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AQA GCSE COMBINED SCIENCE: TRILOGY (8464)

PHYSICS

MASTER SPECIFICATION & REQUIRED PRACTICAL REFERENCE

Foundation + Higher | Physics Papers 1 and 2 | Physics content only

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Seven physics topics | 8 physics required practicals | working scientifically + maths audit

How Combined Science Physics is assessed

Qualification structure
AQA Combined Science: Trilogy is a double-award qualification. Students sit six papers: two Biology, two Chemistry and two Physics. Each paper is 70 marks and 1 hour 15 minutes. The Physics papers therefore contribute 140 of the 420 total marks. The final result is a double grade based on all six papers, not a separate Physics grade. [S4]

Paper	Physics content	Marks	Duration
Physics Paper 1	Energy; Electricity; Particle model of matter; Atomic structure	70	1 h 15 min
Physics Paper 2	Forces; Waves; Magnetism and electromagnetism	70	1 h 15 min

Foundation and Higher papers assess the same broad topic structure but Higher includes explicitly HT-only content and higher mathematical/application demand. Space Physics is not part of Combined Science: Trilogy; it belongs to separate GCSE Physics (8463). [S2]

Master curriculum map

6.1 Energy

6.1.1 Energy changes in a system

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]
Energy stores; kinetic, gravitational and elastic stores; transfer by work/heating; power; use and rearrangement of core energy equations.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.1.2 Conservation and dissipation

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]
Conservation of energy, useful and dissipated transfers, reducing unwanted transfers, efficiency; thermal conductivity context.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.1.3 Energy resources

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]

Renewable/non-renewable resources, reliability, environmental impacts, patterns in resource use and societal/economic constraints.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.2 Electricity

6.2.1 Current, pd and resistance

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]

Circuit symbols; charge flow; current; V=IR; resistor/filament/diode/thermistor/LDR behaviour; I-V interpretation.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.2.2 Series and parallel circuits

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]

Current and pd rules, series resistance, qualitative parallel resistance, construction and problem solving.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.2.3 Domestic uses and safety

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]

AC/DC, UK mains, live/neutral/earth, hazards and earthing.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.2.4 Energy transfers

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]

Electrical power and energy equations; appliance power; National Grid; HT transformer power relationship.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.3 Particle model of matter

6.3.1 Changes of state and particle model

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]

Density, particle arrangements, changes of state, conservation of mass.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.3.2 Internal energy and transfers

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]

Internal energy; SHC; specific latent heat; temperature-time and state-change reasoning.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.3.3 Particle model and pressure

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]

Gas particles, pressure and temperature qualitative relationships; particle explanations.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.4 Atomic structure

6.4.1 Atoms and isotopes

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]
Atomic structure, nuclear model, mass/atomic number, isotopes, development of atomic model.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.4.2 Atoms and nuclear radiation

Paper: P1 | Tier: F/H | Evidence: SPEC [S2]
Radioactive decay, alpha/beta/gamma properties, half-life, contamination vs irradiation, hazards and uses.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.5 Forces

6.5.1 Forces and interactions

Paper: P2 | Tier: F/H | Evidence: SPEC [S2]
Contact/non-contact forces, vectors, resultant force and free-body reasoning.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.5.2 Work done and energy transfer

Paper: P2 | Tier: F/H | Evidence: SPEC [S2]
Work done by forces and energy transfer; W=Fs.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.5.3 Forces and elasticity

Paper: P2 | Tier: F/H | Evidence: SPEC [S2]

Elastic/inelastic deformation, force-extension, spring constant and elastic energy.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.5.4 Forces and motion

Paper: P2 | Tier: F/H | Evidence: SPEC [S2]

Distance/displacement, speed/velocity, acceleration, distance-time and velocity-time graphs, Newton laws, stopping distances.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.5.5 Momentum

Paper: P2 | Tier: HT | Evidence: SPEC [S2]

Momentum and conservation in closed systems; collision reasoning.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.6 Waves

6.6.1 Waves in air, fluids and solids

Paper: P2 | Tier: F/H | Evidence: SPEC [S2]

