Year 10 Combined Science Physics Curriculum Overview 2026-2027

Year 10	Autumn 1	*Autumn 2*	Spring 1	*Spring 2*	Summer 1	*Summer 2*
Topics	***Electric circuits*** • *Current, charge, potential difference, resistance* • *Series and parallel circuits* • *Investigating resistance*	***Electric circuits, Particle model*** • *Required practical: Resistance and component characteristics* • *Specific heat capacity Required Practical*	***Atomic structure and Y10 exam week*** • *Atoms and Radiation* • *Changes in nucleus* • *Types of radiation: alpha, beta and gamma*	**Atomic structure and Forces in balance** • *Activity and half life* • *Interaction forces recap* • *Centre of mass*	**Forces and motion** • *Resolving forces* • *Parallelogram method* • *Analysing motion graphs*	**Recap and Y10 Exam** • *Forces and acceleration* • *F=ma Required Practical* • *Weight and terminal velocity*
Revision topics: prior foundation learning from Key Stage 3	*Energy transfers, Energy resources, Current, potential difference, circuit symbols content from Y9*	*States of matter, internal energy, specific latent heat, Electricity in the home content from Y9*	*Atomic structure, subatomic particles Discovery of the nucleus (history of the atom) content from Y9*	*Vectors and scalars, resultant forces content from Y9*	*Distance time graphs, velocity time graphs, acceleration content from Y9*	**All topics in preparation for Summer Exam**
Assessment	AQA Topic 1 (Energy): Kerboodle Chapters P1, P2, P3 and P4:	AQA Topics 2 and 3: Kerboodle Chapters P4, P5, P6	Mini assessment and Exam Week: AQA Topics 1-3: Kerboodle Chapters P1-P6	No assessment (feedback and targeted revision following Y10 Exam Week in Spring 1.	AQA Topic 4 and Topic 5 (part): Kerboodle Chapter P7, P8 plus additional target topics.	**Exam week (Physics Paper 1 plus forces: Kerboodle Chapters P1-P9.**
Careers links and enrichment	Engineering, renewable tech, environmental science	Materials science, power sector apprenticeships, battery engineers	Nuclear medicine, radiotherapist, nuclear engineer	Architecture, civil engineering, biomedical engineers	Aeronautical design, robotics engineer, satellite engineer	Automotive design, aerospace engineer, astronaut

Skills and Aos	GCSE study in physics provides the foundations for understanding the material world. Scientific understanding is changing our lives and is vital to the world's future prosperity, and all students should be taught essential aspects of the knowledge, methods, processes and uses of science. They should be helped to appreciate how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are both inter-linked and are of universal application. ***These key ideas include: (Some of these key ideas / concepts would be taught in Yr 11 as part of the relevant AQA specification- 8464- in its entirety):*** • the use of models, as in the particle model of matter or the wave models of light and of sound. • the concept of cause and effect in explaining such links as those between force and acceleration, or between changes in atomic nuclei and radioactive emissions. • the phenomena of 'action at a distance' and the related concept of the field as the key to analysing electrical, magnetic and gravitational effects. • those differences, for example between pressures or temperatures or electrical potentials, are the drivers of change. • that proportionality, for example between weight and mass of an object or between force and extension in a spring, is an important aspect of many models in science. • that physical laws and models are expressed in mathematical form. These key ideas are relevant in different ways and with different emphases in biology, chemistry and physics: examples of their relevance are given below for physics. GCSE specifications in Physics should enable students to: • develop scientific knowledge and conceptual understanding of physics. • develop understanding of the nature, processes and methods of physics. • develop and learn to apply observational, practical, modelling, enquiry and problem-solving skills, both in the laboratory, in the field and in other learning environments. • develop their ability to evaluate claims based on physics through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively. Physics should be studied in ways that help students to develop curiosity about the natural world, insight into how science works, and appreciation of its relevance to their everyday lives. The scope and nature of such study should be broad, coherent, practical and satisfying, and thereby encourage students to be inspired, motivated and challenged by the subject and its achievements. **AO1: Demonstrate knowledge and understanding of scientific ideas; scientific techniques and procedures.** **AO2: Apply knowledge and understanding of scientific ideas; scientific enquiry, techniques, and procedures.** **AO3: Analyse information and ideas to: interpret and evaluate; make judgments and draw conclusions; develop and improve experimental procedures**.

