

ALEXANDRA SECONDARY COLLEGE – SCIENCE 902
COURSE OUTLINE 2018

Week	Topic	Learning Focus	Victorian Curriculum Strands & Sub strands
1-5	Electricity	<ul style="list-style-type: none"> • Identify different forms of energy, describe energy transformations and calculate percentage energy efficiencies. • Provide examples of circuit components and their functions, identify their diagram symbols and draw simple electrical circuits. • Investigate and compare series and parallel circuits • Investigating Ohm’s Law using circuit kits and virtual circuit activities • Investigate different methods of electricity production including hydro, wind, solar and galvanic cells. • Use electricity safely and describe how fuses, circuit breakers and safety switches prevent fire and electrocution • Investigate how a house is wired and ways to reduce electricity use in the home • Investigate galvanic and electrolytic cells and carry out electroplating • Describe the properties of the main forms of electromagnetic radiation. 	Electric circuits can be designed for diverse purposes using different components; the operation of circuits can be explained by the concepts of voltage and current (VCSSU130)
6- 8	Electromagnetism	<ul style="list-style-type: none"> • Explain how wires carrying an electric current generate a magnetic field • Explain how electricity can be used to create a magnet and how to alter the strength of such a magnet • Investigate how electricity and magnets are used to produce movement • Describe how an electric motor works and identify and describe everyday devices which have electric motors such as hair dryers and washing machines. • Create a simple electric motor • Describe the process of electromagnetic induction • Distinguish between alternating current and direct current and how they are generated • Explain the use of electromagnetic fields in technology and medicine. 	The interaction of magnets can be explained by a field model; magnets are used in the generation of electricity and the operation of motors (VCSSU131)

9-12	Chemistry –Atoms & Radioactivity	<ul style="list-style-type: none"> • Describe the structure of atoms in terms of the nucleus, protons neutrons and electrons. • Explain in simple terms how alpha and beta particles and gamma radiation are released from unstable atoms • Describe the effects of radiation on the human body • Investigate how radioactivity is measured • Model radioactive decay • Give examples of how radioactive elements are used in a range of applications. 	<p>All matter is made of atoms which are composed of protons, neutrons and electrons; natural radioactivity arises from the decay of nuclei in atoms VCSSU122</p>
13-16	Earth Science - Plate Tectonics	<ul style="list-style-type: none"> • Describe how heat energy and convection currents in the Earth’s mantle cause the movement of tectonic plates • Recognise the major tectonic plates on a world map relative to Australia • Model plate interactions and sea-floor spreading • Relate the occurrence of earthquakes and volcanoes to plate boundaries • Analyse seismic waves to locate an earthquake • Describe the evidence that support the theory of plate tectonics 	<p>The theory of plate tectonics explains global patterns of geological activity and continental movement VCSSU127</p>
17-20	Biology – Ecosystems	<ul style="list-style-type: none"> • Describe ecosystems in terms of abiotic and biotic factors and give examples of these factors • Describe a variety of relationships between organisms in ecosystems • Identify factors that influence population size and use a number of different methods to estimate population sizes • Define biological control and give examples of its use in Australia including the use of Myxomatosis to control rabbits. • Explain the processes of photosynthesis and respiration • Explain how matter and energy flow through ecosystems • Describe some of the adaptations some Australian plants have to fire • Provide examples of natural events and human activity that can disrupt an ecosystem • Describe the enhanced greenhouse effect and its causes • Provide examples of management practices, both modern and historical 	<p>Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems (VCSSU121)</p> <p>Selection and use of appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use of repeat trials to improve accuracy, precision and reliability (VCSSU136)</p>