Transverse/longitudinal waves, amplitude, wavelength, frequency, period, wave speed and wave measurement.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.6.2 Electromagnetic waves

Paper: P2 | Tier: F/H | Evidence: SPEC [S2]

EM spectrum order, properties, applications and hazards; HT absorption/transmission/refraction ideas and wavefront reasoning.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.7 Magnetism and electromagnetism

6.7.1 Permanent and induced magnetism

Paper: P2 | Tier: F/H | Evidence: SPEC [S2]

Poles, attraction/repulsion, induced magnetism and magnetic fields.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.7.2 Magnetic effect of current

Paper: P2 | Tier: F/H | Evidence: SPEC [S2]

Field around current-carrying conductors and solenoids; electromagnets.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

6.7.3 Motor effect

Paper: P2 | Tier: F/H | Evidence: SPEC [S2]

Force on a current-carrying conductor in a magnetic field; qualitative motor-effect applications. Combined Science does not require the separate-Physics F=BIl calculation.

Secure learner can: define the key quantities precisely; explain cause-and-effect using specification vocabulary; select the correct equation/model; interpret unfamiliar data/graphs; and transfer the idea into a practical or novel context.

Revision audit: Can you explain this without notes, complete an equation/data question, and identify one common misconception? Mark R / A / G only after all three are secure.

What Combined Science does NOT require from separate Physics

Scope guard
Do not accidentally revise separate-Physics-only material as if it were compulsory Trilogy content. Examples include Space Physics and some extended separate-Physics calculations/content such as the quantitative motor-force equation F=BIl. Always use the 8464 Physics subject-content page as the controlling scope. [S2]

Physics required practicals in Trilogy

Combined Science: Trilogy has 21 required practical activities across Biology, Chemistry and Physics. The Physics practicals are activities 14-21, giving eight Physics practicals. Questions drawing on practical knowledge and skills contribute to the written assessment; practical questions across the whole qualification account for at least 15% of marks. [S3]

Required practical 14: Specific heat capacity

Element	Reference guidance
Core aim	Link electrical work/energy input to temperature rise and thermal energy stored.
Method logic	Measure mass, pd/current or power, time and temperature; calculate energy input and compare with $mc\Delta\theta$.
Evaluation / common error points	Insulation, heater contact, heat loss, thermometer resolution, repeat readings; graph energy against temperature rise where appropriate.
Exam readiness	Be able to identify variables, apparatus, measurements, control strategy, graph/calculation, uncertainty/error source and a targeted improvement.
Evidence	RP [S3]

Required practical 15: Resistance of circuits

Element	Reference guidance
Core aim	Investigate how wire length affects resistance and compare resistor combinations in series/parallel.
Method logic	Measure current and pd; calculate R=V/I; control wire material/diameter and temperature.
Evaluation / common error points	Heating changes resistance; contact resistance; meter resolution; repeat and plot R against length.
Exam readiness	Be able to identify variables, apparatus, measurements, control strategy, graph/calculation, uncertainty/error source and a targeted improvement.
Evidence	RP [S3]

Required practical 16: I-V characteristics

Element	Reference guidance
Core aim	Investigate resistor, filament lamp and diode characteristics.
Method logic	Vary pd/current safely; measure paired I and V; reverse polarity where appropriate; plot current against pd.

Evaluation / common error points	Lamp heating, diode direction, zeroing meters, sufficient data range, identifying linear/non-linear behaviour.
Exam readiness	Be able to identify variables, apparatus, measurements, control strategy, graph/calculation, uncertainty/error source and a targeted improvement.
Evidence	RP [S3]

Required practical 17: Density

Element	Reference guidance
Core aim	Determine density of regular solids, irregular solids and liquids.
Method logic	Mass with balance; volume by dimensions or displacement/measuring cylinder; density = mass/volume.
Evaluation / common error points	Meniscus/parallax, trapped air, overflow/displacement, appropriate instrument precision, unit conversion.
Exam readiness	Be able to identify variables, apparatus, measurements, control strategy, graph/calculation, uncertainty/error source and a targeted improvement.
Evidence	RP [S3]

