Year 7 Physics

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit	Introduction to Scientific Enquiry, Energy		Forces		Electricity & Magnetism	
Knowing what… (Declarative knowledge)	Use scientific language to identify variables Define accuracy and compare stop clocks and light gates Define and list energy stores, identifying "potential" stores Define the principle of conservation of energy Identify the four pathways by which energy can be transferred Define the term 'work done' Define efficiency in terms of useful and wasted energy Define the term power and relate its definition to its units Define renewability, reliability and global warming State an advantage and a disadvantage for HEP, wind, solar and fossil fuels Define the terms kilojoule (kJ) and kilowatt-hour (kWh) Describe the direction of thermal energy transfer Define thermal equilibrium Describe the difference between temperature and heat (thermal energy) Describe how unwanted thermal energy transfers can be reduced Classify energy resources in terms of renewability and reliability and compare CO_2 emissions		Define a force & describe their effects Identify the forces acting in different situations Define contact and non-contact forces, giving examples Define the terms range, resolution (linked to accuracy) and uncertainty Define an interaction pair, comparing their size and direction Define resultant force, balanced & unbalanced forces & their effects Calculate resultant forces Define and compare elastic and inelastic deformation Define compression and tension & extension Define the terms pivot & moment Describe what the size of a moment depends on Describe the use of moments State the law of moments Calculate the size of a moment		Define the term "subatomic" and state the basic structure of the atom referencing the nucleus and electrons. Describe how insulators can become positively or negatively charged Describe the effect of electrostatic forces on like and unlike charges Define an electric field describe how the strength of an electric field changes with distance from a charged object Identify and draw circuit symbols for key components, stating their function Define electric current and state its units Define potential difference Define series and parallel circuits, making observations and taking measurements to compare bulb brightness, current and potential difference. Define the terms magnetism, magnetic, magnetised Draw the magnetic field diagram for a bar magnet State how to identify magnets, magnetic and non magnetic materials by using a known magnet Define solenoid and electromagnet and state the factors affecting the strength of an electromagnetic field	
Knowing how… (Procedural knowledge)	Use stop clocks and light gates Calculate a mean Use power meters Perform a range of calculations & unit conversions relating to efficiency, power and electricity bills Use the principals of thermal energy transfer & equilibrium to make ice cream & investigate the effectiveness of different materials as thermal insulators		Select & use appropriate Newton meters based on range & resolution. Predict & measure the force required to produce different extensions in springs Investigate how changing the distance from the pivot affects the moment		Charge insulators by friction & observe the forces they can exert Construct series and parallel circuit diagrams and take measurements Write a method to describe how to identify unknown magnets, magnetic and non-magnetic metals. Build an electromagnet and identify variables to test its strength, producing valid results	