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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** | Health and Lifestyle | * Key nutrients and the importance of a balanced diet.
* Food tests.
* The effects of drugs, alcohol and smoking on health.
 | Addiction, balanced diet, deficiency, digestion, drug, enzyme, nicotine, nutrient, obese, stimulant  |
| 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. |
| **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 |
| Biological processes | * Photosynthesis and leaf structure.
* Plant minerals and fertilisers.
* Aerobic and anaerobic respiration.
 | Photosynthesis, Chlorophyll, Deficiency, Aerobic respiration, Mitochondria, Anaerobic respiration, Fermentation. |
| **HT3** | Separation Techniques | * Mixtures
* Filtration, chromatography, distillation and evaporation.
 | Chromatography, compound, dissolve, distillation, evaporation, filtration, insoluble, mixture, solvent solute, soluble, solubility, solution. |
| Energy | * Food and fuels.
* Energy resources and conservation of energy.
* Energy transfer.
* Energy and Power.
 | Joules, Renewable, Non-Renewable, Temperature, Conduction, Convection, Radiation |
| **HT4** | Inheritance | * Variation
* Displaying data
* How genes are inherited
 | Adaptation, biodiversity, chromosome, continuous variation, discontinuous variation, DNA, extinct, gene, evolution, natural selection, nucleus, species  |
| 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.  |
| **HT5** | Motion and Pressure | * Speed
* Motion graphs
* Pressure in gases
* Turning forces
 | atmospheric pressure, centre of gravity, centre of mass compress, distance–time graph, gas pressure, pressure, moment, motion, newton  |
| **HT6** | 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 |
|  | The Earth | * Layers of the Earth
* The carbon cycle
* Types of rock
 | Atmosphere, climate change, crust, Earth, global warming, greenhouse effect, igneous rock, metamorphic rock, porous, recycle, resource, reuse  |
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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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