	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Theme/Big Idea	**P11 – Wave properties** Nature of waves; transverse and longitudinal waves; wave properties; reflection and refraction; sound waves; ultrasound; seismic waves. **P12 – Electromagnetic waves** The electromagnetic spectrum; infrared, microwaves and radio waves; communications; ultraviolet, X-rays and gamma rays; medical uses; infrared radiation and temperature. **P13 – Electromagnetism** Magnetic fields; magnetic fields of electric currents; the motor effect; electromagnets; forces on current-carrying conductors.	**P13 – Electromagnetism** Magnetic fields; magnetic fields of electric currents; the motor effect; electromagnets; forces on current-carrying conductors. **P14 – Light** Reflection of light; refraction; light and colour; lenses; using lenses; image formation.	**P15 – Electromagnetism and generators** Electromagnetic induction; the generator effect; alternating-current generators; transformers; transformers in action; the National Grid. **P16 – Space** Formation of stars; the life cycle of stars; planets, satellites and orbits; the expanding universe; the beginning and future of the universe.	**Revision and exams – Year 11 consolidation** Retrieval, application and examination practice across the Year 11 specification.	**Revision – Year 11 consolidation** Targeted revision of specification content and misconceptions.	**External Exams – GCSE examinations** Final external examinations for the separate science qualification.

Content What are they learning? (including keywords)	**P11 – Wave properties** Nature of waves; transverse and longitudinal waves; wave properties; reflection and refraction; sound waves; ultrasound; seismic waves. **Keywords:** wave, transverse, longitudinal, amplitude, wavelength, frequency, period, wave speed, reflection, refraction, sound, ultrasound, seismic **P12 – Electromagnetic waves** The electromagnetic spectrum; infrared, microwaves and radio waves; communications; ultraviolet, X-rays and gamma rays; medical uses; infrared radiation and temperature. **Keywords:** electromagnetic spectrum, radio, microwave, infrared, visible, ultraviolet, X-ray, gamma, wavelength, frequency, ionising	**P13 – Electromagnetism** Magnetic fields; magnetic fields of electric currents; the motor effect; electromagnets; forces on current-carrying conductors. **Keywords:** magnetic field, field lines, electromagnet, solenoid, current, conductor, motor effect, force, Fleming's left-hand rule **P14 – Light** Reflection of light; refraction; light and colour; lenses; using lenses; image formation. **Keywords:** reflection, refraction, normal, angle of incidence, angle of reflection, refractive index, lens, focal length, ray diagram, colour	**P15 – Electromagnetism and generators** Electromagnetic induction; the generator effect; alternating-current generators; transformers; transformers in action; the National Grid. **Keywords:** electromagnetic induction, generator effect, induced potential difference, alternator, dynamo, transformer, primary coil, secondary coil, turns ratio, National Grid **P16 – Space** Formation of stars; the life cycle of stars; planets, satellites and orbits; the expanding universe; the beginning and future of the universe. **Keywords:** star, nebula, fusion, main sequence, red giant, supernova, neutron star, black hole, orbit, satellite, red-shift, expanding universe	**Revision and exams – Year 11 consolidation** Revision of key content, required practicals, mathematical skills and exam technique. **Keywords:** retrieval, application, practical, calculation, data, evaluation, command word	**Revision – Year 11 consolidation** Retrieval practice, required practicals, equations, data and extended responses. **Keywords:** retrieval, application, calculation, practical, data, evaluation	**External Exams – GCSE examinations** Final revision and examination preparation. **Keywords**: retrieval, application, calculation, data, practical, evaluation

	radiation **P13 – Electromagnetism** Magnetic fields; magnetic fields of electric currents; the motor effect; electromagnets; forces on current-carrying conductors. **Keywords:** magnetic field, field lines, electromagnet, solenoid, current, conductor, motor effect, force, Fleming's left-hand rule					
Skills How are they learning it?	**P11 – Wave properties** Measure and calculate wave quantities; interpret wave diagrams; use v=fλ; explain reflection and refraction; interpret ultrasound and seismic-wave data. **Required practical:** No AQA required practical specified. **P12 – Electromagnetic waves** Order and compare electromagnetic waves; interpret frequency and	**P13 – Electromagnetism** Plot and interpret magnetic fields; use field-line diagrams; apply the motor-effect model; use Fleming's left-hand rule where required; explain electromagnets and their applications. **Required practical:** No AQA required practical specified. **P14 – Light** Use ray diagrams; measure angles; investigate reflection and refraction; explain colour and filters; construct and interpret	**P15 – Electromagnetism and generators** Explain electromagnetic induction; interpret generator graphs; use transformer equations; analyse power transmission; evaluate how the National Grid reduces energy losses. **Required practical:**No AQA required practical specified.	**Revision and exams – Year 11 consolidation** Use retrieval practice, exam questions, data interpretation and practical evaluation.	**Revision – Year 11 consolidation** Plan and complete targeted revision; use exam questions and feedback to improve responses.	**External Exams – GCSE examinations** Apply knowledge, practical skills and mathematical reasoning under examination conditions.

	wavelength; explain communication and medical applications; evaluate risks and benefits of ionising radiation. **Required practical:** No AQA required practical specified. **P13 – Electromagnetism** Plot and interpret magnetic fields; use field-line diagrams; apply the motor-effect model; use Fleming's left-hand rule where required; explain electromagnets and their applications. **Required practical:** No AQA required practical specified.	lens diagrams; calculate magnification where required. **Required practical:** Use appropriate apparatus to investigate reflection and refraction of light and make measurements. Investigate the reflection of light by different types of surface.	**P16 – Space** Sequence stages in stellar evolution; interpret orbital and red-shift data; explain evidence for an expanding universe; compare natural and artificial satellites; evaluate cosmological models. **Required practical:** No AQA required practical specified.			
Key Questions	**P11 – Wave properties** What distinguishes transverse and longitudinal waves? How are wave speed, frequency and wavelength related? How are ultrasound and seismic waves used? **P12 – Electromagnetic waves** What do all	**P13 – Electromagnetism** How are magnetic fields produced? What is the motor effect? How can electromagnets be made stronger? **P14 – Light** How do reflection and refraction change the path of light? How do lenses form images? Why do objects appear different colours?	**P15 – Electromagnetism and generators** How does the generator effect produce electricity? How do transformers change potential difference? Why is electricity transmitted at high voltage?	**Revision and exams – Year 11 consolidation** Can I apply my knowledge to unfamiliar contexts and explain practical evidence?	**Revision – Year 11 consolidation** Which areas do I need to revisit and how can I improve my exam responses?	**External Exams – GCSE examinations** Can I apply the full specification confidently in the external examinations?

	electromagnetic waves have in common? How are different regions of the spectrum used? What are the risks and benefits of ionising radiation? **P13 – Electromagnetism** How are magnetic fields produced? What is the motor effect? How can electromagnets be made stronger?		**P16 – Space** How do stars form and change? What evidence shows that the universe is expanding? How do satellites remain in orbit? What is the evidence for the Big Bang?			
Assessment (specific assessed piece(s); milestone(s))	P11: End of topic assessment P12: End of topic assessment P13: End of topic assessment **Marking Milestone**	P13: End of topic assessment P14: End of topic assessment **Marking Milestone**	P15: End of topic assessment P16: End of topic assessment **Marking Milestone**	**Revision and exams** **Marking Milestone**	**Revision** **Marking Milestone**	**External Exams** **Marking Milestone**