Science at the Hart School

Yr 13 OCR B 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. W believe an outstanding science education should develop students' curiosity and scientific knowledge to question the world in which we live, enable critical-thinking and encoura 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	
Core Course Topic: These topics are taught in small bitesize chunks and	**Module 6.1: Chapter 16. Electromagnetism**	Assessment 1 - As mock papers (2 papers)	**Module 6.1: Chapter 17. The electric field.**	**Module 6.2: Chapter 18. Looking inside the atom**	**Module 6.2: Chapter 19. Using the atom**	Revision	Assessment 2 - A level mock papers (3 papers)	Re-teach and revision	A level examinations	A level examinations
Additional support links: Here are links to	Module 6: revision resources		Module 6: revision resources							
Knowledge: Included here is the specific knowledge your child will learn in detail	Electromagnetism treats the electromagnetc feld in a practcal context. The electric feld, as the interacton between charges at rest, links back to the mathematcally analogous model of the gravitatonal feld. There are opportunites for discussing the social impact of the widespread distributon and use of electrical power and its infuence on industrial societes.		The electric field covers interactons between charged partcles and ideas about electric feld and potental.	The work here concerns the structure and binding of atoms and nuclei and the nature of fundamental partcles. The practcal implicatons of radioactvity are considered, introducing the idea of risk. The frst secton considers scattering experiments as a source of evidence about the structure of atoms and nucleons. Ideas from earlier in the module are used to consider partcle paths in magnetc and electric felds in the context of partcle accelerators. Evidence for discrete energy levels leads on to a crude model of the atom as a partcle in a box. This secton gives more opportunites to discuss the development of models in physics and the internatonal cooperaton needed to fund large experiments.	Using the atom sees changes in nuclear binding energy per nucleon as driving diferent types of decay. This leads to a consideraton of nuclear power generaton. The biological efects of ionising radiaton are also considered, giving more opportunity to consider issues of ethics, decision making and the risks and benefts of technology.					
Skills: Included here is the specific skills your child will learn in detail	Module 6.1: Fields Making calculations and estimates involving a range of different factors Sketch and interpret graphs Using a current balance to measure B-fields Investigating transformers Appropriate use of terms and units			Module 6.2: Fundamental particles Appropriate use of key terms Investigating the atom to explain accelerating charges and electron scattering Understand the quark structure of protons and neutrons Use the model of the atom to explain the quantum behaviour of electrons Study the absorption of ionising radiation Calculate energy changes from nuclear transformations						
Home learning online platform	Seneca Physics OCR B									