Bishop Stopford's School

Curriculum Map Year 8 — Science

Curriculum Intent: To inspire every student to engage in lessons and want to explore the curriculum beyond the classroom

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	• How Science Works Why? Pupils learn about how scientists work to develop theories, present data and the ways scientists communicate. Pupils are given a wide range of theoretical and practical learning opportunities. We believe Science should generate awe and wonder and stimulate a desire to explore the world around us in exciting and creative ways. As well as increasing subject knowledge, pupils in Year 8 develop their confidence, teamwork and problem solving skills by designing and carrying out investigations.	Forces 2 Electromagnets (Electricity) 2 Energy 2 Why? In Forces students will build on the ideas of balanced and unblanced forces to explore the imapct of friciton and pressure on how an object behaves. In Electricity students need to be able to explain how electrical devices work to enable new devices to be designed for the future.	Waves 2 Matter 2 Why? In Waves students will explore the different types of waves they encounter and use in their everday lives. In Matter students will build on the work on the periodic table from Year 7 to explore more about the properties of key groups and the use of formulae.	Reactions 2 Earth 2 Why? Students will explore a wider breadth of types of chemical reactions in this unit so they can compare how substances behave and start to consider the energy changs that take place during a chemical reaction Students will build upon their knowledge of the structure of the earth from Year 7 and begin to look at how humans use the Earth for resources and the consequences of them, this enables them to engage with current affairs topics relating to pollution, sustainability and climate change.	Organisms 2 Ecosystems 2 Why? Students will consider what it means to be healthy and how to make informed choices in their day to day lives to stay healthy, as well as the consequences if this is not done. In Ecosystems students will look at the chemical reactions that take palce in all living organisms and begin to investigate photosynthesis.	Genes 2 Why? Students will begin to understand why everyone inthe class is similar but different and how variation can lead to new species or extinction.
Core Skills	Consolidate knowledge about safety, lab equipment and futher build on simple experimental methods, enriching and developing the excitement for science. Enquiry process: 7 More on asking scientific questions 8 More on Planning investigations 9 More on Recording data 10 More on Analysing patterns 11 More on Evaluating data 12 Review theories 2	* Use of simple formula and carrying out calculations relating to: pressure; moments: stress ; work; * Drawing and interpreting graphs of: extension/force; temperature changes/ time * Describing ,explaining and understanding concepts using scientific principles * Draw: magnetic fields; transfer of energy in solids/ liquids * Carry out simple experiments to: determine the factors which effect the strength of an electromagnet; energy transfer * Analyse results and make conclusions *Literacy Skills	* Draw: waves, reflection of waves * Follow an experimental method * Record measurements from a range of apparatus into a basic table of results * Analyse results and make conclusions *Plot graphs and draw basic conclusions from them * Describing ,explaining and understanding concepts using scientific principles *Literacy Skills	*Make and record accurate observations of chemical reactions *Follow an experimental method *Write word equations *Describing ,explaining and understanding concepts using scientific principles * Use of simple formula and carrying out calculations relating to bond energies; exothermic/ endothermic changes; changes in mass * Analyse results and make conclusions *Literacy Skills	*Make and record accurate observations *Follow an experimental method *Describing ,explaining and understanding concepts using scientific principles * Use of simple formula and carrying out calculations * Record measurements from a range of apparatus into a basic table of results *Literacy Skills	*Make and record accurate observations *Follow an experimental method * *Describing ,explaining and understanding concepts using scientific principles * Analyse results and make conclusions *Literacy Skills
Core Knowledge	All groups begin with safety, lab equipment and some simple experimental methods to develop the excitement for science, but also safety awareness. To ensure the same principles are disseminated: 6 More on planning how to answer a question 7 More on analysing and evaluating 8 Communication 9 Evidence and sources 10 Critique claims and justify opinions 11 Risks and benefits 13 Review theories 2	Units covers aspects Friction and drag, Squashing and stretching, Turning forces, Pressure in gases, Pressure in liquids, Stress on solids Unit covers aspects of Magnets and magnetic fields, Electromagnets, Using electromagnets Unit covers aspects of Work, energy, and machines, Energy and temperature, Energy transfer: particles, Energy transfer: radiation and insulation.	Units covers aspects Sound waves, water waves, Radiation and energy, Modelling waves and energy Units covers aspects Elements, Atoms, Compunds, Chemical formulae, Polymers, The Periodic Table, Elements of Group 1/7/0.	Units covers aspects Atoms in chemical reactions, Combustion, Thermal decomposition, , Conservation of mass, Exothermic and endothermic, Energy level diagrams, Bond energies. Units covers aspects Gloabal warming, The carbon cycle, Climate change, Extracting metals, Recycling.	Units covers aspects Gas Exchange, Breathing, Drugs, Alcohol, Smoking, Nutrients, Food tests, Unhealthy diet, Digestive system, Bacteria and enzymes in digestion. Units covers aspects Aerobic respiration, Anaerobic respiration, Biotechnology, Photosynthesis, Leaves, Investigating photosynthesis, Plant minerals.	Units covers aspects of : adaptation, variation within species, evidence for evolution and extinction.
Assement & Feedback	Formative HW tasks. tasks. End of topic test.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.
Link to prior learning	All groups are aware of safety, lab equipment and some simple experimental methods to develop the excitement for science, but also safety awareness. Enquiry process: 1 Asking scientific questions 2 Planning investigations 3 Recording data 4 Analysing patterns 5 Evaluating data 12 Review theories 1	Builds upon Year 7 work relating to balanced and unablanced forces and how to build and describe circuits.	Builds upon Year 7 work relating to light & sound as types of waves and exploring how the periodic table is used.	Builds upon Year 7 work relating to reactions between acids and alkalis and how we describe them from experimental observation and what the earth is made from.	Builds upon Year 7 work relating to cells and tissues in all living orgnaisms and plant structures and functions.	Builds upon Year 7 work about types of vartiation and how humans reproduce.
Outside learning/trips	Small group opportunities to work beyond the classroom based on current topic. Stem club.					