



Year 9: Physics

Curriculum Intent: Year 9 Physics looks to build on the foundations from years 7&8 and work towards developing knowledge of similar areas: Energy, Motion, Waves and Radiation. The subject and procedural knowledge demands increase in this year, and students will be exposed to more complex ideas, models and explanations. Practical Activities (PAG) will be coupled with mathematical skills to build more procedural knowledge; focusing on areas such as data analysis and interpretation of graphs. The Physics knowledge developed through this year will provide the basis for further study in these areas as students enter year 10, with the whole of the combined science content being taught before the year 10 PPE.

	Topic 1 Energy	Topic 2 Motion	Topic 3 Waves	Topic 4 Radiation
Key ideas	What types of energy store are there and how can the thermal store of an object change and be measured?	What is a vector and scalar and how can we calculate vector and scalar quantities in relation to motion?	What are the properties of waves and how are they measured? What impact does the EM spectrum have on our lives?	What is radiation and how is it measured? What is charge and current? What materials are magnetic and how do we test this.
Sequence of Learning - Key Questions	P5.1 1. Energy transfers 2. how to calculate work done (& power) P1.2 3. Energy, heat and temperature 4. Specific heat capacity 1 5. Specific heat capacity 2 6. Specific latent heat 1 7. Specific latent heat 2 8. Density 1 9. Density 2 P1.3 10. Gas pressure and temperature	P2.1 1. Speed 1 2. Speed 2 3. Vectors and scalars 4. Acceleration 1 5. Acceleration 2 6. Distance- time graph 7. Velocity – time graphs 8. Kinetic energy and motion calculations	P4.1 and 4.2 1. Wavelength and frequency 2. Wave properties 3. Wave speed 4. EM waves 5. The EM spectrum 6. Refraction experiments	P4.3 1. Isotopes 2. Alpha, beta and gamma radiation 3. Nuclear equations 4. Half life 1 5. Half life 2 6. Radiation in and out of atoms P3.1 and 3.3 7. Electrostatics 1 8. Electrostatics 2 9. Electric current 10. Magnets
Vocabulary	Thermal	Speed	Longitudinal	Isotopes

	Gravitational Chemical Magnetic Kinetic Nuclear Electrostatic Forces Waves Heating Current	Velocity Acceleration Deceleration Distance Displacement Time m/s km/s Equation m/s^2 Distance-time graph Velocity- time graph	Transverse Amplitude Frequency Wavelength Refraction Reflection Electromagnetic spectrum Normal	Alpha Beta Gamma Half life Ionisation Penetration Charge Current Ammeter North pole South pole
Practical Skills	<ul style="list-style-type: none"> Measuring specific heat capacity of a metal Cooling curves to observe changes of state 	<ul style="list-style-type: none"> Measuring speed and acceleration using rulers, stopwatches and light gates 	<ul style="list-style-type: none"> Measuring angle of incidence and refraction 	<ul style="list-style-type: none"> Radiation demonstrations Experiments with static electricity Magnetic properties of materials
Assessment (Related to mastery grids)	Recall of key equations & units: <ol style="list-style-type: none"> Work done power density Kinetic energy Assessment of key principles and application of equations focussing on using skills to solve problems	Recall of key equations & units: <ol style="list-style-type: none"> speed acceleration Assessment of key principles and application of equations focussing on using skills to solve problems	Recall of key equations & units: <ol style="list-style-type: none"> frequency wave speed Assessment of key principles and application of equations focussing on using skills to solve problems	Recall of key equations & units: <ol style="list-style-type: none"> current and charge Assessment of key principles and application of equations focussing on using skills to solve problems