter (Physics)</p>		
Rationale for these specific components and composite outcomes:	<p>Students are introduced to the big ideas in science gradually and in a progressive manner. Each topic is split into three distinct but complimentary disciplines of Biology,</p>	<p>The complexity of big ideas increases slightly in Year 8 and students will begin strengthen links between each topic. Each topic builds directly on the Year 7</p>	<p>In Year 9 students begin looking at some of the fundamental topics of the GCSE course in more detail. The three sciences disciplines are delivered discreetly but are linked whenever</p>	<p>Science is about gathering and using evidence so that we might learn more about the natural world around us. We want our students to be relentlessly curious and</p>	



	Chemistry and Physics.	<p>topic covered a year earlier.</p> <p>Some topics which students generally find more difficult in KS4 (eg electromagnets) are introduced here to provide early grounding.</p>	<p>possible.</p> <p>Again, each topic builds upon big ideas met in Year 7 and/or 8. Where topics appear similar in heading they will be explored in more depth.</p>	<p>to have the skills available to potentially explore real-world problems.</p>	
<p>How is challenge embedded into the KS3 curriculum?</p> <p>Students must be skilled in safely using a scientific investigation to collect valid data which they should then present and analysis before providing a conclusion of what the data has shown them.</p> <p>Students should be able to model natural processes and have an extensive recall of core knowledge required. They should use ideas from across different topics to provide robust scientific explanations for phenomena.</p> <p>Challenging lessons will require students justifying ideas using either experimental evidence or wider knowledge gained from the course.</p>		<p>How does the KS3 curriculum above build on prior knowledge from KS2 and adequately prepare the student for KS4?</p> <p>Students arrive having variable experience in KS2 Science. In Y7 we aim to consolidate student ideas across the fundamentals big ideas before considering how microscopic or nanoscopic process affect larger scale observations.</p> <p>The KS3 curriculum maps across to KS4 in terms of the big ideas and skills. Subject specific vocabulary is used consistently across both key stages in lessons, learning resources and assessments.</p>			