PHYSICS **GCSE AQA SPECIFICATION**

	Outline
Y10 Half Term 1	**Energy** Changes in energy stores Conservation of energy Energy and efficiency Gravitational potential energy and kinetic energy Energy transfer by heating/thermal conductivity/insulation of buildings **Required practical 2 – Investigating thermal insulators** Specific heat capacity **Required practical 1 – determining the specific heat capacity of a metal**
Y10 Half Term 2	**Particle nature of matter** Density of regular /irregular objects. Density of liquids **Required practical 5 – calculating densities** States of matter Changes of state – specific latent heat of vaporisation and fusion Gas pressure and temperature Gas pressure and volume/Boyle's law
Y10 Half Term 3	**Atomic structure** Discovery of radioactivity Atoms and radiation Alpha decay and beta decay Activity and half life Modelling radioactive decay using dice The discovery of the nucleus Uses of radioactivity Nuclear fission Nuclear fusion
Y10 Half Term 4	**Electricity** Static electricity Electric fields Current and charge Potential difference Series and parallel circuit rules Resistance Ohms Law **Required practical 3 – investigating the resistance of a wire and of resistors in series and parallel** Thermistors and LDRs **Required practical 4 - investigating the current P.d. characteristics of circuit components**

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	Electricity in the home Alternating current Electrical safety – fuses/earth wire/double insulation Wiring a plug Electrical power Calculating electrical power and energy
Y10 Half Term 5	**Motion** Speed, velocity and acceleration Motion graphs Calculating the resultant of forces acting along the same line Calculating the resultant of perpendicular forces using a scale diagram The parallelogram of forces Resolving forces into perpendicular components using a scale diagram Mass and weight **Forces in action**
Y10 Half Term 6	Hooke's Law **Required practical 6 – investigating the relationship between force and extension of a spring** Newton's laws **Required practical 7 – investigating the relationship between force and acceleration** Car stopping distances Terminal velocity Momentum/conservation of momentum calculations in collisions and explosions
Y11 Half Term 1	Impact forces Car safety features Gear and levers Moments and equilibrium Centre of mass and stability Pressure at a surface Pressure in liquids Atmospheric pressure Upthrust and flotation **Waves** Transverse and longitudinal waves Frequency, wavelength and amplitude. The wave equation **Required practical 8 – measuring the speed, frequency and wavelength of waves in a ripple tank and in a stretched string**
Y11 Half Term 2	The electromagnetic spectrum Sources, uses and dangers of electromagnetic waves Reflection of light Refraction of light

	Required practical 9 – investigating the reflection and refraction of light Lenses/using lenses Light and colour Seismic waves Infra-red radiation Blackbody radiation **Required practical 10 –Investigating infra-red radiation** Sound Ultrasound and its uses Seismic waves
Y11 Half Term 3	**Space physics** The size and scale/structure of the universe Formation of the solar system Circular motion Satellites/moons/planets The lifecycle of a star Origins of the universe/the big bang theory Evidence for the big bang Doppler effect/red shift Possible futures of the Universe
Y11 Half Term 4	**Magnetism and electromagnetism** Magnetic fields Observing magnetic fields using iron filings and plotting compasses. The magnetic field around a current carrying conductor/right hand grip rule Electromagnets and their uses The motor effect and Fleming's left-hand rule Calculating and investigating the force on a current carrying conductor in a magnetic field. Electric motors Electromagnetic induction/the generator effect The generator Uses of the generator effect The transformer/transformer equation/energy losses in the transformer Transformers in the national grid
Y11 Half Term 5	**Revision**