Required practical 18: Force-extension

Element	Reference guidance
Core aim	Investigate force-extension relationship for a spring.
Method logic	Measure natural length then extension for increasing load; plot force against extension; identify proportional region.
Evaluation / common error points	Do not confuse length with extension; avoid exceeding elastic limit; repeat, eye-level scale reading.
Exam readiness	Be able to identify variables, apparatus, measurements, control strategy, graph/calculation, uncertainty/error source and a targeted improvement.
Evidence	RP [S3]

Required practical 19: Force, mass and acceleration

Element	Reference guidance
Core aim	Investigate F-a at constant mass and m-a at constant force.
Method logic	Use trolley/light gates or motion sensor; measure acceleration; change one factor while controlling the other.
Evaluation / common error points	Friction, track slope, total system mass, release consistency, repeated trials and graph interpretation.
Exam readiness	Be able to identify variables, apparatus, measurements, control strategy, graph/calculation, uncertainty/error source and a targeted improvement.
Evidence	RP [S3]

Required practical 20: Wave measurements

Element	Reference guidance
Core aim	Measure frequency, wavelength and wave speed in ripple tank/solid waves.
Method logic	Use repeated wavelengths/periods to reduce percentage

	uncertainty; apply v=fλ.
Evaluation / common error points	Strobe/visual timing, parallax, measuring several wavelengths, stable frequency and correct units.
Exam readiness	Be able to identify variables, apparatus, measurements, control strategy, graph/calculation, uncertainty/error source and a targeted improvement.
Evidence	RP [S3]

Required practical 21: Infrared radiation

Element	Reference guidance
Core aim	Investigate how surface type affects IR absorption/emission.
Method logic	Compare identical containers/surfaces with controlled temperatures or heating conditions.
Evaluation / common error points	Equal surface area, starting temperature, distance, environmental drafts, emissivity/absorptivity interpretation.
Exam readiness	Be able to identify variables, apparatus, measurements, control strategy, graph/calculation, uncertainty/error source and a targeted improvement.
Evidence	RP [S3]

Working scientifically and maths checklist

Skill	What secure performance looks like
Variables	State independent, dependent and control variables as measurable quantities.
Graphs	Choose axes, units and sensible scale; plot accurately; draw line/curve of best fit; calculate gradient when appropriate.
Uncertainty	Recognise resolution, range and repeat readings; distinguish random from systematic error.
Evaluation	Link a named limitation to its effect on results and a specific improvement.
Units	Convert prefixes and units before substitution; include final unit.
Significant figures	Use appropriate significant figures and avoid premature rounding.
Equations	Identify variables, rearrange symbolically if needed, substitute with units, estimate/check answer.
Extended response	Build linked scientific statements rather than disconnected facts.

References and source control

Research checked: 1 November 2026. Sources below are public AQA materials unless otherwise stated. Specification wording has been paraphrased; assessment data are transcribed from published tables.

- **[S1] AQA GCSE Combined Science: Trilogy (8464) specification.**
  https://www.aqa.org.uk/subjects/science/gcse/science-8464/specification

- **[S2] AQA 8464 Physics subject content.**
  https://www.aqa.org.uk/subjects/science/gcse/science-8464/specification/physics-subject-content
- **[S3] AQA 8464 practical assessment and required practical activities.**
  https://www.aqa.org.uk/subjects/science/gcse/science-8464/specification/practical-assessment
- **[S4] AQA 8464 scheme of assessment.**
  https://www.aqa.org.uk/subjects/science/gcse/science-8464/specification/scheme-of-assessment
- **[S14] AQA GCSE Maths and Sciences formula/equation sheets 2027-28 update.**
  https://www.aqa.org.uk/news/gcse-maths-sciences-formulae-equation-sheets-2027-28

Evidence labels used in this publication: SPEC = specification-derived diagnostic or curriculum point; ER = directly supported by a published examiner report; GB = official grade-boundary data; RP = required-practical specification.

Detailed topic audit cards

Use these cards after the master map. A topic is secure only when you can explain the core knowledge, execute its maths, interpret data and handle the linked practical demand without notes.

