Curriculum Summary Documents

Year 10 Separate Science

Module/Unit of Learning	Taught During	What will students learn?	How does this deepen understanding and enrich experience?	Links to other Subjects
Bioenergetics **Biology 1**	**Autumn 1**	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	**P. E**
Chemical Changes **Chemistry 1**	**Autumn 1**	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 cover the process of electrolysis as a way of separating metals and non-metals.	Students can research and discuss modern methods of mining/extracting metals and their environmental impacts	**Maths** **Geography**
Particle model of Matter **Physics 1**	**Autumn 1**	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	**Maths**
Infection & Response **Biology 2**	**Autumn 2**	Students return to biology content and learn all about communicable diseases and how our body's 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. Students will also study monoclonal antibodies and their uses.	**History**
Energy changes **Chemistry 2**	**Autumn 2**	Students learn about endothermic and exothermic reactions and build on the knowledge they gained in Y8. Students also learn about fuels cells	Students will construct energy level diagrams and calculate bond energies to show endo and exo reactions.	**Maths**
Electricity **Physics 2**	**Autumn 2 & Spring 1**	In electricity students learn all about current, potential difference, resistance and how they behave in series and parallel circuits. Students will also learn about domestic appliances and mains electricity.	Electricity is a difficult concept to grasp for many students so visual models are used to help students have a good understanding of electricity.	**Maths**
Homeostasis and Response **Biology 3**	**Spring 1 & 2**	Students will learn all about how we respond to changes in our environment to maintain optimal internal conditions. Students will study the nervous system and endocrine system to understand how they allow us to respond to different stimuli. Later in the module students will build on work they did in Y7 and study reproductive	Students have covered the basics of nerve cell adaptations, menstrual cycle and hormones throughout Y7, 8 and 9. Students' knowledge is stretched and deepened by building on these fundamentals. Students also cover the mechanics of how	**PSHE**

		hormones. Students learn how the brain and eye work.	we learn which is beyond the specification.	
Quantitative Chemistry 3	**Spring 1 & 2**	Quantitative chemistry is all about calculating how much reactant or product is used or made during chemical reactions. Students will learn the skills and techniques used to tackle mathematical problems. Students conduct titrations experiments.	Students use the required practical of making a salt to apply their knowledge and skills of calculating the mass of reactants used and products formed	**Maths**
Atoms & Radiation **Physics 3**	**Spring 2**	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.	**History**
Inheritance, variation and evolution **Biology 4**	**Summer 1 & 2**	Students will learn about DNA and the genome, inherited disorders, evolution and evidence of evolution and resistant bacteria.	History of The Genome Project. Students will follow the evolution of MRSA and antibiotics resistant outbreaks in local Corish hospitals.	**History** **Child Development**
Rate and extent of Chemical reactions **Chemistry 4**	**Summer 1 & 2**	In this unit, students learn all about how to increase the speed of chemical reactions to maximise the products formed. This is particularly useful in industries where they rely on their products to make profit. There are lots of opportunities for students to apply their knowledge to practical situations to observe factors that affect the rate of reaction.	Using practical tasks and observations develops students' scientific skills and provides opportunities for them to think more like a scientist.	**Maths**
Forces **Physics 4**	**Summer 1 & 2**	Students will learn all about forces and how they interact with objects and the effect on the objects motion. Students will also apply Newton's laws of motion to different scenarios such as skydivers. Triple students study waves (please see above for more information).	Application of knowledge to real world examples such as a skydiver or Usain Bolt's 100m world record requires a higher level of understanding.	**Maths**