

Y9 PHYSICS



SCIENCE AT YARDLEYS

INTENT: Science helps students gain an understanding of the world around them, from the micro-level of particles and atoms to the macro-level of our expanding universe. It encourages students to question and enquire in order to learn more. We want our students to acquire the scientific knowledge and skills to meet their academic, practical and “real life” challenges of the future.

Y9 Physics

Year 9 physics is foundational and covers many areas that will frequently be revisited in the future, broadly grouped into forces, energy and waves.

YEAR 9

	Forces and Motion	Forces	Energy	Waves	EM Spectrum
SUBSTANTIVE KNOWLEDGE	<ul style="list-style-type: none"> • Vectors and scalars. • Speed and acceleration. • Distance – time graphs and velocity time graphs. 	<ul style="list-style-type: none"> • Newton’s laws of motion. • Momentum • Stopping distances and crash hazards. 	<ul style="list-style-type: none"> • Energy stores and transfers. • Heat transfer and insulation. • Efficiency. • Energy resources. 	<ul style="list-style-type: none"> • Describing waves. • Calculating wave speeds and finding them experimentally. • Refraction. • The ears. • Infrasound and ultrasound. 	<ul style="list-style-type: none"> • Light interacting with boundaries. • Colour. • Lenses • Electromagnetic waves. • Uses and dangers of the EM spectrum. • Radiation and temperature.
DISCIPLINARY KNOWLEDGE	<ul style="list-style-type: none"> • Calculating using equations. • Interpreting graphs. • Improving experimental accuracy. • Identifying the correct units. • Using prefixes in units. 	<ul style="list-style-type: none"> • Calculating using equations. • Explaining phenomena using equations. • Identifying the correct units. • Using prefixes in units. 	<ul style="list-style-type: none"> • Calculating using equations. • Interpreting graphs. • Evaluating the suitability of energy resources. • Drawing energy transfer diagrams. 	<ul style="list-style-type: none"> • Drawing ray diagrams. • Calculating using multiple equations at once. • Identifying the correct units. • Improving experimental accuracy. 	<ul style="list-style-type: none"> • Drawing ray diagrams. • Evaluating the use of different waves of the EM spectrum.

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