Year 10 Separate Science Physics Curriculum Overview 2026-2027

Year 10	Autumn 1 (7 weeks)	*Autumn 2* *(7 weeks)*	Spring 1 (6 week)	*Spring 2* *(5 weeks)*	Summer 1 (7 weeks)	*Summer 2* *(7 weeks)*
Topics	***Electric circuit*** • *Electrical charges and Fields* • *Current and charge* • *Investigating resistance* • *Component characteristics* • *Series and parallel circuits* • *Internal energy and specific latent heat*	***Atomic structure*** • *Atoms and Radiation* • *Changes in nucleus* • *More about alpha, beta and gamma* • *Activity and half life* • *Nuclear radiation in medicine* • *Nuclear fission* • *Nuclear fusion* • *Nuclear issues*	***Motion*** • *Moments, levers and gears* • *Centre of mass* • *Parallelogram and resolving forces*	**Forces and Motion** • *Analysing motion graphs)* • *Forces and acceleration* • *Weight and terminal velocity* • *Forces and braking* • *Momentum*	**Forces and Motion** • *Impact force and safety* • *Elastic forces* **Pressure** • *Pressure (solids)* • *Pressure (liquids)* • *Atmospheric pressure* • *Upthrust and flotation*	**Revision Paper 1and Forces (AQA Topics 1-5)** ***End of Year exam***
Revision topics: prior foundation learning from Key Stage 3	*Energy transfers and resources, electric circuits and in the home. Particle model content from Y9*	*Atomic structure, subatomic particles, discovery of the nucleus content from Y9*	*Vectors and scalars, resultant forces content from Y9*	*Distance time graphs, velocity time graphs, acceleration content from Y9*	*Pressure equation and gas pressure from KS3. Forces and acceleration content from Y9*	**All topics in preparation for Summer Exam**
Assessment	AQA Topic 1: Energy, Topic 2 Electricity Kerboodle P1, P2, P3, P4	AQA Topic 2: Electricity and Topic 3: Particle Model Kerboodle P4, P5, P6	AQA Topic 4: Atomic structure plus target areas from Topics 1-3 Kerboodle P1-P7	EXAM WEEK: Physics Paper 1: (AQA Topics 1-4) Kerboodle P1-P7	Parts of AQA Topic 5 (Forces): Kerboodle P8-P10	**EXAM WEEK: Physics Paper 1 PLUS Forces:** **Kerboodle P1-P11**
Career links and enrichment	Engineering, environmental science; renewables technician	Nuclear engineering, quantum research, nanotechnology research	Architect, manufacturing, civil engineering	Aeronautical design, transport, biomedical engineer	Automotive design, meteorology, climate science, oceanographer	Astrophysics research, space science

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Year 11 Combined Science Physics Curriculum Overview 2026-2027

