

Module/Unit of Learning	Taught During	What will students learn?	What enriching opportunities will students engage in?	Links to other Subjects
<b>Cell Biology</b>  <b>Biology Block 1</b>	<b>Autumn 1</b>	Students will be learning all about prokaryotic and eukaryotic cells, how they are observed using light microscopes and how our understanding of cells has developed as microscope technology has developed. We will then study cell transport – diffusion, osmosis and active transport and finally students cover the cell cycle and stem cells.	Studying stem cells and their uses provides an opportunity to discuss an area of science that is rapidly moving forwards and what potential uses there may be in the future, there is also the social, moral, ethical and economical issues surrounding stem cell usage and research.	
<b>Organisation</b>  <b>Biology Block 1</b>	<b>Autumn 1</b>	Students learn about organs, organ systems and how they are adapted for their functions. They also study the importance of enzymes in the digestive system and non-communicable diseases such as coronary heart disease.	Whilst learning about organs and organ systems, students will have the opportunity to watch and take part in dissections.	
<b>Atomic Structure &amp; Periodic Table</b>  <b>Chemistry Block 1</b>	<b>Autumn 2</b>	Students will be developing their knowledge of atoms and the periodic table. They will study in more detail groups of the periodic table and their properties as well as how they react.	Opportunity to learn about the history of the periodic table and the work that went into making it the periodic table we know today.	
<b>Chemical Changes Part 1</b>  <b>Chemistry Block 1</b>	<b>Autumn 2</b>	Students will learn about metal reactivity and how metals are extracted. They will then study metal and acid reactions which leads onto neutralisation and the formation of salts	Students can research and discuss modern methods of mining/extracting metals and their environmental impacts	
<b>Energy</b>  <b>Physics Block 1</b>	<b>Autumn 2</b>	In their first Physics module, students study energy stores, transfers and the efficiency and power of systems. They will also learn about different national and global energy sources	Students can discuss the advantages and disadvantages of different energy sources and also look at current energy usage to discuss how we can sustainably meet the energy demand. Students are also provided with an energy quest work shop.	<b>Maths</b>

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<b>Particle Model</b> <b>Physics Block 1</b>	<b>Spring 1</b>	Students continue their physics journey by learning about particle model of matter and how this links to the density of objects and the energy required to change the state of matter.	Students will investigate the density of different objects and discuss the history behind calculating the density of irregular shaped objects	
<b>Atoms &amp; Radiation</b> <b>Physics Block 1</b>	<b>Spring 1</b>	Students will learn about how the atomic model was developed through the work done by Rutherford and Marsden. They will then look at radioisotopes, radioactive decay and half-life.	History of the atomic model. Students also have a chance to relate radioactive decay to the Chernobyl incident.	
<b>Infection &amp; Response</b> <b>Biology Block 2</b>	<b>Spring 2</b>	Students return to biology content and learn all about communicable diseases and how our bodies immune system works. Students then learn about how vaccinations, antibiotics and painkillers are used and developed.	Students can discuss the use of vaccines as well as the ethical issues surrounding drug testing. Most students will also have the opportunity to study monoclonal antibodies and their uses	
<b>Bioenergetics</b> <b>Biology Block 2</b>	<b>Spring 2</b>	Students will learn about the key biological processes of photosynthesis and respiration. They will then deepen their understanding by looking at how plants are adapted to maximise photosynthesis as well as studying the two types of respiration (aerobic and anaerobic).	Researching how farmers can maximise profits from their crops using knowledge of photosynthesis	<b>P.E</b>
<b>Chemical Analysis</b> <b>Chemistry Block 2</b>	<b>Summer 1</b>	Students will learn all about how scientists analyse chemicals, mixtures and formulations using techniques such as chromatography and flame testing.	Students can apply these techniques to real life scenarios and careers. This module helps students to develop a range of analytical skills.	

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<b>The Atmosphere</b> <b>Chemistry Block 2</b>	<b>Summer 1</b>	Students will learn all about the evolution of Earth's atmosphere starting from when the Earth first formed through to today. Students will then learn about atmospheric pollutants, the greenhouse effect and climate change.	Students will have the opportunity to discuss and research how human activities impact the atmosphere and the Earth's natural resources. We will also discuss how we can be more sustainable.	<b>Geography</b>
<b>Using Resources</b> <b>Chemistry Block 2</b>	<b>Summer 1</b>	In this module, students learn about finite and renewable resources and also about our water usage. Students will also study products life cycle assessments to learn about how different products have different environmental impacts at different stages in their life cycle.		
<b>Ecology</b> <b>Biology Block 3</b>	<b>Summer 2</b>	Students finish the year by studying food webs and chains and how factors can affect the distribution of organisms. Students will then use different sampling methods to estimate the abundance of organisms in an area and also look at their distribution. This module also allows students to look at different adaptations organisms have for certain habitats.	Porthpean beach trip to apply sampling techniques learnt in the classroom to a different habitat	<b>Geography</b>