

Lanyon High School

Year 10 – Australian Curriculum: Science



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|---|---|--|--|--|-----------------------|------------|-----------------------|--------|----------------------------|
| Identify curriculum | Achievement standard | <p>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.</p> <p>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.</p> | | | | | | | |
| Teaching and learning | Term overview | Semester 1 | | | | Semester 2 | | | |
| | <p>Science Understanding CHEMISTRY</p> <ul style="list-style-type: none"> - atomic structure and the periodic table - chemical reactions and their equations - rates of reaction <p>Science Inquiry Skills</p> <ul style="list-style-type: none"> - develop questions and hypotheses - independently design and improve appropriate methods of investigation - process and analyse data and explain any sources of uncertainty - construct evidence-based arguments to communicate science ideas for specific purposes. <p>Science as a Human Endeavour</p> <ul style="list-style-type: none"> - the development of the periodic table its dependency on experimental evidence - examples of major international science projects, for example Hadron Collider, | <p>Science Understanding PHYSICS</p> <ul style="list-style-type: none"> - Speed, acceleration and motion - Newton's First Law (Inertia) - Newton's Second Law - Newton's Third Law <p>Science Inquiry Skills</p> <ul style="list-style-type: none"> - develop questions and hypotheses - independently design and improve appropriate methods of investigation - process and analyse data and explain any sources of uncertainty - construct evidence-based arguments to communicate science ideas for specific purposes. <p>Science as a Human Endeavour</p> <ul style="list-style-type: none"> - Innovative energy transfer devices used in transport | <p>Science Understanding BIOLOGY</p> <ul style="list-style-type: none"> - Inheritance - DNA, genes, chromosomes - evolution by natural selection <p>Science Inquiry Skills</p> <ul style="list-style-type: none"> - develop questions and hypotheses - independently design and improve appropriate methods of investigation - process and analyse data and explain any sources of uncertainty - construct evidence-based arguments to communicate science ideas for specific purposes. <p>Science as a Human Endeavour</p> <ul style="list-style-type: none"> - how the double helix structure model for DNA and computer sequencing was developed and impacts us - considering the role of evidence for evolution by natural selection | <p>Science Understanding EARTH AND SPACE SCIENCES</p> <ul style="list-style-type: none"> - what the universe contains and its origin - global systems <p>Science Inquiry Skills</p> <ul style="list-style-type: none"> - develop questions and hypotheses - independently design and improve appropriate methods of investigation - process and analyse data and explain any sources of uncertainty - construct evidence-based arguments to communicate science ideas for specific purposes. <p>Science as a Human Endeavour</p> <ul style="list-style-type: none"> - how computer modelling how improved understanding of phenomena such as climate change - recognising the work of Australian scientists | | | | | |
| | General capabilities and Cross curriculum priorities | | | | | | | | |
| Key to general capabilities and cross-curriculum priorities | | | | | | | | | |
| Develop assessment | Assessment | Term 1 | | Term 2 | | Term 3 | | Term 4 | |
| | | Week | Assessment instrument | Week | Assessment instrument | Week | Assessment instrument | Week | Assessment instrument |
| | | 4 | Ongoing assessment | 15 | Motion investigation | 5 | Genetics assessment | 3 | Earth and Space Assessment |
| 7 | Rates of reaction investigation | 18 | Ongoing assessment | 9 | Ongoing Assessment | 6 | Ongoing Assessment | | |
| Make judgments and use feedback | Moderation | Term 1 | | Term 2 | | Term 3 | | Term 4 | |
| | | Teachers moderate assessment task to ensure consistency of judgments. | | | | | | | |