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| **Long Term Plan** | Building on the foundations of knowledge from Y7, students will focus on the building blocks for all scientific disciplines during the course of Y8, where the separate sciences will become more overt. Students are encouraged to build on their practical ability fostered in Y7 to look at the validity and reliability of data, particularly that which is presented to us in the media. |
| **Learning Cycle** | **Key Concepts and Themes** | **Vocabulary** |
| **Year 8: Science** | **HT1** | Structure and function of body systems | * Levels of organisation.
* Gas exchange and breathing.
* The skeleton, joints and muscles.
 | Organ system, Gas exchange​, Inhale, Exhale, lung volume, Bone marrow, Joint, ligaments |
| Elements, atoms and compounds | * Defining an element, an atom, and a compound.
* The periodic table and chemical symbols.
* Chemical formulae and relative number.
 | Atom, Compound​, Molecule​, Periodic table, State of matter, Chemical formula |
| **HT2** | Electricity and Magnetism | * Charged objects and electric fields.
* Circuits and current.
* Potential difference, voltage and resistance in circuits.
 | Attract, Repel, Electric field, Current, Cell, Potential difference, Voltage, Resistance |
| Reproduction | * Sexual Reproduction in humans.
* Sexual and Asexual reproduction in plants.
* Contraception.
 | Fertilisation, Conception, Gestation, Gamete, Stamen |
| **HT3** | Reactions | * Chemical reactions.
* Word and symbol equations.
* Conservation of mass.
* Exothermic and endothermic reactions.
 | Physical changes, Chemical changes, Reactants, Products, Oxidation, Combustion, Decomposition, Exothermic, Endothermic |
| Acids and Alkalis  | * Understanding acids and alkalis.
* The pH scale and neutralisation.
* Making salts.
 | Acid, Alkali, Base, Indicator, The pH scale, Neutralisation, A salt |
| **HT4** | Energy | * Food and fuels.
* Energy resources and conservation of energy.
* Energy transfer.
* Energy and Power.
 | Joules, Renewable, Non-Renewable, Temperature, Conduction, Convection, Radiation |
| Biological processes | * Photosynthesis and leaf structure.
* Plant minerals and fertilisers.
* Aerobic and anaerobic respiration.
 | Photosynthesis, Chlorophyll, Deficiency, Aerobic respiration, Mitochondria, Anaerobic respiration, Fermentation. |
| **HT5** | The Periodic table | * Physical and chemical properties of metals and non-metals.
* Groups and periods of the periodic table.
* The elements of Group 1, Group 7 and Group 0.
 | Element, Metalloid, Properties, Group, Period, Alkali metals, Reactive, Halogens, Nobel gases. |
| **HT6** | Metals and other materials | * Metals reacting with acids and oxygen.
* The reactivity series and displacement reactions.
* Ceramics and polymers.
 | Oxidation, Reactivity, Displacement, Ore, Extraction, Ceramics, Polymers, Composites.  |
|  | Ecosystems and adaptation | * Food chains, Food webs and Ecosystems.
* Animal and plant competition for resources.
* Animal and plant adaptations.
 | Producer, Consumer, Decomposer, Ecosystem, Community, Niche, Competition, Adaptation, Hibernation, Migration |
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|  |  | **Skill Development** | * To be able to define the independent, dependent and control variables for a scientific investigation.
* To be able to interpret data in graphical form and describe what it shows.
* To be able to collect data in tabular form and plot this data graphically.
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