

Year Level Plan		Year 9			Science					
Term 1		Term 2		Term 3		Term 4				
Unit 1		Unit 2		Unit 3		Unit 4		Unit 5		
<p>Unit 1: Electronics and Heat Energy</p> <p>At the beginning of the unit students will learn about the concept of the conservation of matter and develop a more sophisticated view of energy transfer.</p> <p>By the end of the unit students will be able to describe how electricity and heat energy are transferred, and the different factors that can affect this transfer. They will investigate qualitative and quantitative relationships involving current, voltage, and resistance, and use these findings to form evidence-based decisions. Students will investigate heat transference in terms of conduction, convection and radiation. They will learn about electromagnetic radiation by considering that wave motion is a transfer of energy without matter. Students will be able to describe the electromagnetic spectrum that consists of a range of waves of differing energies including gamma radiation, X-rays, ultraviolet (UV) light, visible light, infrared radiation, microwaves and radio waves. Finally, they will be able to describe social and technological factors that have influenced scientific developments and predict how future applications of science and technology may affect people's lives.</p>		<p>Unit 2: Chemistry</p> <p>At the beginning of the unit students will learn about the structure of an atom. They consider the development of atomic models, distinguish between atoms and ions, and use chemical formulae to identify ionic compounds.</p> <p>By the end of the unit students will be able to identify reactants and products, describe chemical reactions as a rearrangement of atoms, and use word equations to describe chemical reactions. They will classify different reactions as exothermic or endothermic, outline the role of energy in chemical equations, and undertake an investigation on chemical cold pack chemistry. Students will describe the physical properties of acids, and study reactions of acids with metals, carbonates and bases. In addition, students will be able to explain isotopes and half-life. They will describe how alpha, beta and gamma radiation is released from unstable atoms, and consider practical applications of this radiation. Students will use chemical equations to describe nuclear reactions.</p>		<p>Unit 3: Body Systems</p> <p>At the beginning of the unit students will learn about the structure and function of the circulatory and respiratory systems in the human body. They will explain the role of the nervous and endocrine systems in controlling and coordinating the functioning of the human body.</p> <p>By the end of the unit students will be able to discuss the interaction of the nervous and endocrine systems in coordinating the body's response to changes in the internal and external environments, to explain how body systems work together to provide the essential requirements for life. They will analyse and interpret data to draw conclusions about the effects of the environment on body systems, and explain how the body responds to changes in the environment. Students will research the effects of adrenalin on multiple body systems which allow the body to respond to environmental stimuli to ensure its survival in stressful situations.</p>		<p>Unit 4: Ecology</p> <p>At the beginning of the unit students will learn about the components of an ecosystem. They will explain how energy and matter flows through an ecosystem, and how energy must be replaced to ensure that ecosystems are sustainable.</p> <p>By the end of the unit students will be able to describe interactions between organisms within an ecosystem. They will examine factors that affect population sizes, use pyramids of biomass to represent matter and energy transfer, consider the impacts of human activity on ecosystems and discuss ways of protecting and managing ecosystems.</p>		<p>Unit 5: Plate Tectonics</p> <p>At the beginning of the unit students will learn about the major tectonic plates on a world map. They will relate earthquakes and volcanoes to movement at plate boundaries and consider the role of heat energy and convection in plate movement.</p> <p>By the end of the unit students will be able to discuss and evaluate evidence that supports the theory of plate tectonics and use plate tectonics to explain why Australia is geologically old and stable. Students will examine how the theory of plate tectonics developed, how modern technologies are used in mapping plate movements and understand how living near plate boundaries affects people</p>		
Assessment Tasks										
Unit 1		Unit 2		Unit 3		Unit 4		Unit 5		
<p>Practical Examination - Electronics</p> <p>Students describe models of energy transfer and apply these to explain phenomena. They design questions that can be investigated using a range of inquiry skills. Students design methods that include the control and accurate measurement of variables and systematic collection of data and describe how they considered ethics and safety. They identify relationships between variables, and, evaluate others' methods and explanations from a scientific perspective. Students use appropriate language and representations when communicating their findings and ideas to specific audiences.</p> <p>Examination - Heat Energy</p> <p>Students describe models of energy transfer and apply these to explain phenomena. They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. Students evaluate others' methods and explanations from a scientific perspective.</p>		<p>Student Experiment: Part B - Chemical Reactions</p> <p>Students design questions that can be investigated using a range of inquiry skills. They design methods that include the control and accurate measurement of variables and systematic collection of data and describe how they considered ethics and safety. Students analyse trends in data, identify relationships between variables and reveal inconsistencies in results. They analyse their methods and the quality of their data, and explain specific actions to improve the quality of their evidence. Students use appropriate language and representations when communicating their findings and ideas to specific audiences.</p> <p>Examination - Chemical Reactions</p> <p>Students explain chemical processes in terms of atoms and energy transfers and describe examples of important chemical reactions. They design questions that can be investigated using a range of inquiry skills. Students analyse trends in data, identify relationships between variables and reveal inconsistencies in results. They evaluate others' methods and explanations from a scientific perspective and use appropriate language and representations when communicating their findings and ideas to specific audiences.</p> <p>Examination - Nuclear Reactions</p> <p>Students explain natural radioactivity in terms of atoms and energy transfers and describe examples of important chemical reactions. They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. Students evaluate explanations from a scientific perspective and use appropriate language and representations when communicating their findings and ideas to specific audiences.</p>		<p>Research Assignment - Body Systems</p> <p>Students analyse how biological systems function and respond to external changes with reference to interdependencies, energy transfers and flows of matter. They use appropriate language and representations when communicating their findings and ideas to specific audiences.</p>		<p>Examination - Ecology</p> <p>Students analyse how biological systems function and respond to external changes with reference to interdependencies, energy transfers and flows of matter. They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. Students evaluate others' methods and explanations from a scientific perspective and use appropriate language and representations when communicating their findings and ideas to specific audiences.</p>		<p>Portfolio of Work - Plate Tectonics</p> <p>Students explain global features and events in terms of geological processes and timescales. They describe models of energy transfer and apply these to explain phenomena. Students describe social and technological factors that have influenced scientific developments and predict how future applications of science and technology may affect people's lives. They use appropriate language and representations when communicating their findings and ideas to specific audiences.</p>		