Science KS4 – Physics

2020/21
CURRICULUM MAP

Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 9	**P1 – Energy 1**	**P1 – Energy 2**	**P2 – Electricity 1**	**P2 – Electricity 2**	**P3 - Particle model of matter**	
	•Energy Transfers •Gravitational Potential Energy •Kinetic Energy •Work Done and Power •Specific Heat Capacity •Required practical 1: Determine the specific heat capacity of one or more materials •Efficiency	•Energy Sources •Energy Sources 2 •Heat Transfer •Keeping houses warm •Conservation of energy •Required practical 2: Investigate the effectiveness of different materials as thermal insulators	•Metallic Bonding •Charge and Current •Potential Difference •Resistance and V = IR •Required Practical 3: How length of wire affects resistance •Ohm's Law and IV characteristics •Required Practical 4: Investigate IV characteristics of a variety of circuit elements •Thermistors and LDR's	•Energy and Power •Parallel Circuits •Resistors in Series and Parallel •Domestic Uses and Safety •The National Grid •Static Electricity	•States of matter •Internal Energy •Specific Heat Capacity •Specific Latent Heat •Fluids •Pressure •Boyles Law •Density •Required Practical: Determine density of regular object, irregular object, and liquid •Heat Transfer	

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 10	**P4 - Atomic Structure 1**	**P4 - Atomic Structure 2**	**P5 – Forces 1**	**P5 – Forces 2**	**P5 – Forces 3**	**P6 – Waves 1**
	•The Atom and Ionizing Radiation •Rutherford Scattering •History of the Atom •Nuclear Equations •Half Life •Dangers of Radiation •Background Radiation	•Uses of radiation •Nuclear Fission •Nuclear Fusion	•Speed and distance-time graphs •Vectors and Scalars, displacement-time graphs •Acceleration •Velocity-time graphs •Equations of motion •Stopping distance, Force = work done/distance •Momentum •Momentum, force and time	•Forces Introduction •Newton's 2nd Law •Required Practical 7: investigate the effect of varying the force on acceleration •Newton's 1st and 3rd Laws •Weight, mass and centre of maa •Hooke's Law •Elastic Potential Energy	•Required Practical 6: investigate the relationship between force and extension for a spring. •Moments •Moments in equilibrium, levers and gears •Friction, Drag, Terminal Velocity •Pressure •Pressure in Fluids	•The Nature of Waves •The Wave Equation •"Required practical 8: Measure frequency, wavelength and wave speed •Intro to EM Waves" •UV, X-Rays and Gamma Rays •Visible Light •"Infrared Radiation •Required Practical 10: investigation into the amount of infrared radiation absorbed or radiated

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	Autumn 1		Autumn 2		Spring 1	Spring 2
Year 11	**P6 – Waves 2**	**Paper 1 Revision**	**P7 - Electromagnetism**	**P8 – Space Physics**	**Paper 2 Revision**	**Exam Preparation**
	•Reflection and Refraction •Required Practical 9: Investigate the reflection of light by different types of surface and the refraction of light by different substances. •Lenses • Ray diagrams and magnification •Sound •Ultrasound •Seismic Waves	Paper 1 Assessment Units C1- C5 October/ November	•Magnetic Fields •Electromagnets •The Motor Effect •The Electric Motor •The Generator Effect •Transformers •Applications of the motor effect	•The life cycle of a star •Objects in the universe •The Big Bang Theory •Videos and Practice	Paper 2 Assessment Units C6- C10 January / February	•P1-P4 (1.45) •P5-P8 (1.45)

Supporting at home	Homework is set weekly on Educake to provide on going retrieval practice of key information. If you want to support further, our learning checklists can be found here and practice Q and A here. Our curriculum is supported by work booklets that can be used in cases of absence and you can access the most relevant links to BBC bitesize and Oak Academy videos here.						
BBC Bitesize	P1 - Energy	P2 - Electricity	P3 - Particle model of matter	P4 - Atomic structure	P5 - Forces	P6 - Waves	P7 - Magnetism and electromagnetism	P8 – Space Physics
Oak Academy	P1 - Energy	P2 - Electricity	P3 - Particle model of matter	P4 - Atomic structure	P5 - Forces	P6 - Waves	P7 - Magnetism and electromagnetism	P8 – Space Physics