**Learning Intentions- Year 9 Science**

**Semester 1**

**Acids and Bases**

1. To learn the difference between acids and bases
2. To be able to identify acids and bases in everyday life
3. To learn about the pH scale and its uses
4. To recognise the use of acids and bases in everyday life using various examples.

**Heat and Energy transfer**

1. To learn about the particle model
2. To learn about the various methods of heat transfer.
3. To understand the application of heat transfer in everyday life.

**Light and Sound**

1. To understand how musical instruments make different sounds.
2. To describe how energy moves differently, depending upon the material it passes through
3. To identify safe sound levels for humans and how this affects leisure and the workplace.
4. To understand for why you cannot see clearly underwater.
5. To understand why diamond sparkle.

**Digestion**

1. To be able to explain the functions of various parts of the digestive system.
2. To be able to label the parts of the digestive system.
3. To explain the uses of various nutrients in our body.
4. I can explain various nutrition disorders.

**Diseases**

1. To be able to investigate the response of your body to changes because of the presence of microorganisms.
2. To be able to investigate the response of your body at the introduction of a pathogen.
3. To understand how the vaccines work
4. To understand the importance of nutrition in terms of diseases.
5. To differentiate between bacterial and viral infections.

**Materials**

1. I can describe and model the structure of the atom in terms of the nucleus, protons, neutrons and electrons.
2. I can compare the mass and charge of protons, electrons and neutrons.
3. I can compare the properties of metals, non-metals and metalloids
4. I can explain the difference between acids and bases.

**Semester 2**

**Body Coordination**

* To describe how an enzyme works and the process of diffusion.
* To identify responses using the nervous and endocrine systems
* To identify functions of different areas of the brain
* To be able to explain a reflex arc and reflex action
* Differentiate between motor and sensory neurons
* Explain homeostasis (e.g., feedback system)

**Ecology**

* Explain how organisms affect each other such as predatory/ prey, parasites, competitors, and pollinators
* Explain how energy flows into and out of an ecosystem through food webs
* Explain why energy must be replaced to maintain sustainability in an ecosystem
* Recall factors that affect population sizes such as seasonal changes, destruction of habitats, and introduced species
* Outline the changes in ecosystems due to bushfires, drought, and flooding
* Recall the impacts of human activity on an ecosystem from a range of different perspectives
* Investigate how advances in science and technology have minimised pollution from industry
* Understand the various factors influencing organisms e.g., abiotic and biotic factors

**Electricity**

* To be able to explain static electricity
* To investigate series and parallel circuits
* To compare the circuit design with household wiring
* To describe the magnetic field around magnets
* To be able to explain how the movement of a magnet and a wire can produce electricity
* To recall and draw circuit components
* To understand the transmission of electricity by comparing AC with DC

**Plate Tectonics**

* Explain sea floor spreading and the evidence that support the theory
* Explain why earthquakes and volcanic activity are most likely to happen near constructive and destructive plate boundaries
* Explain how heat and convection currents are involved in the movement of tectonic plates
* Explain and draw types of plate movements

**Reactions and Materials**

* To identify products and reactants in chemical reactions
* To describe reactions using word equations
* To explain the law of conservation of mass
* Classify reactions as endothermic and exothermic
* To compare combustion with other oxidation reactions
* Investigate reaction of acids with metals, bases, and carbonates
* To compare respiration and photosynthesis
* To describe the uses of radiation