

YEAR 11 CURRICULUM PLAN FOR SCIENCE



TOPIC	KEY LEARNING	ASSESSMENT
Half-term 1 Homeostasis cont. Rate of chemical change. Forces cont.	Biology: Understand the structure and function of the endocrine system describing the principles of hormonal co-ordination and control through examples such as blood glucose control. Describe and explain how hormones control the menstrual cycle, reduce and increase fertility Chemistry: Quantify rates of reaction. Describe how various factors affect the rate of a reaction. Explain these effects using the Collision Theory. Explain the role of catalysts. Identify and explain reversible reactions in terms of energy transfers and equilibrium. Physics: To be able to identify the factors which affect a car's ability to stop. To understand how Newton's Law of motion affect objects. Students will also investigate how forces change objects such as a spring.	Progress tests: Rates of reaction (Chemistry) Forces (Physics)
Half-term 2 Homeostasis cont. Inheritance, variation & evolution Rate of chemical change cont. Organic Chemistry, Waves	Biology: Describe the structure and function of the brain and eye. Understand the importance of water balance, evaluating kidney disease treatments. Explore thermoregulation mechanisms and their importance. Describe and explain the role of different plant hormones. Comparison between sexual and asexual reproduction, explaining the importance of meiosis. Knowledge of the different terms used to describe inheritance, predicting the outcome of genetic crosses using specific genetic disorders. Chemistry: Know crude oil as a mixture of hydrocarbons that can be separated by distillation, and made more useful by cracking. Explain the structure, properties, reactions and uses of; alkanes, alkenes, alcohols, carboxylic acids, and polymers Physics: To be able to identify characteristics of a wave and calculate its speed. Knowledge of the uses and dangers of electromagnetic waves. To understand how waves behaviour changes when they encounter different mediums.	Progress tests: Homeostasis (Biology) Waves (Physics)
Half-term 3 Inheritance, variation & evolution cont. Organic chemistry cont. Chemical analysis Magnetism	Biology: Describe the sources of variation between individuals. Explain Darwin's Theory of Natural Selection, describing some of the evidence for evolution. Describe the process of selective breeding and explain how genetic engineering is used to change organisms. Knowledge of classification structure and describe how organisms become extinct. Chemistry: Know how to identify pure chemicals. Describe formulations as useful mixtures. Describe and quantify chromatography. Know the gas tests for: H ₂ , O ₂ , CO ₂ , Cl ₂ , the flames tests, and specified chemical tests. Interpret data from flame emission spectroscopy. Physics: Knowledge of magnetic materials and magnetic fields. To understand how electromagnetic fields can be generated and what they are used for. Higher tier students will apply this knowledge to motors.	Progress tests: Inheritance, variation & evolution (Biology) Organic chemistry (Chemistry) Magnetism (Physics)
Half-term 4 Ecology Chemical analysis cont. Atmosphere Space (Triple only) Revision	Biology: Describe how organisms are adapted to survive in various environmental conditions. Knowledge of food chains and interdependence within an ecosystem. Describe techniques used by scientists to study ecosystems and factors which determine organism distribution. Knowledge of how carbon and water are recycled in nature. Chemistry: Describe the Earth's atmosphere today, and how it developed over time. Explain how increasing levels of greenhouse gases are affecting the atmosphere and climate. Know effects of atmospheric pollutants, and how carbon footprints can be reduced. Physics: To describe the lifecycle of a star and explain evidence to support these theories. Revision in preparation for the GCSE exam will also take place.	Progress tests:
Half-term 5 Ecology cont. Using Resources Revision	Biology: Explain why biodiversity is important, highlighting specific examples of why it is at risk and describing some of the steps being taken to maintain biodiversity. Knowledge of biomass, food production and biogas. Chemistry: Describe how humans use on the Earth's natural resources, and how usage can be reduced. Understand sustainable development. Explain the processes of water purification and waste water treatment. Know how to interpret LCAs. Physics: Revision in preparation for the GCSE exam	Progress tests: Ecology (Biology)

Half-term 6	Exams/study leave	
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NB: Teaching sequence may differ when subjects are delivered by two members of staff