

Please note that units are taught in rotation within the year group in order to efficiently use practical equipment. All students will complete the same units within a term, but not necessarily in the same order.

#### Term 1

##### **Forces: Speed**

In this physics unit students will learn how to the speed of different objects, how to plot and interpret the information on a distance-time graph, the concept of acceleration and the challenging idea of relative motion.

##### **Organisms: Breathing & Digestion**

In this biology unit students will learn the structure of the respiratory and digestive systems, how we breathe, the gas exchange that occurs in our lungs, mechanical and chemical digestion, the 7 essential nutrients and their role in the proper functioning of our bodies.

##### **Matter: Periodic Table & Elements**

In this chemistry unit students are introduced to the periodic table and the multitude of information that it provides. Students will also learn about the differences between elements, compounds and mixtures, and how their chemical properties change. Students will learn the rules for naming chemical compounds as well as how to write chemical formulae and equations.

##### **Electromagnets: Magnetism & Electromagnets**

In this physics unit students will learn about magnetic fields and the properties of permanent magnets. They will also apply their knowledge of electricity in order to explain how electromagnets function and will experiment with electromagnet construction to determine the factors that affect their strength.

#### Term 2

##### **Reactions: Chemical Energy & Types of Reactions**

In this chemistry unit students learn about chemical reactions that release (exothermic) or take in (endothermic) heat energy. Students will also test the law of conservation of mass during chemical reactions and will explore combustion and thermal decomposition reactions.

##### **Energy: Work & Heating and Cooling**

In this physics unit students learn about the concept of work and how devices can be used to make work easier. Students also learn about the 3 ways that thermal energy is transferred (conduction, convection and radiation) and use that knowledge to explain how insulation works in a house.

##### **Forces: Gravity**

In this physics unit students learn about gravity, mass and weight. Students will explore how their weight would change on different planets and how gravity keeps those planets in orbit around the Sun.

##### **Science Week**

Students will design their own presentation and scientific demonstrations based on their own research or their favourite practical from the year so far.

#### Term 3

**Ecosystems:** Photosynthesis, Respiration and Interdependence

In this biology unit students study the important biology reactions of photosynthesis and respiration. Students will learn the importance of photosynthesis in food webs and how those food webs can become disrupted. Aerobic and anaerobic respiration are explored and compared.

**Forces:** Contact Forces & Pressure

In this physics unit students will learn how forces interact on an object to create motion as well as how the balance of upthrust and weight determines if objects sink or float in a fluid. Finally, student will explore the concept of pressure and apply their understanding to hydraulic systems and the pressure caused by different footwear.

**Genes:** Variation, Inheritance and Evolution

In this unit students will learn about genetics and inheritance, then link those concepts to variation and evolution. Darwin's theory of Evolution through Natural Selection is explored and contrasted with selective breeding.