

Curriculum Map Year 10: Physics Combined Science (Trilogy) AQA: Three lessons per fortnight

Examination Papers – End of Yr 11	% of GCSE (Combined with Chemistry and Physics)	Question style
Paper 1 – Topics 1-4	16.7	Multiple choice, structured, closed short answer and open response
Paper 2 – Topics 5-7 Questions in paper 2 may draw on an understanding of energy changes and transfers due to heating, mechanical and electrical work and the concept of energy conservation from 'Energy' and 'Electricity (topics 1 & 2)	16.7	Multiple choice, structured, closed short answer and open response

	Topic	Key Knowledge <i>What will students know by the end of this topic?</i>	Key Skills <i>What skills will students have developed by the end of this topic?</i>	Assessment Opportunities <i>How will student progress be measured? What are the key assessment pieces?</i>
Half Term 1	4- Atomic Structure	Continue with topic 4 from Summer term of Year 9. - Recap of atoms & isotopes (from start of Year 9 Chemistry & end of year 9 Physics) - Radioactive decay & nuclear radiation - Nuclear equations - Half-lives - Contamination, irradiation & their hazards	- Recall key terminology including the nature of alpha, beta & gamma decay - Balance nuclear equations - Use graphs & calculations in relation to half-lives - Interpretation of data & application of knowledge to problem solving - Apply their knowledge of nuclear radiation to evaluate the best source of radiation to use in a given situation	- Starter tasks to review prior learning - Assessment of familiarity of Year 9 Chemistry & Physics on the structure of an atom+ Re-call required practical topic 3 - Regular PPQ practice
Term 2	2-Electricity	Start Topic 2 - Circuit symbols, current & potential difference - Series & parallel circuits - Required practical 4 – IV graphs (in 3 parts – resistor, filament lamp & diode) - Ohm's law & resistance	- Recognise & recall circuit symbols - Draw simple circuits including the positioning of voltmeters & ammeters - Building simple circuits - Calculations involving current, energy, charge, p.d. & time - Use of models to understand the unobservable - Building more complex circuits & taking measurements - Plot and draw appropriate graphs selecting appropriate scales for the axes. - Lines of best fit - Recall of practical terms from Year 9	- Topic 4 assessment + Re-call topic 1 - Starter tasks to review prior learning - Building simple circuits from circuit diagrams - White-board activities on series & parallel circuits - Graph drawing - Regular PPQ practice
Half Term 3	2-Electricity (continued)	- Concepts of directly proportional & inversely proportional - Thermistors & LDRs - Required practical 3-Factors affecting resistance (2 parts length of a wire and resistors in series & parallel)	- Use of multipliers, standard form and pre-fixes - Converting units - Use of appropriate significant figures - Calculations now including resistance	- White-board activities on resistance calculations - Starter tasks to review prior learning

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			- Use of multiple equations & 6-mark calculations questions - Recall of practical terms from Year 9 - Method writing and clarity on variables - How to bring together ideas about components, equations and mathematical skills including graph interpretation in order to solve complex problems	- Practical PPQs related to required practical activities - Electricity circuits and Ohm's law assessment
Half Term 4	2-Electricity (continued)	- Mains electricity & the National Grid - Transferring energy & power - 100% efficient transformers	- Revision technique - Exam technique - Equation recall - Review of own work and performance in examination - Reflective practice & goal setting for improvement - Connection to Topic 1 (Energy); noting that Topics 1 & 2 can be assessed in Paper 2. - Tackling synoptic questions	- Starter activities with particular focus on previous topics in preparation for examination - Assessment on main electricity and national grid + Re-call SHC Calculation
Half Term 5	5 – Start Forces	Start Topic 5 - Distance, displacement, speed & velocity - Scalar & vector quantities - Distance-time graphs - Velocity-time graphs - Acceleration - SUVAT equations	- Recognition of scalar & vector quantities - Calculations & equation recall from an ever-increasing list - Interpreting graphs - Using data from a graph in calculations - Drawing tangents - Determining the gradient of a straight line	- Starter tasks to review prior learning - Regular PPQ practice - Year 10 examination (1 hour 15 minutes; Topics 1,2,3 & 4)
Half Term 6	5 – Forces (continued)	- What are forces? - Contact & non-contact forces - Freebody diagrams - Weight, mass & gravity	- Draw free body diagrams of forces acting on an object - Practical skills in relation to measuring mass & weight and using appropriate values to calculate g	- Starter tasks to review prior learning - Graph drawing - Regular PPQ practice - Assessment to close gaps in knowledge based on last term assessment.

