Year 11 Combined Science Physics Curriculum Overview

Year 11 Combined Science	Autumn 1 (7 weeks)	*Autumn 2 (7 weeks)*	Spring 1 (5 week)	*Spring 2 (6 weeks)*	Summer 1 (6 weeks)	*Summer 2 (7 weeks)*
Topics	***Atomic Structure – 6 Weeks*** ***Revision: 1 week- Paper 1 Topics***	***Magnetism & Electromagnetism – 6 weeks*** ***Revision: 1 week-*** ***Paper 1 topics***	***Magnetism & Electromagnetism – (2 weeks)*** ***Waves (2 weeks)*** ***Revision: 1 week- Paper 1 topics, Magnetism and Electromagnetism & Forces***	**Waves (4 weeks)** ***Revision: 2 weeks- Paper 2 Topics – Including Forces***	**Revision Paper 1 & 2** GCSE EXAMS	GCSE EXAMS
Assessment	***Atomic Structure***	**Exam week:** **Entire Topics of Paper 1** **(A standard AQA Paper 1 would be set & tested)**	***Electromagnetism***	**Exam week:** **Entire Topics of Paper 2** **(A standard AQA Paper 2 would be set & tested)**		
Skills and AO's	A01, 2, 3	A01, 2, 3	A01, 2, 3	A01, 2, 3	A01, 2, 3	
Enrichment	Medical Physics applications of Radio Isotopes	Motors, Generators and Transformers: Industrial applications	Communication Technologies & Satellites	AI, Robotics and internet		

Careers	Communication Engineer, Medical Physicist, other Engineering disciplines, Robotics and AI Engineer, Engineering consultant, Civil Engineer, Mechanical Engineer, Engineering Technician, Medical Engineer, Scientific Illustrator, Science Policy Advisor, Forensic Scientist and Academic related jobs in Schools and HE sector.
Wider curricular activities	Interventions after school. Talks by undergraduate Engineers. Imperial outreach program. Trip to Science Museum. Trip to the institute of Physics.

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 11 Separate Science Physics Curriculum Overview 2025-2026

Year 11 Triple Science	Autumn 1 (7 weeks)	*Autumn 2 (7 weeks)*	Spring 1 (5 week)	*Spring 2 (6 weeks)*	Summer 1 (6 weeks)	*Summer 2 (7 weeks)*
Topics	***Magnetism & Electromagnetism – 6 weeks*** ***Revision: 1 week- Paper 1 Topics***	***Magnetism & Electromagnetism – 2 weeks*** ***Waves (4 weeks)*** ***Revision: 1 weeks- Paper 1 topics***	***Waves (4 weeks)*** ***Revision: 1 week- Magnetism and Electromagnetism, Waves & Forces***	**Space Physics (4 weeks)** ***Revision: 2 weeks- Paper 2 Topics – Including Forces & Space Physics***	**Revision Paper 1 & 2** GCSE EXAMS	GCSE EXAMS
Assessment	***Magnetism & Electromagnetism***	**Exam week:** **Entire Topics of Paper 1** **(A standard AQA Paper 1 would be set & tested)**	***Waves***	**Exam week:** **Entire Topics of Paper 2** **(A standard AQA Paper 2 would be set & tested)**		
Skills and AO's	A01, 2, 3	A01, 2, 3	A01, 2, 3	A01, 2, 3	A01, 2, 3	
Enrichment	Motors, Generators and Transformers: Industrial applications	Medical Physics Applications of Electromagnetism- MRI scanners, Spectrometers	Communication Technologies & Satellites	AI, Robotics and internet		

		and particle accelerators & Proton Beam therapy.				

Careers	Communication Engineer, Medical Physicist, other Engineering disciplines, Robotics and AI Engineer, Engineering consultant, Civil Engineer, Mechanical Engineer, Engineering Technician, Medical Engineer, Scientific Illustrator, Science Policy Advisor, Forensic Scientist and Academic related jobs in Schools and HE sector.
Wider curricular activities	Interventions after school. Talks by undergraduate Engineers. Imperial outreach program. Trip to Science Museum. Trip to the institute of Physics.

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- 8463- 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**.