The Hart School - Faculty of Science
Yr11 Curriculum Overview

Curriculum Intent: Science encompasses everything that we are and allows us to make sense of the world around us. Science at The Hart School is more than just a core subject. We believe an outstanding science education should develop students' curiosity and scientific knowledge to question the world in which we live, enable critical-thinking and encourage students to become socially aware global citizens.

Our Science faculty has planned an inspiring, inclusive, and diverse curriculum that is designed to engage and enthuse students with the real-life applications of the subject whilst promoting ambition and aspirations for their future.

In an ever-changing world, in which STEAM subjects are at the forefront of advancements for the future, we want to prepare our students for this by not only looking at the knowledge of the subject, but also the methods, processing skills and applications associated with it. This ensures that our students are scientifically literate, able to evaluate what they see in the news and the world around them and make informed decisions that will affect their future lives and the planet.

GCSE Science Routes:

AQA GCSE Combined Science: Trilogy **OR** **AQA GCSE Biology** **AQA GCSE Chemistry** **AQA GCSE Physics**

Students who study Triple and Combined Science will study the same themes. Those who elect to study Triple Science will learn additional content within each theme to further develop understanding and the bigger picture

	Autumn									Spring					Summer		
Core Course Topic: These topics are taught in small bitesize chunks and revisited regularly.	**B7 Ecology**	**C6 Rates of Reaction**	**P5 Forces**	**Assessment 1**	**B5 Homeostasis and Response**	**C7 Organic Chemistry**	**C9 Chemistry of the Atmosphere**	**P6 Waves**	**Assessment 2**	**B6 Inheritance, Variation and Evolution**	**C10 Earth's Resources**	**C8 Chemical Analysis**	**P7 Magnetism and Electromagnetism**	**Assessment 3**	**Revision - 'Battle Plan'**	**Revision - ' Booster Timetable'**	**GCSE examinations**
Additional support links: Here are links to additional resources which will help your child	AQA B7 Support - BBC bitesize	AQA C6 support - BBC bitesize	AQA P5 support - BBC bitesize		AQA B5 support - BBC bitesize	AQA C7 support - BBC bitesize	AQA C9 support - BBC bitesize	AQA P6 support - BBC bitesize		AQA B6 support - BBC bitesize	AQA C10 support - BBC bitesize	AQA C8 support - BBC bitesize	AQA P7 support - BBC bitesize				
	B7 support video playlist	C6 support video playlist	P5 support video playlist		B5 support video playlist	C7 support video playlist	C9 support video playlist	P6 support video playlist		B6 support video playlist	C10 support video playlist	C8 support video playlist	P7 support video playlist				
Knowledge: Included here is the specific knowledge your child will learn in detail	Adaptations, interdependence and competition. Organisation of an ecosystem. Biodiversity and the effect of human interaction on ecosystems.	Calculating rates of reaction, collision theory, factors affecting rate of reactions, activation energy, catalysts, reversible reactions, dynamic equilibrium	Forces and their interactions, work done and energy transfers, forces and elasticity, forces and motion, momentum		Homeostasis, human nervous system, endocrine system, diabetes and blood glucose concentration, hormones in human reproduction, contraception, hormones in fertility, negative feedback systems	Crude oil, hydrocarbons, alkanes, fractional distillation, properties of hydrocarbons, cracking and alkenes	Composition of the Earth's atmosphere, evolution of the atmosphere, greenhouse gases, effect of human activities on greenhouse emissions, climate change, carbon footprint, atmospheric pollutants	Transverse and longitudinal waves, properties of waves, electromagnetic waves		Sexual and asexual reproductions, meiosis, DNA and the genome, genetic inheritance, inherited disorders, variation, evolution, selective breeding , genetic engineering, extinction, classification of living organisms	Using Earth's resources, sustainable development, potable water, waste water treatment, extracting metals, life cycle assessments, reducing waste	Pure substances, formulations, chromatography, tests for gases	Permanent and induced magnetism, magnetic forces, magnetic fields, the motor effect, electromagnetism				
Skills: Included here is the specific skills your child will learn in detail	Evaluate given information about methods that can be used to tackle problems caused by human impacts on the environment.	Determine the slope and intercept of a linear graph. Draw and use the slope of a tangent to a curve as a measure of rate of change.	**Required practical activity 18:** Investigate the relationship between force and extension for a spring.		**Required practical activity 6:** Plan and carry out an investigation into the effect of a factor on human reaction time.	Evaluating the use of models in displaying molecules	Understand how scientific methods and theories develop over time.	**Required practical activity 20: M**ake observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank and waves in a solid and take appropriate measurements.		Understand how scientific methods and theories develop over time.	Translate information between graphical and numeric form.	**Required practical activity 12:** Investigate how paper chromatography can be used to separate and tell the difference between coloured substances.	Recall and apply equations. Substitute numerical values into algebraic equations using appropriate units.				
	Required Practical: Measure the population size of a common species in a habitat. Use sampling techniques to investigate the effect of a factor on the distribution of this species.	**Required practical activity 11:** Investigate how changes in concentration affect the rates of reactions by a method involving measuring the volume of a gas produced and a method involving a change in colour or turbidity.	Substitute numerical values into algebraic equations using appropriate units for physical quantities. Use ratios, fractions and percentages. Change the subject of an equation. Recognise and use expressions in decimal and standard form.		Explain everyday and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments.		Extract and interpret information from charts, graphs and tables.			Extract and interpret information from charts, graphs and tables.	**Required practical activity 13:** Analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.	Recognise and use expressions in decimal form. Use ratios, fractions and percentages. Make estimates of the results of simple calculations.					