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| **Year 8 - Science** | | | | | | |
| **Curriculum intent** | Throughout year 8 learners will build on the foundations of the Year 7 Science curriculum to develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. Learners will further develop an 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. Through this, learners will continue to develop the scientific knowledge required to understand the uses and implications of science, today and for the future. | | | | | |
| **Term** | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Knowledge** | **Tissues & Organs -**Learners will look at hierarchical organisation of multicellular organisms and the biomechanics of how these organ systems interact to create movement.  **Acids & Alkalis-**  Learners will understand the difference between acids & alkalis and how to make salts using acids and alkalis during neutralisation reactions. | **Movement & Pressure -** Learners will make measurements of distance and time in order to plot a distance-time graph, analyse it and use it to calculate speed. They will look at what gas pressure is and how you can increase and decrease it. Learners will calculate density  **Respiration & Photosynthesis -**Learners will learn about aerobic and anaerobic respiration and use a range of investigativetechniques to understand how a plant is adapted for this process. | **Changing Substances -** Learners will learn about the difference between chemical and physical changes. They will also learn how to construct chemical formula and both word and symbol equations for various reactions. Learners will also investigate different chemical reactions.  **Magnetism -**Learners will learn about magnetic fields, how they impact other objects and how the force naturally exists within the Earth. | **Life Diversity -** Learners will look at how variation is caused by differences in the genomes, lifestyles and environments of the individuals. They will also look at how organisms reproduce and pass on their characteristics. | **Earth’s Systems -**Learners will look at the structure of the Earth, how magma and lava create the properties found in igneous rocks and the effects of weathering and erosion on sedimentary rocks over time.  **Resistance** - Learners will use a range of investigative techniques to understand Ohms Law and how resistance varies in series and parallel circuits. | **Nutrition -** Learners will learn about the different nutrients needed for a balanced diet, which foods contain which nutrients and how to test for them. They will also look at the side effects of having an unbalanced diet, and how it impacts the body.  **Light:** Learners will use a range of investigative techniques to understand how light travels and how it behaves when it travels through different mediums. |
| **Skills** | **The following skills will be developed throughout the whole of year 8 and will enable learners to build a deep understanding of science:**  **Scientific attitudes:**   pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility   understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review   evaluate risks.  **Experimental skills and investigations:**   ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience   make predictions using scientific knowledge and understanding   select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate   use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety   make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements   apply sampling techniques.  **Analysis and evaluation:**   apply mathematical concepts and calculate results   present observations and data using appropriate methods, including tables and graphs   interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions   present reasoned explanations, including explaining data in relation to predictions and hypotheses   evaluate data, showing awareness of potential sources of random and systematic error   identify further questions arising from their results.  **Measurement:**   understand and use SI units and IUPAC (International Union of Pure and Applied  Chemistry) chemical nomenclature   use and derive simple equations and carry out appropriate calculations   undertake basic data analysis including simple statistical techniques. | | | | | |
| **Assessments** | End of half term tests & HFL’S | End of half term tests & HFL’S | End of half term tests & HFL’S | End of half term tests & HFL’S | End of half term tests & HFL’S | End of half term tests & HFL’S |
| **Enrichment** | Science Trip to Chester ZOO  Science club | | | | | |