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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 NowMCQ’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
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| **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 NowMCQ’s  | * Keywords in Do Now tasks
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* Inclusive questioning using keywords
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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 NowMCQ’s | * Keywords in Do Now tasks
* Keyword and definition
* Encourage use of subject language [Speak like a Scientist]
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* 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 NowMCQ’s | * Keywords in Do Now tasks
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* 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 NowMCQ’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 AssessmentsSummative 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 NowMCQ’s  | * Keywords in Do Now tasks
* Keyword and definition
* Encourage use of subject language [Speak like a Scientist]
* Inclusive questioning using keywords
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* 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 NowMCQ’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 |