Curriculum Map Year 11: Physics Combined Science (Trilogy) AQA: Four lessons per fortnight

Examination Papers – End of Yr 11	% of GCSE (Combined with Chemistry and Physics)	Question style
Paper 1 – Topics 1-4	16.7	Multiple choice, structured, closed short answer and open response
Paper 2 – Topics 5-7 Questions in paper 2 may draw on an understanding of energy changes and transfers due to heating, mechanical and electrical work and the concept of energy conservation from 'Energy' and 'Electricity (topics 1 & 2)	16.7	Multiple choice, structured, closed short answer and open response

	Topic	Key Knowledge <i>What will students know by the end of this topic?</i>	Key Skills <i>What skills will students have developed by the end of this topic?</i>	Assessment Opportunities <i>How will student progress be measured? What are the key assessment pieces?</i>
Half Term 1	5 – Forces (continued)	- Freebody diagrams - Weight, mass & gravity - Resultant forces & resolving force - Work done & energy transfers (from Year 9) - Forces & elasticity - Required Practical 6-Force & extension for a spring - Hooke's Law - Concept of directly proportionality (again)	- Scale diagrams & choice of suitable scale - Use of protractor - Connection to Topic 1 (Energy); noting that Topic 1 can be assessed in Paper 2. - Recognition of variables that are directly proportional from data in a table & from a graph - Recognition of when direct proportionality reaches a limit - Plot and draw appropriate graphs selecting appropriate scales for the axes. - Lines of best fit	- Starter tasks to review prior learning - Practical PPQs related to required practical activities - Regular PPQ practice - Assessment of forces topic so far + Re-call Energy stores and calculation
Half Term 2	5 – Forces (continued)	- 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 (again) - Newton's 3rd law of motion - Stopping distance, thinking distance & braking distance - Reaction time & factors affecting it - Factors affecting braking distance	- Revision technique - Exam technique - Equation recall - Review of own work and performance in examination - Reflective practice & goal setting for improvement - 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	- Year 11 mock examination (1 hour 15 minutes; Topics 1,2, 3, 4 & Topic 5 up to Newton's Laws.) - Starter activities with particular focus on previous topics in preparation for examination - equation recall - Practical PPQs related to required practical activities

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			- Evaluate the effect of various factors on thinking distance based on given data	
Half Term 3	5 – Forces (continued) 6 – Waves	- Terminal velocity - Momentum & conservation of momentum Start Topic 6 - 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) - The Electromagnetic Spectrum - Properties of electromagnetic waves - Uses and dangers of electromagnetic waves	- Describe & explain examples of conservation of momentum - 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) - Be able to determine the uncertainty in a set of measurements - Calculations & equation recall from an ever-increasing list - Draw conclusions from given data about the risks and consequences of exposure to radiation - Draw ray diagrams to show refraction of waves - Draw wave front diagrams to illustrate refraction	- Starter tasks to review prior learning - Practical PPQs related to required practical activities - Checking of ray diagrams and wave front diagrams - Regular PPQ practice - Assessment on Waves so far and Forces + Re-call one of Electricity required prac
Half Term 4	6 – Waves (continued) Magnetism & electromagnetism	- Required Practical 10 – investigation of the amount of IR radiation absorbed and emitted by different surfaces - Refraction of waves - Emission & absorption of infrared radiation Start Topic 7 - Permanent and induced magnetism - Poles of a magnet - Magnetic forces & fields - Electromagnetism - Force on a current carrying conductor & the motor effect - Fleming’s left-hand rule - Use of the motor effect in electric motors	- (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 - 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	- Starter tasks to review prior learning - Practical PPQs related to required practical activities - Topic 6 assessment - Regular PPQ practice - Topic 7 assessment + Re-call Newton's laws of motion and stopping distance
Half Term 5	Preparation for external examinations	- Remaining time to be spent on preparation for external examinations.	- Previously learnt skill to be revisited prior to external examinations. Particular focus is usually on: - Electrical circuits - Method writing	- Use of PPQs - Equation recall - ‘Paper 2’ assessment

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			- Practical terms - Review of some required practicals	
Half Term 6	External examinations			External examinations