



YEAR 9 SCIENCE 2023-2024

| YEAR | TRINITY 2 | MICHAELMAS 1 | MICHAELMAS 2 | LENT 1 | LENT 2 | TRINITY 1 |
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| 9 | <p>Big Idea: Reactions Types of Reaction In this unit pupils will learn about what happens to the particles during a chemical reaction, conservation of mass, the products of combustion and thermal decomposition. Pupils will also learn about exothermic and endothermic reactions and how to represent them in energy level diagrams.</p> <p>Big Idea: Electromagnetism Magnets and Magnetism In this unit pupils will learn about the properties of magnets, magnetism and magnetic fields. Pupils will then learn about electromagnets and investigate how to increase their strength and how this links to their uses.</p> | <p>Big Idea: Ecosystems Respiration and Photosynthesis In this unit pupils will learn about aerobic and anaerobic respiration, the effects of exercise of respiration and respiration in yeast. Pupils will also learn about the process of photosynthesis, how to prove photosynthesis has occurred, how to measure the rate of photosynthesis and the adaptations that enable the process to be efficient.</p> <p>Big Idea: Waves Waves In this unit pupils will learn about the key properties of waves, how microphones and loudspeakers use waves, ultrasound, the electromagnetic spectrum, the uses of the different waves in the spectrum and what happens when waves interact with each other.</p> <p>Big Idea: Genes Evolution and Inheritance In this unit pupils will learn about the process of natural selection and how it leads to evolution,</p> | <p>Big Idea: Energy Work, Heating and Cooling In this unit pupils will learn about simple machines and measuring the work done. Pupils will also learn about energy and temperature, the processes of conduction convection and radiation.</p> <p>Big Idea: Earth Earth's Resources and Climate In this unit pupils will learn about the impact of human activity on the atmosphere and the importance of the carbon cycle. They will also learn about the ways that we use the Earth's resources and how we can reduce this to preserve them.</p> | <p>Big Idea: Organisms Cell Biology 1 – Cell structure In this unit pupils will learn about the structure of animal and plant cells and the function of the organelles, the differences between eukaryotic and prokaryotic cells, the use of microscopes, specialised cells, stem cells and their uses and the process of mitosis.</p> <p>Big Idea: Matter Atomic Structure and Periodic Table In this unit pupils will learn about representing reactions through equations, the structure of the atom, electron arrangement isotopes and the development of the atomic model.</p> <p>Big Idea: Energy Energy In this unit pupils will learn about the different energy stores, pathways between stores. They will also learn about energy dissipation and efficiency, energy resources and how to prevent energy transfer in homes.</p> | <p>Big Idea: Organisms Organisation In this unit pupils will learn about the levels of organisation in living organisms, the digestive system, nutrients in a balanced diet and the role of enzymes in this process. Pupils will also learn about the components of blood, the blood vessels and the structure of the heart and heart diseases and treatments.</p> <p>Big Idea: Organisms Cell Biology 2 – Transport in cells Pupils will also learn about the movement of substances in cells through diffusion, osmosis and active transport.</p> | <p>Big Idea: Matter Atomic Structure and Periodic Table Pupils will also learn about the development of the periodic table, the properties of the elements in groups 1, 7, 0 and the transition metals.</p> <p>Big Idea: Energy Energy In this unit pupils will learn how to calculate the amount of energy in kinetic stores, gravitational stores, elastic stores and thermal stores. They will also learn about work done, power and how these link to energy.</p> <p>Big Idea: Organisms Organisation in plants Pupils will learn about the structure of plants and the movement of substances through transpiration and translocation.</p> |



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| | | <p>extinction and methods to preserve biodiversity. Pupils will also learn about the structure of DNA, genetics, inheritance and genetic modification.</p> | | | | |
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