Science at the Hart School

Yr 12 AQA Physics 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 stu 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.

	Autumn 1				Autumn 2				Spring 1			Spring 2			Summer 1		Summer 2		
Core Course Topic: These topics are taught in small bitesize chunks and revisited regularly.	**Chapter 14. Practical work in Physics**	**Chapter 15. Practical assessment**	**Chapter 16: Mathematical skills**	**Assessment 1**	**Chapter 1: Matter and radiation**	**Chapter 2: Quarks and leptons**	**Chapter 3: Quantum phenomena**		**Chapter 6: Forces in equilibrium**	**Chapter 7: On the move**	**Chapter 8: Newton's laws of motion**	**Chapter 9: Forces and momentum**	**Chapter 10: Work, energy and power**	**Chapter 11: Materials**	**Chapter 12: Electric current**	**Chapter 13: DC circuits**	**Chapter 4: Waves**	**Chapter 5: Optics**	**Assessment 2 - As level mock papers (2 papers)**
Additional support links: Here are links to additional resources which will help your child	Section 5: revision resources				Section 1: revision resources				Section 3: revision resources						Section 4: revision resources		Section 2: revision resources		
Knowledge: Included here is the specific knowledge your child will learn in detail	Content in this section is a continuing study for a student of physics. A working knowledge of the specified fundamental (base) units of measurement is vital. Likewise, practical work in the subject needs to be underpinned by an awareness of the nature of measurement errors and of their numerical treatment. The ability to carry through reasonable estimations is a skill that is required throughout the course and beyond.				This section introduces students both to the fundamental properties of matter, and to electromagnetic radiation and quantum phenomena. Teachers may wish to begin with this topic to provide a new interest and knowledge dimension beyond GCSE. Through a study of these topics, students become aware of the way ideas develop and evolve in physics. They will appreciate the 12 Visit for the most up-to-date specification, resources, support and administration importance of international collaboration in the development of new experiments and theories in this area of fundamental research.				Vectors and their treatment are introduced followed by development of the student's knowledge and understanding of forces, energy and momentum. The section continues with a study of materials considered in terms of their bulk properties and tensile strength. As with earlier topics, this section and also the following section Electricity would provide a good starting point for students who prefer to begin by consolidating work.			This section builds on and develops earlier study of these phenomena from GCSE. It provides opportunities for the development of practical skills at an early stage in the course and lays the groundwork for later study of the many electrical applications that are important to society.		GCSE studies of wave phenomena are extended through a development of knowledge of the characteristics, properties, and applications of travelling waves and stationary waves. Topics treated include refraction, diffraction, superposition and interference.		
Skills: Included here is the specific skills your child will learn in detail	Section 5: Use of SI units and their prefixes Limitations of physical measurements Estimation of physical quantities Data handling Trigonometry Algebra Graphs, gradients and areas				Section 1: Use of a Geiger counter to detect radiation Record the precision of a microammeter Use of standard form Use of linear graphs to find the gradient and intercept				Section 3: Use of a micrometer to find the diameter of a wire Use of vernier calipers to measure the diameter of a cylinder Use of pulleys and pivots to test equilibrium Use of light gates and a data logger to measure velocity Identify uncertainties in measurements Use fractions and percentages			Section 4: Use of digital meters to obtain measurements Use electrical equipment safely Use of current and voltage sensors Use of appropriate units		Section 2: Quote phase differences Use of an oscilloscope Use of lasers to investigate refraction		
Home learning online platform	Seneca AQA Physics																		