

Year 10

Timing	Unit Title	Key Question	Knowledge	Assessing understanding
Autumn	Waves	What are waves and how do we measure them? What is the Electromagnetic Spectrum and How do we use it?	- Waves Basics, Features of transverse and longitudinal waves including the basics of reflection and refraction - Wave Equation - Required Practical 8 - speed of wave in ripple tank and Speed of waves in solids - How we hear sound. - Uses of waves in imaging, sonar and developing theories on the structure of the Earth 1 - More about Earthquake waves - The Electromagnetic Spectrum - Infra red and Black body radiation - required practical 10 silver and black cans - X-rays - Light - reflection - refraction - Required practical 9 reflection and refraction from different substances - diffraction - Colour and how we see it - Convex and concave lenses - Ray diagrams	How understanding is assessed Students will be assessed on their ability to: - Recall the knowledge covered - Explain the Physical processes covered. - Interpret graphical and experimental data - Plan and describe valid experiments - Evaluate experimental procedures and results Skills - Description - Explanation - Evaluation - Comparison - Planning and carrying out investigations - Manipulating Mathematical Formulae Assessment point information Based on: - Home works during the term - Test on Energy from Year 9 - Test on Waves

Spring	Atomic Structure and Space Physics	What is Radioactivity and how can we use it safely? How do we generate the electricity that we use? How are stars formed?	• Structure of the atom • The discovery of the atom 1 • The discovery of the atom 2 • Nature and properties of alpha, beta and gamma radiation • Nuclear decay equations for alpha and beta decay. • Determination of half-life using calculations and graphical methods. • Safety with radioactivity • Background radiation and sources of it. Medical and other Uses of radiation • Nuclear fission. • Nuclear fusion. • Global Energy resources • Life cycle of a star • Solar System • History and Future of the Universe	How understanding is assessed Students will be assessed on their ability to: • Recall the knowledge covered • Explain the Physical processes covered. • Interpret graphical and experimental data • Plan and describe valid experiments • Evaluate experimental procedures and results Skills • Description • Explanation • Evaluation • Comparison • Planning and carrying out investigations • Manipulating Mathematical Formulae Assessment point information Based on: • Home works during the term • Possible second test on waves
Summer	Electricity	What can we measure in electric circuits and how are these things related?	• Electrostatics • Electricity introduction • Current • Potential Difference and Resistance and Ohm's Law	How understanding is assessed Students will be assessed on their ability to: • Recall the knowledge covered • Explain the Physical processes covered. • Interpret graphical and experimental data • Plan and describe valid experiments

	Electricity	What can we measure in electric circuits and how are these things related?	• Test Circuits (Electrical Component properties) • I-V Graphs (Electrical Component Graphs) • Circuit Rules (Theory: Series vs Parallel circuits) • Circuit Rules: (Required Practical 4: Series vs Parallel circuits) • Required Practical 3 Use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits.	• Evaluate experimental procedures and results
	Electricity	How do we access electricity at home?	• Electrical Power • Energy Transfers in circuits • National Grid • Plugs and Wiring • Fuses and Circuit Breakers • AC vs DC and measuring	Skills • Description • Explanation • Evaluation • Comparison • Planning and carrying out investigations • Manipulating Mathematical Formulae Assessment point information Based on: • Home works during the term • End of Year Exam