Lanyon High School

Year 10 — Australian Curriculum: Science

Identify curriculum

Achievement standard

By the end of Year 10, students analyse how the periodic table organises elements and use it to make predictions about the properties of elements. They explain how chemical reactions are used to produce particular products and how different factors influence the rate of reactions. They explain the concept of energy conservation and represent energy transfer and transformation within systems. They apply relationships between force, mass and acceleration to predict changes in the motion of objects. Students describe and analyse interactions and cycles within and between Earth's spheres. They evaluate the evidence for scientific theories that explain the origin of the universe and the diversity of life on Earth. They explain the processes that underpin heredity and evolution. Students analyse how the models and theories they use have developed over time and discuss the factors that prompted their review.
Students develop questions and hypotheses and independently design and improve appropriate methods of investigation, including field work and laboratory experimentation. They explain how they have considered reliability, safety, fairness and ethical actions in their methods and identify where digital technologies can be used to enhance the quality of data. When analysing data, selecting evidence and developing and justifying conclusions, they identify alternative explanations for findings and explain any sources of uncertainty. Students evaluate the validity and reliability of claims made in secondary sources with reference to currently held scientific views, the quality of the methodology and the evidence cited. They construct evidence-based arguments and select appropriate representations and text types to communicate science ideas for specific purposes.

Teaching and learning

Semester overview

Semester 1

CHEMISTRY
During this term, students will analyse the periodic table to identify properties of elements. They will also use their understanding of the properties of elements to explain different chemical reactions and the products that are produced from the reaction. Students will also determine how different factors can influence the rate of the reactions.

Science Inquiry Skills
- Develop questions and hypotheses and independently design and improve appropriate methods of investigation, including field work and laboratory experimentation.
- Explain how they have considered reliability, safety, fairness and ethical actions in their methods and identify where digital technologies can be used to enhance the quality of data.
- Analysing data, selecting evidence and developing and justifying conclusions, they identify alternative explanations for findings and explain any sources of uncertainty.

PHYSICS
During this term, students will determine what energy conservation is and use that knowledge to represent energy transfer and transformation within different systems. They will also apply their understanding of the relationship between force, mass and acceleration to predict changes in motion of objects. .

Science Inquiry Skills
- Develop questions and hypotheses and independently design and improve appropriate methods of investigation, including field work and laboratory experimentation.
- Explain how they have considered reliability, safety, fairness and ethical actions in their methods and identify where digital technologies can be used to enhance the quality of data.
- Analysing data, selecting evidence and developing and justifying conclusions, they identify alternative explanations for findings and explain any sources of uncertainty.

Semester 2

BIOLOGY
During this term, students will investigate the theory of evolution and use that understanding to help explain the processes that underpin the theories of heredity and evolution.

Science Inquiry Skills
- Construct evidence-based arguments and select appropriate representations and text types to communicate science ideas for specific purposes.
- Evaluate the validity and reliability of claims made in secondary sources with reference to currently held scientific views, the quality of the methodology and the evidence cited.

Science as a Human Endeavour
- Analyse how the models and theories they use have developed over time and discuss the factors that prompted their review.

EARTH AND SPACE SCIENCES
During this term students will explore and evaluate the evidence for scientific theories that are based on the origins of the universe. Students will also describe and analyse the interactions and cycles that occur within the Earth's spheres.

Science Inquiry Skills
- Evaluate the validity and reliability of claims made in secondary sources with reference to currently held scientific views, the quality of the methodology and the evidence cited.
- Construct evidence-based arguments and select appropriate representations and text types to communicate science ideas for specific purposes.

Science as a Human Endeavour
- Analyse how the models and theories they use have developed over time and discuss the factors that prompted their review.

General capabilities and Cross curriculum priorities

Key to general capabilities and cross-curriculum priorities

Literacy · Numeracy · ICT capability · Critical and creative thinking · Ethical behaviour · Personal and social capability · Intercultural understanding · Aboriginal and Torres Strait Islander histories and cultures · Asia and Australia's engagement with Asia · Sustainability

Develop assessment

Assessment

Semester 1		Semester 2	
Week	**Assessment instrument**	**Week**	**Assessment instrument**
5	Atomic structure and the Periodic table assessment	5-6	Genetics assessment
5-8	Rates of Reaction investigation	8-9	Evolution assessment
14-15	Motion investigation	13-14	Earth's spheres investigation

		17-18	Motion assessment	15-16	Earth and Space Assessment
Make judgments and use feedback	**Moderation**	**Semester 1**		**Semester 2**	
		Teachers moderate assessment tasks to ensure consistency of judgments.			