CURRICULUM PLAN

COMBINED SCIENCE PHYSICS (EDEXCEL 9-1)

BRAMHALL HIGH SCHOOL

Curriculum Intent

It is our intention as Science Department to provide all children, regardless of their prior learning, background, or special needs, with a broad and balanced science curriculum. We aim to promote positive attitudes to science as an interesting and enjoyable subject. To develop pupils` awareness of how science impacts on their everyday life.

Pupils are encouraged to develop their practical skills, to work collaboratively and to query and evaluate scientific evidence.

We aim to cultivate an environment conducive to learning. We encourage and value our pupils' opinions, ideas, and contributions. Similarly, we expect pupils to strive for excellence and respect the contributions of other adults and their peers. Our intention is for pupils to enjoy their learning, to be resilient, make progress and achieve at an appropriate level.

Academic Year: 2025-2026

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YEAR 10

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	**CP2 Forces and motion** - Resultant forces - Investigating acceleration - Mass and weight - Newton's Laws - Momentum - Collisions - Stopping distances - Car safety **CP3 Conservation of energy** - Energy efficiency - Keeping warm - kinetic energy - Potential energy	Forces Energy Scientific thinking Experimental skills Analysis and Evaluation Measurement Units Energy Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	CPR – Core practical acceleration CP2 – End of unit test CPR - Energy Transfers	New air track to be used and can extend to elastic and inelastic collisions. Can also do more than two objects colliding Consider systems which aren't 100% efficient in calculations Stress link GPE/KE and 6 markers Energy presentations	**Tier 1:** mass, force, Newton, weight **Tier 2:**, interact, collision **Tier 3:** resultant, acceleration, momentum, conservation **Tier 1:** Elastic, nuclear energy, system. efficiency **Tier 2:** Dissipated, efficiency, lubrication, thermal energy, **Tier 3:** gravitational potential energy, kinetic energy, conservation

Term 1b	**CP3 Conservation of energy** - Renewable resources - Non-renewable resources - Energy trends & issues **CP4 Waves** - Types of waves - Wave properties	Wave Motion Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	CP3 End of unit test CPR - Waves	Modelling and pHET for wave core practical	**Tier 1:** ray, lens, **Tier 2:** Frequency, **Tier 3:** Wavelength, wave speed, refraction, absorption, total internal reflection
Term 2a	**CP4 Waves** - Wave speed equations - Wave speed practicals - Waves at boundaries - Reflection - Refraction **CP5 Light and the Electromagnetic spectrum** - EM spectrum - EM properties and uses - Dangers of EM Spectrum - Radiation & temperature - Climate change	Wave Motion Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	CPR - EM Waves CP4/5 End of unit test	Look at power of lenses More lens diagrams to consider object position Designing heat exp.	**Tier 1:** speed **Tier 2:** transverse **Tier 3:** microwave, infrared, ultraviolet, gamma, radiation, conservation

Term 2b	**CP6 Radioactivity** - History of the atom - Atomic structure - Nucleus structure - P, E, N for atoms - Electron orbits	Atomic Structure Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	Year 10 Exams	Modelling radioactivity Flame tests and energy Carbon 14 dating	**Tier 2:** Gamma ray. Alpha, beta, electron, proton, **Tier 3:** Radioactive decay, activity, background, Becquerel (Bq), positron, nucleus, ionisation, penetration, absorption
Term 3a	**CP6 Radioactivity** - Electron orbits - Radiation and decay - Background radiation - Half-life - Contamination - Irradiation - Dangers of radiation	Atomic Structure Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	CPR – Nuclear Radiation CP6 End of unit test	Litvinenko Link to chem	**Tier 2:** Gamma, alpha, beta, electron, proton, Rutherford **Tier 3:** Radioactive decay, activity, background, Becquerel (Bq), positron, nucleus, ionisation, penetration, absorption

Term 3b	**CP7 Energy – Forces doing work** - Power and work **CP8 Forces and their effects** -Fields -Contact forces -Non-contact forces -Force vector diagrams	Forces Energy Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	CPR - Work and Power CP7/8 End of unit test	Fred model of fuses Wire wool fuses	**Tier 1:** force, work, power, distance, energy **Tier 2:** resultant, parallel, uniform, vector **Tier 3:** electrostatic, gravitational

YEAR 11

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	**CP9 Electricity & circuits** - Circuit symbols - Series and parallel rules - Energy & charge - Current/Potential Difference - Resistance rules - Special resistors - Power and Energy - Heating effect of currents - Calculations	Electricity Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	CPR – Electricity	Enrichment – Tues revision Welding and heating effects	**Tier 1:** Electrons, voltage, circuit, volt, emitting, diode **Tier 2:** Series, parallel. moment **Tier 3:** Current, potential difference (p.d.), voltmeter, ampere, coulomb, thermistor,

					perpendicular, equilibrium
Term 1b	**CP9 Electricity & circuits** - a.c and d.c - Fuses and the plug - Domestic electricity - Electrical Safety	Electricity Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	Year 11 Mock exams	Enrichment – Tuesday revision Van de Graaff pHET fields	**Tier 1:** earth, live, neutral, fuse, field **Tier 2:** neutral, negative, positive, induce, electrostatic **Tier 3** Residual, induction, precipitator
Term 2a	**CP10 Magnetism and the motor effect** - Magnets and fields - Electromagnetism - Magnetic forces **CP11 Electromagnetic Induction** - EM induction - Transformers - Transformer equation - National Grid & safety	Forces Magnetism & electromagnetism Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	CPR - Transformers CP10/11 End of unit test	Enrichment – Tuesday revision How the Earth's magnetic field works Investigating electromagnets practical - modelling and evaluating methods	**Tier 1:** poles, field, compass **Tier 2:** attraction, repulsion. **Tier 3:** permanent, magnetic, flux, solenoid, Fleming, transformer, primary coil, secondary coil, induced voltage, induced current.

Term 2b	**CP12 Particle Model** - Particle model - Density - Changing state - Specific heat capacity - Specific latent heat - Energy Calcs - Gas temps and pressures - Gas pressures & volume - Absolute zero - Kelvin scale	Structure of matter Forces Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	CPR – core practical changes of state	Extend to different liquids and gas A Level SHC Q SHC metals and liquids	**Tier 1:** Particle, atom, molecule, state, melt, freeze, boil, volume. **Tier 2:** Density, evaporate, condense, state. **Tier 2:** Sublimation, vaporisation, specific heat capacity, specific latent heat.

Term 3a	**CP13 Force and matter** - Bending and stretching - Hooke's Law - Elastic limit - Work done on springs	Structure of matter Forces Scientific thinking Experimental skills Analysis and Evaluation Measurement Units	CPR - Core Practical Springs CP12/13 End of unit test	Stretching other materials	**Tier 1:** Force, weight, length, energy, spring, pressure, force, area, density, depth, weight, volume, float, sink, **Tier 2:** Extension, constant, upthrust. **Tier 3:** Newton, Pascal, Hooke, elastic limit, plastic deformation.
Term 3b	**Revision**				