



Curriculum Map: Year 11 Subject: GCSE Physics (Separate science) Exam Board: AQA

Topic	Key Knowledge <i>What will all students KNOW by the end of the topic?</i>	Key Skills <i>What key skills will be learnt/developed by the end of the topic? What will all students be able to DO by the end of the topic?</i>	Assessment Opportunities <i>What are the key pieces of assessment? How will students be assessed?</i>
Forces	<ul style="list-style-type: none"> - Newton's 1st & 2nd laws of motion - Required practical 7- investigation of Newton's 2nd Law (in 2 parts) - Concepts of directly proportional & inversely proportional - Newton's 3rd law of motion - Terminal velocity - Stopping distance, thinking distance & braking distance - Reaction time & factors affecting it - Factors affecting braking distance - Momentum & conservation of momentum - Changes in momentum - Review - Distance-time graphs - Distance, displacement, speed & velocity - Scalar & vector quantities 	<ul style="list-style-type: none"> - Plot and draw appropriate graphs selecting appropriate scales for the axes. - Method writing and clarity on variables - Recall of practical terms from Year 9 and addition of new terms - Apply Newton's 3rd law of motion to equilibrium situations - Application of Newton's 2nd law of motion to stopping vehicles safely - Evaluate the effect of various factors on thinking distance based on given data - Describe & explain examples of conservation of momentum - Complete calculations involving an event such as a collision - Apply equations relating forces, mass, velocity & acceleration to explain how the changes are inter-related - Explain safety features such as air bags with reference to the rate of change of momentum 	<ul style="list-style-type: none"> -Starter tasks to review prior learning -Ongoing PPQ -Calculations consistently during lessons (including focus on standard form, ratios, significant figures etc.) -Topic test -Afl throughout lessons -starter tasks interleaving previous knowledge from last lesson/ Year 9 -Assessment 1 -Mocks -Required Practical 7 $F=ma$
Waves	<ul style="list-style-type: none"> - Transverse & longitudinal waves - Properties of waves & wave speed - Frequency & Time Period - Required practical 8 -Speed of a wave in a solid & in a ripple tank (in 2 parts) -Sound waves 	<ul style="list-style-type: none"> - Recall key terminology on the anatomy & behaviour of waves - Identify the suitability of apparatus to measure the frequency, wavelength & speed of waves (in the required practical) 	<ul style="list-style-type: none"> - Analysis of practical results - PPQ -Homework - Ray Diagrams - Graph analysis

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	<ul style="list-style-type: none"> - Waves for detection and exploration - Ultrasound waves & their use - Seismic waves and their part in discoveries about the Earth's structure - Required practical 9 – reflection & refraction of light - Reflection of waves - Refraction of waves - Lenses - Opaque, transparent & translucent objects - Use of coloured filters - Colours of light and their perception to the human brain - Uses of dangers of EM Waves 	<ul style="list-style-type: none"> - Be able to determine the uncertainty in a set of measurements - Calculations & equation recall from an ever-increasing list - Draw ray diagrams to show reflection of waves - Draw ray diagrams to show refraction of waves - Draw wave front diagrams to illustrate refraction - Construct ray diagrams to illustrate the similarities and differences between convex and concave lenses - Recall key terminology used to describe images (e.g. real & virtual; upright & inverted) - Recall key terminology related to the absorption & transmission of light (opaque, transparent & translucent) - Explain the perception of colour due to the absorption, transmission and reflection of different wavelengths of light -State the order of the EM waves and their magnitudes -Explain how the properties of the EM Waves is due to their frequency. 	<ul style="list-style-type: none"> - starter tasks interleaving previous knowledge from last lesson/ year 9 content retrieval - PPQ - Calculations of Uncertainty -AfL throughout lessons - Homework Tasks -Assessment 1 -Assessment 2 -Mocks -Required Practical 8- Properties of a Wave -Required Practical 9 – Refraction of a Wave -Required Practical 10- Absorption and Emission of Radiation
<p>Electromagnetism</p>	<ul style="list-style-type: none"> - Permanent and induced magnetism - Poles of a magnet - Magnetic forces & fields - Electromagnetism & its uses - Force on a current carrying conductor & the motor effect - Fleming's left-hand rule - Use of the motor effect in electric motors 	<ul style="list-style-type: none"> - (describe) how to plot the magnetic fields pattern of a magnet using a compass - describe how the magnetic effect of a current can be demonstrated - interpret diagrams of electromagnetic devices in order to explain how they work 	<ul style="list-style-type: none"> - Analysis of practical results - PPQ -Homework - Ray Diagrams - Graph analysis - starter tasks interleaving previous knowledge from last lesson/ year 9 content retrieval - PPQ

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	<ul style="list-style-type: none"> - Use of the motor effect in loudspeakers & headphones - Induced potential & the generator effect - Use of then generator effect in alternators & dynamos - Use of the generator effect in microphones & headphones - Use of the generator effect in transformers - The structure of step-up & step-down transformers - The relationship between number of turns and p.d. for step-up & step-down transformers 	<ul style="list-style-type: none"> - Use Fleming’s left-hand rule to determine the direction of the force, current or magnetic field given the direction of the other two - Application of the motor effect to new experimental arrangements - Connections to Topic 2 (Electricity), Topic 5 (Newton’s Laws subtopic) & Topic 6 (Sound subtopic) to explain how the motor effect is used to convert variations in current in electrical circuits to pressure variations in sound waves - Apply the principles of the generator effect in a given context - Connections to Topic 2 (Electricity), Topic 5 (Newton’s Laws subtopic) & Topic 6 (Sound subtopic) to explain how the generator effect is used to convert pressure variations in sound waves into variations in current in electrical circuits - Connections to Topic 2 (Electricity) and power transfer in transformers 	<ul style="list-style-type: none"> - Calculations of Uncertainty -AfL throughout lessons - Homework Tasks -Assessment 1 -Assessment 2 -Mocks - Motor Effect Practical
	Preparation for Paper 1 and Paper 2	Review of Key Knowledge Review of Key Words for Exams PPQ	