Long term planning grid

Specification: AQA Physics

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 10	**ENERGY 1** **What will be learnt?** 1 Stores and transfers. 2 Power. 3 Gravitational potential energy. 4 Kinetic energy. 5 Efficiency. **Why will it be learnt?** **Main outcome:** To describe changes in energy stores and use this to solve quantitative problems. **Skills developed:** Mathematical skills: • Standard form • Use of equations **How will learning be assessed?** "Bike lights" extended writing task. Half-termly exam. **WAVES 1** **What will be learnt?** 1 Wave properties. 2 Finding wave speeds. 3 Electromagnetic waves overview. 4 Uses of electromagnetic waves.5 Emission & absorption of infrared. 6 Refraction. **Why will it be learnt?**	**FORCES AND MOTION 1** **What will be learnt?** 1 Velocity & distance-time graphs. 2 Acceleration. 3 Velocity-time graphs. 4 Acceleration & displacement equation. 5 Terminal velocity. **Why will it be learnt?** **Main outcome:** To be able to use graphs and equations to qualitatively describe and interpret objects' motion. **Skills developed:** Mathematical skills: • Drawing and interpreting graphs. • Converting units. • Using equations. **How will learning be assessed?** "Distance-time graphs" extended writing task. Half-termly exam. **ELECTRICITY 1** **What will be learnt?** 1 Charge and current. 2 Factors affecting resistance. 3 Ohm's Law. 4 I-V Characteristics.	5 Thermistors & LDRs. 6 Series & parallel circuits. 7 Resistors in series & parallel. **Why will it be learnt?** **Main outcome:** To explain how electric circuits work and use this to solve real-world problems involving changes to circuits and the conditions they are kept in. **Skills developed:** Practical skills: • Planning experiments. • Processing data Mathematical skills: • Standard form • Unit conversions • Use of equations • Direct proportionality • Drawing and interpreting graphs. **How will learning be assessed?** "I-V Characteristic" extended writing task. Half-termly exam. **ENERGY 2** **What will be learnt?**	**ATOMIC STRUCTURE** **What will be learnt?** 1 Atomic structure. 2 Isotopes & ions. 3. History of the atom. 4 Nuclear Radiation. 5 Properties & uses of radiation. 6 Dose and background radiation. 7 Nuclear decay equations. 8 Half-life. Continued in Summer 2.	9 Radioactive contamination. 10 Uses of radiation. 11 Nuclear fission. 12 Nuclear fusion. **Main outcome:** To be able to describe the development in our understanding of the structure of atoms and quantitatively describe nuclear decay and describe its uses as well as those of nuclear fission and fusion. **Skills developed:** Linking evidence to changing scientific models. Use of graphs. **How will learning be assessed?** "History of the atom extended writing task. "Nuclear decay equations" extended writing task. Half-termly exam. **PARTICLE MODEL** **What will be learnt?** 1-2 Density. Continued in Summer 2	3 Changes of state. 4 Specific heat capacity. 5 Specific latewnt heat. 6-7 Particle model of gases. **Why will it be learnt?** **Main outcome:** To explain phenomena associated with of different states of matter and changes between them. To calculate the energy required for changes in temperature and state. **Skills developed:** Practical skills: • Planning experiments. • Processing data • Using models Mathematical skills: • Standard form • Unit conversions • Use of equations • Inverse proportionality **How will learning be assessed?** "Supplying heat energy" extended writing task. Half-termly exam. **ELECTRICITY 2** **What will be learnt?** 1 Mains electricity. 2

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	<u>Main outcome:</u> To explore the properties, behavior and uses of waves that we experience around us. **<u>Skills developed:</u>** Practical skills: • Identifying variables • Processing data • Reducing errors Mathematical skills: • Standard form • Use of equations • Geometric diagrams. **How will learning be assessed?** "Comparing waves" extended writing task. Half-termly exam.	Continued in Spring 1	1 Power & efficiency recap. 2 Elastic potential energy and work done recap. 3-4 Thermal energy. 5 Energy conservation calculations. 6 Reducing wasted energy. 7 Energy resources. **<u>Main outcome:</u>** To be able to use ideas of energy conservation in transfers between different forms. To evaluate the country's energy resources. **<u>Skills developed:</u>** Practical skills: • Processing data • Reducing errors Mathematical skills: • Using conservation laws. **How will learning be assessed?** "Energy transfers" extended writing task. Half-termly exam.			Power. 3 The National Grid. 4 Energy transfers. 5 Electrical energy. 6-7 Electric charges. 8 Electric fields. **Why will it be learnt?** **<u>Main outcome:</u>** To learn how the national grid supplies our home with energy and how to find the energy a device transfers. To explore how charges interact. **<u>Skills developed:</u>** • Sequenced explanations Mathematical skills: • Standard form • Use of equations **How will learning be assessed?** "Plug adaptors" extended writing task. Half-termly exam.