Bishop Stopford's School

Curriculum Map Year 7

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 7 develop their confidence, teamwork and problem solving skills by designing and carrying out investigations.	Forces 1 Electromagnets (Electricity) 1 Energy 1 Why? Forces topic is essential in Physics as it helps pupils to explain how the same forces that hold the universe together also hold atoms together and help us to move around. Electricity is a large topic in and brings further application of science to everyday life and possible career ideas. Students need to be able to explain how electrical devices work to enable new devices to be designed for the future. Pupils are learning about energy so they can explain simple energy transfers which builds from knowledge from KS2 and into equations for KS4.	Waves 1 Matter 1 Why?These topics underpin all of the sciences; matter is made from particles and organisms are made from cells. The pure and impure topic starts to build on practical based skills which are essential for all practicals e.g. filteration as well as the practical equipment names and health and safety precautions. Waves is a large topic which is broken down across key stage 3. In Year 7 students can describe how sound and light transfer information for sight and sound.	Reactions 1 Earth 1 Why? Reactions topic includes Acids and alkalis, which is a fundamental Chemistry concept. This will also allow them to deal with situations like this in real life e.g. bee stings. Students are introduced to the periodic table early in year 7 so that they have practise in identifying elements and using the periodic table as a tool to support learning. Students will develop their understanding of reactions to include word and symbol equations which is a fundamental skill.	Organisms 1 Ecosystems 1 Why? This topic underpins the idea organisms are made fromcells.We are learning this so that we can explain why plants are so important for the survival of all life on Earth. Students then go on to look at howorganisms depend on each other in an ecosystem.	Genes 1 Why? TIhis topic builds upon work done in both PSHCE and KS2 on reproduction to look at how humans are different from each other and the changes that take place during puberty to allow us to reproduce,
Core Skills	* Scientific Enquiry - making and testing a hypothesis , devising simple methods * Making simple observations * Using core laboratory apparatus * Making measurements * Recording observations * Working as a team * Working safely in a science laboratory	* Use of simple formula * Drawing and interpreting graphs of distance/time * Comparing energy resources * Describing simple relationships *Identify circuit symbols and draw a simple circuit diagram * Take readings from analogue and digital apparatus and record in a simple table	* Draw ray diagrams to show reflection and refraction * Draw aprticle models * Follow an experimental method * Record measurements froma range of apparatus into a basic table of results *Plot graphs and draw basic conclusions from them	*Make and record accurate observations of chemical reactions *Follow an experimental method *Write word equations *Scientific enquiry - how observations of space and our understanding of space have changed over time	* Set up and use a microscope to observe cells *Identify key structures in cells from microscpe images	* Describe examples of continuos & discontinous variation * Plot an appropriate graph to show types of variation
Core Knowledge	All groups begin with 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	Units covers aspects forces which include forces at a distance as well as balanced and unbalanced forces, Speed, distance- time graphs, Gravity. Unit covers aspects of Current, Resistance, Potential Difference, Static electricity, Series and Parallel circuits. Unit covers aspects of Food and fuels, Energy Resources, Energy and Power, Energy adds up, Energy Dissipation.	Units covers aspects of Sound waves, wave speed, loudness and amplitude, frequency and pitch, the ear and hearing, light, reflection, refraction , the eye and vision, colour. Units covers aspects of the particle model, states of matter, melting and freezing, diffusion, gas pressure, substances, solutions, solubility, separation techniques.	Units covers aspects Chemical reactions, acids and alkalis, indicators and pH, acid strength, neutralisation, making salts, elements, chemical reactions, metals and acids/ oxygen/ water, displacement reactions. Units covers aspects Structure of the Earth, Types of rocks, The rock cycle, Ceramics, The night sky, Solar System, The Earth, The Moon and changing ideas.	Units cover aspects levels of organisation, the skeleton, joints and muscles, observing cells, plant and animal cells, specialised cells,movement of substances, Unicellular organisms. How to interpret food chains and food webs. Plant reproduction. Units cover aspects of food chains and webs, disruption to food chains and webs, ecosystems, competition, flowers and pollination, fertilisationand germination, seed dispersal.	Units cover aspects of Variation, Continuous/ Discontinuous variation, adapting to change, adolescence, reproductive systems, fertilisation and implantation, development of a fetus, the menstrual cycle.
Assement & Feedback	Baseline test during first weeks at BSS to assess. Formative HW 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. DC1 - summative assessment based on all content delivered up until this point in the curriculum	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. DC2 - Summative assessment based on all curriculum delivered in Year 7	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. DC2 - Summative assessment that covers all topics and skills covered this year.
Link to prior learning	Chemistry • Identifying solids, liquids and gases and describing the properties of each • Understanding that the same material can exist as a solid, liquid and gas • Observing melting, freezing, condensation and evaporation. • Dissolving solids in water and understanding that not all are soluble • Separating mixtures of solids and liquids • Understanding that not all liquids contain water • Understanding that all materials are made up of very small particles Biology • Using the names and functions of some major organs in plants and animals • Understanding some of the life processes common to living things, eg movement, growth, reproduction, nutrition • Knowing that food is needed for activity and growth, that an adequate and varied diet is needed to maintain health and that food provides energy for the body Physics • Experiencing the physical properties of materials • Understanding that pushing and pulling change the speed, direction or shape of an object • Knowing how to measure distance and how to use a forcemeter to measure force in Newtons • Knowing that forces act in a particular direction and this can be indicated by arrows • Experiencing the effects of a variety of forces, eg magnetic, gravity, friction, air resistance • Understanding that matter, including food, consists of particles, eg molecules, which can differ in size • Knowing that magnets attract magnetic materials, that magnets can attract and repel other magnets and that magnets have a range of uses in everyday life, e.g. fridge door catches. • Understanding that light travels from a source; the key terms opaque, transparent and translucent materials and relate shadow formation to opaque materials; light is reflected from shiny surfaces; that we see things only when light from them enters our eyes. • Understanding that sounds are produced by vibrating sources and that sounds produced by musical instruments can be changed.					
Outside learning/trips	Pupils complete an experiemntal write up on a specific practical	Pupils look at the energy break of different types of foods.	Pupils research how athletes are caught cheating.	Pupils look at the range of substances which are acids and alkali in the home.	Small group opportunities to work beyond the classroom based on current topic. Stem club.	Small group opportunities to work beyond the classroom based on current topic. Stem club.