Energy

Sub-area	What must be secure	Minimum self-test
Energy stores and transfers	Recognise kinetic, thermal, chemical, gravitational, elastic, magnetic, electrostatic and nuclear stores in context; describe transfer pathways by mechanical work, electrical work, heating and radiation; use conservation to account for all energy.	Explain → calculate/data → unfamiliar application → one misconception check
Calculations	Use kinetic, GPE, elastic energy, work and power relationships; rearrange equations; distinguish energy (J) from power (W).	Explain → calculate/data → unfamiliar application → one misconception check
Dissipation and efficiency	Explain why dissipated energy becomes less useful, how insulation/lubrication reduce unwanted transfer, and calculate efficiency as decimal or percentage.	Explain → calculate/data → unfamiliar application → one misconception check
Resources	Compare reliability, environmental effects and suitability of renewable/non-renewable resources without claiming a single resource is universally “best”.	Explain → calculate/data → unfamiliar application → one misconception check

High-value revision prompt: write a 5-minute “brain dump” of this topic, then compare it with the current AQA 8464 Physics subject-content page. Highlight missing ideas in a different colour and retest 48 hours later.

Electricity

Sub-area	What must be secure	Minimum self-test
Circuit foundations	Draw and interpret symbols; distinguish current, charge, potential difference and resistance; understand closed circuits and current as charge flow.	Explain → calculate/data → unfamiliar application → one misconception check
Component behaviour	Interpret I-V characteristics of resistor, filament lamp and diode; know qualitative behaviour of thermistor and LDR.	Explain → calculate/data → unfamiliar application → one misconception check
Series/parallel	Apply current/pd rules, add series resistance, and explain qualitatively why parallel total resistance decreases.	Explain → calculate/data → unfamiliar application → one misconception check
Mains and safety	Know 230 V, 50 Hz UK mains; live/neutral/earth functions and hazards; explain why live can remain dangerous when a switch is open.	Explain → calculate/data → unfamiliar application → one misconception check
Power and energy	Use $P=VI$, $P=I^2R$, $E=Pt$ and $E=QV$; relate appliance ratings to energy transfer.	Explain → calculate/data → unfamiliar application → one misconception check
National Grid	Explain high-pd transmission reduces current and therefore energy loss; Higher: use ideal transformer power relationship $V_pI_p=V_sI_s$.	Explain → calculate/data → unfamiliar application → one misconception check

High-value revision prompt: write a 5-minute “brain dump” of this topic, then compare it with the current AQA 8464 Physics subject-content page. Highlight missing ideas in a different colour and retest 48 hours later.

Particle model

Sub-area	What must be secure	Minimum self-test
Density and states	Use particle arrangement to explain states and density; calculate density with consistent units; apply displacement for irregular objects.	Explain → calculate/data → unfamiliar application → one misconception check
Changes of state	Explain melting/freezing/boiling/condensing/sublimation as physical changes with mass conserved.	Explain → calculate/data → unfamiliar application → one misconception check
Internal energy	Distinguish particle kinetic and potential contributions; explain temperature rise versus change of state.	Explain → calculate/data → unfamiliar application → one misconception check
SHC and latent heat	Use $\Delta E=mc\Delta\theta$ and $E=mL$; interpret heating/cooling curves and plateaux.	Explain → calculate/data → unfamiliar application → one misconception check
Gas pressure	Explain gas pressure through particle collisions and qualitative effects of temperature/volume changes at GCSE Combined Science level.	Explain → calculate/data → unfamiliar application → one misconception check

High-value revision prompt: write a 5-minute “brain dump” of this topic, then compare it with the current AQA 8464 Physics subject-content page. Highlight missing ideas in a different colour and retest 48 hours later.

Atomic structure

Sub-area	What must be secure	Minimum self-test
Atomic model	Use proton/neutron/electron properties, atomic and mass number, isotopes; outline how scattering evidence led to nuclear model.	Explain → calculate/data → unfamiliar application → one misconception check
Radioactive decay	Describe alpha, beta and gamma; penetration/ionisation; random decay and half-life.	Explain → calculate/data → unfamiliar application → one misconception check
Hazards and uses	Distinguish contamination from irradiation; evaluate exposure control and uses of radiation in context.	Explain → calculate/data → unfamiliar application → one misconception check

High-value revision prompt: write a 5-minute “brain dump” of this topic, then compare it with the current AQA 8464 Physics subject-content page. Highlight missing ideas in a different colour and retest 48 hours later.

