

Triple Science KS4 Department

2023-2024

	YEAR 10 Biology	YEAR 10 Chemistry	YEAR 10 Physics	YEAR 11 Biology	YEAR 11 Chemistry	YEAR 11 Physics
TERM 1	Biology key concepts 1 Students develop their understanding of the structure of animal, plant and bacterial cells. Biology Key concepts 2 Students learn that metabolic processes are catalysed by enzymes and the importance of their structure in different environmental conditions Health and Disease Students learn about different types of pathogens, how they impact us and how we defend our	Bonding and types of substance Students learn how atoms bond to form compounds, whether ionic, covalent or metallic bonding dependent on the element. Groups in the periodic table Students learn that the different groups of the periodic table have specific properties and how factors such as surface area affect the rate of reaction.	Light and the electromagnetic spectrum Students learn about the different waves in the electromagnetic spectrum, as well as their uses and dangers, e.g., gamma rays. Radioactivity Students learn about the different types of radioactive particles, their uses and their dangers.	Ecosystems Students learn about how abiotic and biotic factors interact and are interdependent within an ecosystem. In addition, the impact, both positive and negative that humans have on biodiversity.	Hydrocarbons, alcohols and carboxylic acids. Polymers Students further develop their understanding of hydrocarbons and learn about the structure of alcohols and their reactivity. They then use this focus to develop their understanding of addition and condensation polymerisation.	Particle Model and Forces & Matter

	bodies against them.					
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TERM 2	Genetics Students build on their understanding of DNA as a polymer and learn how to predict outcomes of inherited phenotypes and genotypes using genetic diagrams Evolution and GM Students learn about how organisms have evolved and how humans have developed technology to amend desired characteristics in organisms via processes such as selective breeding and genetic engineering.	Calculations involving masses Students learn how to calculate relative formula masses, how to deduce empirical formulae and the principals of conservation of mass in chemical reactions Rates of reaction Students learn about factors that increase the rate of reaction and the kinetic-particle theory to explain how changes to temperature, concentration and pressure can influence the rate of a chemical reaction as well as learning how to do rate calculations.	Radioactivity Students learn about the different types of radioactive particles, their uses and their dangers. Energy – Forces doing work and Forces and their effects Students learn how objects affect one another, how to calculate work done and power.	Biology Ecosystems Students learn about how abiotic and biotic factors interact and are interdependent within an ecosystem. In addition, the impact, both positive and negative that humans have on biodiversity.	tests for ions. Bulk and surface properties of matter. Including nanoparticles Students learn how to conduct qualitative analysis and how to test for ions.	Physics – Astrophysics Students further their understanding of the universe by learning about evidence that caused changing models of the solar system, understanding of bodies in circular motion, and what the evidence for the Big Bang theory is. Physics – Electricity and magnetism Students further their understanding of the charges, uses and dangers of static electricity as well as electric fields.

		Fuels and earth science Students look at the structure and issues surround their uses				
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TERM 3	Plant structures Students learn about the importance of photosynthesis and the limiting factors. They will also further understand how substances are transported in a plant.	Fuels and earth science Students look at the structure and issues surround their uses Neutralisation Students look at how acids and bases interact with each other and experiments to carry out such reactions	Electricity Students build on their understanding of circuit components and how energy is transferred in a circuit. Students learn how to apply Ohms law to calculate resistance, current and voltage.	Students will sit Paper 1 and Paper 2 during the mocks, and then complete Walking Talking Mocks afterwards. This will then lead to the remainder of the term being used to target identified weaknesses from the AP2 and AP1 data.	Students will sit Paper 1 and Paper 2 during the mocks, and then complete Walking Talking Mocks afterwards. This will then lead to the remainder of the term being used to target identified weaknesses from the AP2 and AP1 data.	Physics – Mechanics and pressure Students learn about the importance of pressure, in relation to gas, fluids and upthrust. Students will sit Paper 1 and Paper 2 during the mocks, and then complete Walking Talking Mocks afterwards. This will then lead to the remainder of the term being used to target identified

						weaknesses from the AP2 and AP1 data.
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TERM 4	Hormones Students learn about how hormones provide homeostasis within the body by negative feedback, e.g. glucose levels in the blood.	Electrolysis, metals and equilibria Students learn about the properties of ionic compounds when molten and aqueous and how ions move during electrolysis. Students learn about the applications of electrolysis for metal extraction. Students learn how to deduce half equations for reactions occurring at electrodes and explain this in terms of oxidation and reduction.	Magnetism Students learn about the importance of magnetism, applications of electromagnets, and how to build them, and these are used in the National Grid Particles, forces and matter Students review key concepts such as density, stretching and pressure and practice using calculations related to these	Revision and GCSE exams	Revision and GCSE exams	Revision and GCSE exams

	YEAR 10 Biology	YEAR 10 Chemistry	YEAR 10 Physics	YEAR 11 Biology	YEAR 11 Chemistry	YEAR 11 Physics
TERM 5	Exchange and transport in animals Students learn how the heart works and the importance of aerobic and anaerobic respiration.	Transition metals, alloys and corrosion Students learn how alloys are made, as well as how corrosion can be	Waves Students go into more depth with ultrasound and infrasound as well as how humans hear.	n/a	n/a	n/a