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| **Subject Yearly Overview 2021-2022 YEAR 10** | | | |
| **Subject: science** | **TOPIC** | **COMPONENT** | ***Notes:*** *Why are you delivering this topic at this time of year?* |
| **Autumn 1** | Exploring chemistry | Atomic structure e.g. atoms, nucleus, protons, neutrons, electrons, particles.  • Formulae and equations e.g. how scientists use symbols and formulae to represent  elements, ions and compounds, examples of simple word equations and balanced chemical  equations.  • Ionic compounds e.g. relationship between ions, atoms and electrons; how an ionic  compound is formed.  • Periodic table, e.g. purpose of the periodic table, groups that share similar characteristics,  know symbols for common elements.  • Metals and non-metals e.g. differences between metal and non-metal e.g. shiny/dull,  high melting point/low melting point, malleable/ brittle; metallic structure and bonding;  position on the periodic table.  • Solids, liquids and gases e.g. differences between solids, liquids and gases; how solids  become liquid and then a gas.  • Scientific principles, e.g. evaporation, solutions, suspensions, solvents, solubility, melting  point, boiling point, acid, alkali, pH, saponification, hydrophilic, hydrophobic, colour, light,  reflection.  Managing information: collecting and using information from different sources, following  instructions when using different types of scientific instruments, using information to reach  conclusions.  • Problem solving: identifying issues by being able to examine information. | This is a great introduction to the year and will develop interest and independent learning.  Students will manage information  Organise their materials  Develop independent investigation skills |
| **Autumn 2** | Exploring chemistry | Students will undertake the assessment brief on creating a chemical product and exhibit chemical knowledge. | Assessment period using the information provided. |
| **Spring 1** | Cansat project | CanSat project  Testing parachute  Designing parachute  Testing and design of electrical components | This component leads into the competition date of this prestigious event |
| **Spring 2** | Can Sat project | Testing of a completed unit to follow the brief | April deadline for competition entries.  Maximise the presence of a year 11 team leader. |
| **Summer 1** | Exploring Biology | Learner logs to include  evidence of the preparation  of slides, supported by tutor  observation.  • Presentation of results into  variation in an appropriate  format.Types of living organisms e.g. fish, plants, animals, fungus, bacterium, humans.  • Life processes e.g. ability to convert food into energy, growth, excretion, reproduction,  breathe, sensitivity and can move.  Selection and use of simple laboratory apparatus – slides, slide cover, microscope, pipette,  test tube.  • Safety, to include: using safety equipment, e.g. goggles, spectacles, protective clothing  behaving safely.  • Preparing and viewing slides, using simple stains of cells from plants and animals,  e.g. cells of cheeks, leaf, stem, seeds, pollen, onions.  • Looking at prepared cells that show greater variations, e.g. nerves, kidney tissue,  liver tissue, skin, antennae of insects, membranes of insect wings.  • Finding out about the structural differences between plant and animal cells, e.g. cell walls,  chloroplasts, vacuoles, cell membranes, shape of cells.  • Finding out about the role of the nucleus in terms of containing genetic material and  controlling cell functions.  • Laboratory housekeeping e.g. personal protective equipment, cleaning equipment after  use, appropriate storage.  • Characteristics of living organisms e.g. composed of a single cell or a complex of cells that  work together to carry out the various processes of life.  • Function of and differences between plant and animal cells e.g. nucleus, cytoplasm,  cell membrane, mitochondria, vacuole, chloroplast and cell wall. | Students will complete the Biology unit over the Summer period to allow flexible use of the clement weather. They will have the content delivered first to inform them for the independent assessment. |
| **Summer 2** | Exploring Biology | Assessment period following content delivery for the Unit  Problem solving  • Managing information  Present information/points of view clearly and in  appropriate form.  Extract and interpret information from tables, diagrams,  charts and graphs | This Unit will benefit from more external activities in the open air. Investigating the growth of plants as a project |