Forces

Sub-area	What must be secure	Minimum self-test
Vectors and resultants	Distinguish scalar/vector quantities; represent forces and reason about resultant force and equilibrium.	Explain → calculate/data → unfamiliar application → one misconception check
Work and elasticity	Use $W=Fs$ and $F=ke$; distinguish length from extension; interpret force-extension graphs and elastic limit.	Explain → calculate/data → unfamiliar application → one misconception check
Motion	Calculate speed/acceleration; interpret distance-time and velocity-time graphs	Explain → calculate/data → unfamiliar application → one misconception check

	including gradient and area meanings.	
Newton laws	Apply F=ma and Newton third law correctly; zero resultant force means zero acceleration, not necessarily zero velocity.	Explain → calculate/data → unfamiliar application → one misconception check
Stopping distance	Separate thinking and braking distances and explain factors affecting each.	Explain → calculate/data → unfamiliar application → one misconception check
Momentum - Higher	Use p=mv and conservation of momentum in closed systems with direction/sign convention.	Explain → calculate/data → unfamiliar application → one misconception check

High-value revision prompt: write a 5-minute “brain dump” of this topic, then compare it with the current AQA 8464 Physics subject-content page. Highlight missing ideas in a different colour and retest 48 hours later.

Waves

Sub-area	What must be secure	Minimum self-test
Wave language	Define amplitude, wavelength, frequency and period; distinguish transverse/longitudinal.	Explain → calculate/data → unfamiliar application → one misconception check
Wave calculations	Use T=1/f and v=fλ; measure wavelength/frequency/speed with suitable apparatus.	Explain → calculate/data → unfamiliar application → one misconception check
EM spectrum	Know order, uses and hazards; compare wavelength/frequency and recognise all EM waves travel at same speed in vacuum.	Explain → calculate/data → unfamiliar application → one misconception check
Higher wave interactions	Explain absorption/transmission/reflection/refraction and refraction through change of wave speed; use ray/wavefront reasoning where required.	Explain → calculate/data → unfamiliar application → one misconception check

High-value revision prompt: write a 5-minute “brain dump” of this topic, then compare it with the current AQA 8464 Physics subject-content page. Highlight missing ideas in a different colour and retest 48 hours later.

Magnetism

Sub-area	What must be secure	Minimum self-test
Fields and poles	Describe magnetic fields, poles, permanent and induced magnetism; interpret field diagrams.	Explain → calculate/data → unfamiliar application → one misconception check
Current and fields	Explain field around a current-carrying wire and solenoid; electromagnet applications.	Explain → calculate/data → unfamiliar application → one misconception check
Motor effect	Explain that a current-carrying conductor in a magnetic field experiences a force; describe qualitative factors affecting force/direction. Do not import separate-Physics-only F=BIl calculation into Trilogy.	Explain → calculate/data → unfamiliar application → one misconception check

High-value revision prompt: write a 5-minute “brain dump” of this topic, then compare it with the current AQA 8464 Physics subject-content page. Highlight missing ideas in a different colour and retest 48 hours later.

Paper 1 versus Paper 2 readiness

Paper	Content	Best final-week checks
P1	Energy; Electricity; Particle model; Atomic structure	Equation selection, circuit rules, particle explanations, radioactivity terminology, practicals 14-17
P2	Forces; Waves; Magnetism/electromagnetism	Graph interpretation, Newton laws, momentum HT, EM spectrum/refraction HT, practicals 18-21

Practical command-word matrix

Command	What the examiner is testing	Response structure
Describe a method	Operational sequence and measurements	apparatus → variable change → measurements → repeats/controls
Explain	Causal scientific reasoning	cause → mechanism → effect
Evaluate	Judgement based on evidence/limitations	specific issue → effect on result → targeted improvement
Calculate	Mathematical method	equation → rearrange → substitute → answer + unit
Plot / determine	Data handling	scale/axes → points → best fit → gradient/intercept if required