The GTS Physics Curriculum

Our intent

"The ability of people to understand the world in which they live and work increasingly depends on their understanding of scientific ideas and associated technologies and social questions. For most people such understanding will come mainly through education."

Sir Paul Nurse, President of the Royal Society

We want our students to

- Be scientists
- Develop skills as well as knowledge
- Nurture a love of science
- Be curious
- Be resilient
- Be challenged
- Be scientifically literate
- Make better than 'expected' progress

Our intent is to support and prepare student for their next steps by

- Inspiring curiosity and fostering an interest in world of science
- Observing scientific phenomena and developing a conceptual understanding of scientific ideas and the world around them
- Building and developing skills and knowledge through carefully designed practical opportunities and sequenced lessons so that pupils can take advantage of opportunities, become scientifically literate and recognise chances for responsibility within their learning
- Encouraging and modelling a culture of lifelong learning through a love and interest in the natural world

"Science and everyday life cannot and should not be separated"

Rosalind Franklin

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There is an alternative curriculum was put in place for students who were not secondary ready in year 7 which aims to reinforce and embed KS2 learning and begin the progression to KS3.
An alternative pathway exists for students who need it in KS4 with Entry level course and Unit Award Schemes (AQA) to ensure qualifications for all.

Curriculum Map

Y7	Y8	Y9 (2025 onward)	Y10 (2025-2027)	Y11 (2025/26)
Forces Electricity Energy Waves	Forces Electromagnets Energy Waves	Energy Electricity	Particle model of matter Atomic structure Forces	Waves Magnetism and electromagnetism Space Physics

KS4 Specification links:

https://filestore.aqa.org.uk/resources/science/specifications/AQA-8464-SP-2016.PDF

https://filestore.aqa.org.uk/resources/physics/specifications/AQA-8463-SP-2016.PDF

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Physics year 7-11	
Content	**Revisit**
Forces-speed, gravity.	KS2 links
Electricity- current, voltage, resistance.	KS2 links
Energy-energy cost, energy transfers.	KS2 links
Waves- sound, light.	KS2 links
Forces- contact forces, pressure.	KS2 links Forces (7)
Electromagnets- magnetism, electromagnets.	KS2 links Electricity (7)
Energy- work, heating & cooling.	KS2 links Energy (7)
Waves-wave properties, wave effects.	KS2 links Waves (7)
Energy (Year 9 2025 onward)- Energy stores and systems Changes in energy Energy changes in systems **Required practical - Thermal insulation PHY only** Work Power Energy transfers in a system Efficiency Internal energy Temperature changes in a system and specific heat capacity Required practical - Specific heat capacity	Energy (7/8)
Electricity- Standard circuit diagram symbols Electrical charge and current Current, resistance and potential difference Resistors Required practical - Resistance Required practical - V-I characteristics Series and parallel circuits Direct and alternating potential difference Mains electricity Energy transfers in everyday appliances	Electricity (7/8)

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The national grid Energy changes in systems **Static charge PHY only** **Electric fields PHY only**	
Particle model of matter (2025-2027)- Density of materials Required practical - Density Changes of state Internal energy Temperature changes in a system and specific heat capacity Required practical - Specific heat capacity Changes of heat and specific latent heat Particle motion in gases **Pressure in gases PHY only** **Increasing the pressure of a gas PHY only**	Energy (8) Links to Chem unit- Bonding structure and properties of matter (9)
Atomic structure- The structure of an atom Mass number, atomic number and isotopes The development of the model of the atom Radioactive decay and nuclear radiation Nuclear equations Half-lives and the random nature of radioactive decay Radioactive contamination **Background radiation PHY only** **Different half-lives of radioactive isotopes PHY only** **Uses of nuclear radiation PHY only** **Nuclear fission PHY only** **Nuclear fusion PHY only**	Links to Chem- Particle model (7), Elements (8), Atomic structure and the periodic table (9)
Forces Scalar and vector quantities Required practical- Force and extension Contact and non-contact forces Gravity Resultant forces Work done and energy transfer Forces and elasticity **Moments, levers and gears PHY only** Pressure in a fluid	Forces (7/8)

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Pressure in a fluid 1 **Pressure in a fluid 2 HT only** Atmospheric pressure Describing motion along a line Distance and displacement Speed Velocity The distance-time relationship Acceleration Required practical - Acceleration Forces, accelerations and Newton's Laws of motion Newton's first law Newton's second law Newton's third law Forces and braking Stopping distance Reaction time Factors affecting braking distance 1 Factors affecting braking distance 2 **Momentum is a property of moving objects HT only** **Conservation of momentum HT only** **Changes in momentum PHY only**	
Waves- Transverse and longitudinal waves Properties of waves Required practical - Waves **Reflection of waves PHY only** **Sound waves PHY only** **Waves for detection and exploration PHY only** Types of electromagnetic waves Properties of electromagnetic waves 1 Properties of electromagnetic waves 2 Uses and applications of electromagnetic waves **Lenses PHY only** **Visible light PHY only** **Required practical - Light PHY only** **Emission and absorption of infrared radiation PHY only** **Required practical - Radiation and absorption PHY only**	Wave (7/8) Link to Biology- Cell biology (9)

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Perfect black bodies and radiation PHY only	
Magnets- Poles of a magnet Magnetic fields Poles of a magnet Electromagnetism **Fleming's left-hand rule HT only** **Electric motors HT only** **Loudspeakers PHY only** **Induced potential PHY only** **Uses of the generator effect PHY only** **Microphones PHY only** **Transformers PHY only**	Forces (7) Electricity (8) Electricity (9)
Space Physics- **Our solar system PHY only** **The life cycle of a star PHY only** **Orbital motion, natural and artificial satellites PHY only** **red shift PHY only**	Energy (7/8/9)

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