Rayner Stephens HIGH SCHOOL

Year 10- Science						
Curriculum intent	Science in Year 10 will continue with the process of building upon and deepening scientific knowledge and the understanding of ideas developed in earlier key stages in the subject disciplines of biology, chemistry and physics. Learners will further deepen there understanding of the nature, processes and methods of science through different types of scientific enquiries that help them to answer scientific questions about the world around them, therefore providing learners with the foundations for understanding the natural world that will enhance their lives in an increasingly technological society.					
Term	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Knowledge	**Energy:** Learners will learn what energy is and the different type, they will also look at how energy is transferred by heating. They will use a range of investigative techniques to learn how physicists and engineers are working hard to identify ways to reduce our energy usage. **Cell Division & Organisation:** Learners will use a	**Bonding, structure and the properties of matter:** Learners will use a range of investigative techniques to understand chemists use theories of structure and bonding to explain the physical and chemical properties of materials. **Quantitative chemistry:** Learners will use a range of	**Infection & Response:** Learners will use a range of investigative techniques to explore how we can avoid diseases by reducing contact with them, as well as how the body uses barriers against pathogens. They will also look at how diseases can be treated and the difference between communicable and non-communicable diseases.	**Molecules & Matter:** Learners will use a range of investigative techniques to understand that ionising radiation is hazardous but can be very useful. **Energy changes:** Learners will use a range of investigative techniques to understand the interaction of particles often	**Bioenergetics:** Learners will use a range of investigative techniques to explore how plants harness the Sun's energy in photosynthesis in order to make food and all organisms use glucose and oxygen to perform respiration. Learners will learn about aerobic and anaerobic respiration and the difference between them. They will also look at how anaerobic	**The rate and extent of chemical change:** Learners will learn about the conditions needed for a chemical reaction to occur, and what can affect the rate of a reaction. **Nervous System:** Learners will learn about the structure and function of the nervous system and how it responds to

	range of investigative techniques to learn about the human digestive system which provides the body with nutrients and the respiratory system that provides it with oxygen and removes carbon dioxide. They will also learn how the plant's transport system is dependent on environmental conditions to ensure that leaf cells are provided with the water and carbon dioxide that they need for photosynthesis.	investigative techniques to understand chemists use quantitative analysis to determine the formulae of compounds and the equations for reactions. **Electricity:** Learners will use a range of investigative techniques to understand that electrical power fills the modern world with artificial light and sound, information and entertainment, remote sensing and control.	**Chemical changes:** Learners will use a range of investigative techniques to understand chemical changes began when people began experimenting with chemical reactions in a systematic way and organising their results logically.	involves transfers of energy due to the breaking and formation of bonds.	respiration is used in fermentation. **Forces:** Learners will use a range of investigative techniques to understand that engineers analyse forces when designing a great variety of machines and instruments, from road bridges and fairground rides to atomic force microscopes	changes in the environment. **Organic Chemistry:** Learners will use a range of investigative techniques to understand the chemistry of carbon compounds is so important that it forms a separate branch of chemistry
Skills	**The following skills will be developed throughout the whole of GCSE Science and will enable learners to build a deep understanding of science:**					

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	Development of scientific thinking: • Using and applying scientific models to known and unknown scenarios. • Explaining and evaluating every day and technological applications of Science. • Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences. • Recognise the importance of peer review of results and of communicating results to a range of audiences. **Experimental skills and strategies:** • Developing hypothesis and predictions • Planning and devising experiments to test these and other scientific phenomena. • Selecting the correct scientific equipment and ensuring that experiments are carried out safely and accurately. • Make and record observations and measurements using a range of apparatus and methods. • Evaluate methods and suggest possible improvements and further investigations. **Analysis and Evaluation** • Presenting observations and other data using appropriate methods. • Translating data from one form to another. • Carrying out and represent mathematical and statistical analysis. • Representing distributions of results and make estimations of uncertainty. • Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends, making inferences and drawing conclusions. • Presenting reasoned explanations including relating data to hypotheses. • Being objective, evaluating data in terms of accuracy, precision, repeatability and reproducibility and identifying potential sources of random and systematic error. • Communicating the scientific rationale for investigations, methods used, findings and reasoned conclusions through paper-based and electronic reports and presentations using verbal, diagrammatic, graphical, numerical and symbolic forms. **Scientific vocabulary, quantities, units, symbols and nomenclature** • Use scientific vocabulary, terminology and definitions. • Recognise the importance of scientific quantities and understand how they are determined. • Use SI units (eg kg, g, mg; km, m, mm; kJ, J) and IUPAC chemical nomenclature unless inappropriate. • Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano). • Interconvert units. • Use an appropriate number of significant figures in calculation

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Assessments	End of half term test & HFL'S	End of half term test & HFL'S	End of half term test & HFL'S	End of half term test & HFL'S	End of half term test & HFL'S	End of half term test & HFL'S
Enrichment	Science Trip to Natural history museum London. Lit and Phil evening lectures Science video conference with NASA					

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