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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 representelements, ions and compounds, examples of simple word equations and balanced chemicalequations.• Ionic compounds e.g. relationship between ions, atoms and electrons; how an ioniccompound 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 solidsbecome liquid and then a gas.• Scientific principles, e.g. evaporation, solutions, suspensions, solvents, solubility, meltingpoint, boiling point, acid, alkali, pH, saponification, hydrophilic, hydrophobic, colour, light,reflection.Managing information: collecting and using information from different sources, followinginstructions when using different types of scientific instruments, using information to reachconclusions.• 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 informationOrganise their materialsDevelop 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 projectTesting parachuteDesigning parachuteTesting 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 includeevidence of the preparationof slides, supported by tutorobservation.• Presentation of results intovariation in an appropriateformat.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 clothingbehaving 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 andcontrolling cell functions.• Laboratory housekeeping e.g. personal protective equipment, cleaning equipment afteruse, appropriate storage.• Characteristics of living organisms e.g. composed of a single cell or a complex of cells thatwork 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 UnitProblem solving• Managing informationPresent information/points of view clearly and inappropriate 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 |