Year 11	Autumn 1 (7 weeks)	*Autumn 2* *(7 weeks)*	Spring 1 (6 week)	*Spring 2* *(5 weeks)*	Summer 1 (7 weeks)	*Summer 2* *(7 weeks)*
Topics	***Forces*** • *Forces and acceleration* • *RP: Investigating F=ma* • *Weight and terminal velocity* • *Forces and braking* • *Momentum* • *Elastic forces* • *RP: Investigating Hooke's Law*	***Waves*** • *Nature of waves* • *Wave properties* • *Reflection and refraction* • *RP: Wavespeed practicals* • *The EM spectrum* • *Light, IR, microwaves and radio waves* • *RP: Investigation IR radiation (Leslie cube*	***Electromagnetic Waves*** • *Communications* • *UV, X- rays and gamma rays* • *X-rays in medicine* ***Electromagnetism*** • *Magnetic fields, electromagnets* • *Magnetic field and electric current* • *Motor effect*	***Consolidation and review*** • *Targeted topic recaps and practice* • *Exam technique* • *Science skills focus* • *Mocks, feedback to identify targets.*	**FINAL GCSE EXAMS**	
Prior learning required	*Y10 forces content and Paper 1 topics: Energy, Electricity, Particle model, Atomic structure*	*Basic waves knowledge from KS3*	*Electric circuits and domestic electricity from Y10.* *Foundational KS3 knowledge on magnets*		**All topics in preparation for Summer Exam**	
Assessment	AQA Topic 5 Forces Kerboodle Chapters P8-11 PLUS focus topics Topics 1-4	**MOCK EXAM: Physics Paper 1: (AQA Topics 1-4)** Kerboodle P1-P7	AQA Topic 6: Waves Kerboodle P12-P14	**MOCK EXAM: Physics Paper 2: (AQA Topics 5-7)** Kerboodle P8-P13	**AQA Paper 1 (1hr15): Topics 1-4** **AQA Paper 2 (1hr15): Topics 5-7**	
Career links and enrichment	Geotechnical engineering, environmental science; geologist	Sound engineering, optics research, radiotherapist	Nuclear fusion research, optometry, medical physics, laser applications	Aeronautics, astrophysics, space science, meterorology, satellite design		

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Year 11 Separate Science Physics Curriculum Overview 2026-2027

Year 10	Autumn 1	*Autumn 2*	Spring 1	*Spring 2*	Summer 1	*Summer 2*
Topics	***Wave properties*** • *Nature of waves* • *Wave properties* • *Reflection and refraction* • *More about waves* • *Sound waves* • *The uses of ultrasound* • *Seismic waves*	***Electromagnetic Waves*** • *The EM spectrum* • *Light, IR, microwaves and radio waves* • *Communications* • *UV, X- rays and gamma rays* • *X – rays in medicine* • *Reflection of light* • *Refraction of light*	***Electromagnetic Waves*** • *Refraction and reflection of light – Required Practical* • *Colour and Lenses* ***Electromagnetism*** • *Magnetic field and electric current* • *Electromagnets* • *Motor effect*	***Electromagnetism*** • *AC generator* • *Transfo**rmers*** ***Space*** • *Solar System, orbits* • *Life cycle of a star* • *Universe: Big Bang, expansion, future.*	**FINAL GCSE EXAMS**	
Prior learning required	*Students should be confident with all Paper 1: Energy, Electricity, Particles and Atomic structure.*	*Basic waves knowledge from KS3, completion of Wave Properties (Kerboodle Chapter P12)*	*Electric circuits and domestic electricity from Y10.* *Foundational KS3 knowledge on magnets*	*Completion of Topic 5 (Forces) and Topic 6 (Waves).* *Foundational KS3 knowledge on space.*	**All topics in preparation for Summer Exam**	
Assessment	Topic 5 Forces Kerboodle Chapters P8-11 PLUS focus topics Topics 1-4	**MOCK EXAMS: Physics Paper 1: (AQA Topics 1-4)** Kerboodle P1-P7	AQA Topic 6: Waves Kerboodle P12-P14	**EXAM WEEK: Physics Paper 2: (AQA Topics 5-8)** Kerboodle P8-P16	**AQA Paper 1 (1hr45): Topics 1-4** **AQA Paper 2 (1hr45): Topics 5-8**	
Career links and enrichment	Geotechnical engineering, environmental science; geologist	Sound engineering, optics research, radiotherapist	Nuclear fusion research, optometry, medical physics, laser applications	Aeronautics, astrophysics, space science, meteorology, satellite design		

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