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| **Year 7 Curriculum Overview [2023-2024]**  **Science** | | | | | | |
| **Autumn Term** | **Knowledge & Understanding** | | | **Literacy Skills**  **Opportunities for**  **developing**  **literacy skills** | **Employability Skills**  **[if any]** | **Assessment Opportunities** |
| **Composites** | **Components**  **[KEY concepts & subject specific vocab]** | **Formal Retrieval**  **[if any]** |
| **HT1** | Introduction to Science | * Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety * Evaluate risks | Do Now  MCQ’s | * Keywords in Do Now tasks * Keyword and definition * Encourage use of subject language [Speak like a Scientist] * Inclusive questioning using keywords * Writing a method * Write like a Scientist | Personal skills   * Thinking and problem solving * Working together and communicating * Attention to health and safety |  |
| **HT1** | Particles | * Describe and explain the properties of the different states of matter * Describe changes of state in terms of the particle model * Understand melting and boiling points of substances. * Describe Brownian motion. * Understand concepts of diffusion, osmosis, and active transport * Describe the differences in atoms, elements, compounds and mixtures. * Use chemical symbols and formula correctly. * Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate. * Present observations and data using appropriate methods, including tables and graphs * Describe and explain the differences in arrangements, in motion and in closeness of particles explaining changes of state and density | Do Now  MCQ’s | * Keywords in Do Now tasks * Keyword and definition * Encourage use of subject language [Speak like a Scientist] * Inclusive questioning using keywords * Writing a method * Write like a Scientist | Personal skills   * Thinking and problem solving * Working together and communicating * Attention to health and safety   Scientific Careers   * Synthetic Chemist * Materials Scientist | Formative Assessments Summative Assessment |
| **HT2** | Types of Reactions | * Explain the differences in physical and chemical reactions * Explain the concept of a pure substance * Describe and explain mixtures, including dissolving * Explain diffusion in terms of the particle model. * Carry out and be able to describe simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography * Understand indicators and neutralisation * Know the structure of atoms * Be familiar with the periodic table and its development * Know what alloys, ceramics, polymers and composites are * Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate | Do Now  MCQ’s | * Keywords in Do Now tasks * Keyword and definition * Encourage use of subject language [Speak like a Scientist] * Inclusive questioning using keywords * Write like a Scientist | Personal skills   * Thinking and problem solving * Working together and communicating * Attention to health and safety   Scientific Careers   * Synthetic Chemist * Materials Scientist | Formative Assessments Summative Assessment |
| **Year 7 Curriculum Overview [2023-2024]**  **Science** | | | | | | |
| **Spring**  **Term** | **Knowledge & Understanding** | | | **Literacy Skills**  **Opportunities for**  **developing**  **literacy skills** | **Employability Skills**  **[if any]** | **Assessment Opportunities** |
| **Composites** | **Components**  **[KEY concepts & subject specific vocab]** | **Formal Retrieval**  **[if any]** |
| **HT3** | Forces | * Describe forces as pushes or pulls, arising from the interaction between two objects * Illustrate force using force arrows, adding forces in one dimension, and denoting balanced and unbalanced forces * Introduction to Newton’s Laws * Describe forces as: associated with rubbing and friction between surfaces, with pushing things out of the way; resistance to motion of air and water * State that forces measured in Newtons * Describe how streaming affects resultant force * Understand speed and calculate speed using distance and time * Plot and understand distance/time and velocity time graphs * Understand Hooke’s Law * Calculate moments * Describe non-contact forces: gravity forces acting at a distance on Earth and in space * Know the parts of the Solar System * Describe how movement of the solar system results in day and night and seasons on Earth | Do Now  MCQ’s | * Keywords in Do Now tasks * Keyword and definition * Encourage use of subject language [Speak like a Scientist] * Inclusive questioning using keywords * Write like a Scientist | Personal skills   * Thinking and problem solving * Working together and communicating * Attention to health and safety   Scientific Careers   * Engineer * Materials Scientist | Formative Assessments Summative Assessment |
| **HT4** | Energy | * Know the energy stores e.g. kinetic, gravitational potential * Understand energy is transferred between energy stores * Understand and calculate efficiency * Present energy transfers as Sankey diagrams * Describe heat transfers through conduction, convection and radiation * Understand heat loss and insulation * Know how electricity is generated * Compare non-renewable and renewable types of energy resources * Describe how the National Grid transfers electrical energy to homes * Calculate the cost of electricity in the home | Do Now  MCQ’s | * Keywords in Do Now tasks * Keyword and definition * Encourage use of subject language [Speak like a Scientist] * Inclusive questioning using keywords * Write like a Scientist | Personal skills   * Thinking and problem solving * Working together and communicating * Attention to health and safety   Scientific Careers   * Electrician * Dietitian | Formative Assessments  Summative Assessment |
| **Year 7 Curriculum Overview [2023-2024]**  **Science** | | | | | | |
| **Summer**  **Term** | **Knowledge & Understanding** | | | **Literacy Skills**  **Opportunities for**  **developing**  **literacy skills** | **Employability Skills**  **[if any]** | **Assessment Opportunities** |
| **Composites** | **Components**  **[KEY concepts & subject specific vocab]** | **Formal Retrieval**  **[if any]** |
| **HT5** | Interdependence and Cells | * Understand the classification of organisms * Use keys to classify organisms * Compile food chains and webs * Construct and analyse pyramids of numbers and biomass * Describe habitats, ecosystems and communities where organisms live * Understand organisms compete for resources * Understand the relationship between predator and prey * Describe cells as the fundamental unit of living organisms * List the functions of the cell wall, cell membrane, ribosomes, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts * Describe the similarities and differences between plant and animal cells * Understand and compare the structure and functions of eukaryotic and prokaryotic cells | Do Now  MCQ’s | * Keywords in Do Now tasks * Keyword and definition * Encourage use of subject language [Speak like a Scientist] * Inclusive questioning using keywords * Write like a Scientist | Personal skills   * Thinking and problem solving * Working together and communicating * Attention to health and safety   Scientific Careers   * Microbiologist * Medical careers | Formative Assessments Summative Assessment |
| **HT6** | Reproduction and variation | * Know the male and female reproductive organs * Know the reproductive cells in animals and plants and the process of fertilisation * Understand fertilisation and pregnancy in humans * Know the stages of the menstrual cycle * Know the effects of substances on an embryo and foetus in uteri * Understand the process of seed dispersal * Understand sex and genetics * Know organisms are adapted to their environments and the changes that affect organism distribution * Describe natural selection and selective breeding * Understand causes of extinction | Do Now  MCQ’s | * Keywords in Do Now tasks * Keyword and definition * Encourage use of subject language [Speak like a Scientist] * Inclusive questioning using keywords * Write like a Scientist | Personal skills   * Thinking and problem solving * Working together and communicating   Scientific Careers   * Nursing * Midwifery * Fertility Science | Formative Assessments Summative Assessment |