

| SEMESTER ONE | | SEMESTER TWO | |
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| TERM 1 | TERM 2 | TERM 3 | TERM 4 |
| <p>Responding to the world (Chapter 5)</p> <ul style="list-style-type: none"> Identifying stimuli The sense organs What causes disease? The endocrine system The nerves and the nervous system and the brain The immune system (5 weeks) <p>Inside the Atom (Chapter 2)</p> <ul style="list-style-type: none"> Theories of the atomic structure Arranging electrons Atomic masses and isotopes Radioactivity Isotopes and radioactivity, radioactive half-life, effects of radiation (3 weeks) <p>(ACSHE119) – Science changes</p> | <p>Chemical Change (Chapter 3)</p> <ul style="list-style-type: none"> Changing matter Law of conservation of mass. Writing chemical equations. Balancing equations. Formation of ions Acids, bases and pH (strong/weak acids, strong/weak bases) Types of reactions 1. Neutralisation 2. Reaction with oxygen 3. Combustion of hydrocarbons. Energy changes in reactions (Endothermic and exothermic reactions) Reactions that affect our lives (acidic oceans, alcohols and biofuels) (6 Weeks) <p>(ACSHE120) – Solutions in society (ACSHE121) – Industry</p> <p>Systems of Life (Chapter 4)</p> <ul style="list-style-type: none"> Energy and matter in ecosystems. water cycle, carbon cycle. nitrogen cycle, oxygen cycle, phosphorous cycle Cellular respiration Photosynthesis Interrelations in ecosystems Natural and human impact on ecosystems. (5 weeks) <p>(ACSHE119) – Science changes (ACSHE223) – Collaborate and connect (ACSHE224) – Occupation</p> | <p>Movements of the Earth's Surface (Chapter 6)</p> <ul style="list-style-type: none"> What are tectonic plates? What happens at the plate boundaries? What will Earth look like in the future? 5 weeks <p>(ACSHE223) – Collaborate and connect (ACSHE120) – Solutions in society (ACSHE121) – Industry (ACSHE224) – Occupation</p> <p>Energy on the move (Chapter 7)</p> <ul style="list-style-type: none"> Thermal energy (conduction, convection and radiation) Modelling sound waves. (revision of ear structure) Bionic ear Light waves – Transverse and electromagnetic waves, colours of the rainbow. (revision of eye structure) Electricity and electrical circuits. Parallel and series circuits, Ohm's Law (5 weeks) <p>(ACSHE121) – Industry (ACSHE224) – Occupation (ACSHE119) – Science changes (ACSHE224) – Occupation</p> | <p>Inquiry</p> <ul style="list-style-type: none"> Design your own experiment, using good experimental design <p>Two weeks revision and one week exam</p> <p>Practical Physics</p> <ul style="list-style-type: none"> Physics experiments <p>The Nature of Science (Headstart) (Chapter 1)</p> <ul style="list-style-type: none"> Experimental design History of Science Future of Science 2 weeks <p>(ACSHE119) – Science changes (ACSHE120) – Solutions in society (ACSHE224) – Occupation</p> |

Standards and progression point examples

Level 10 Achievement Standard

By the end of Level 10, students explain the concept of energy conservation and model energy transfer and transformation within systems. They analyse how biological systems function and respond to external changes with reference to interdependencies, energy transfers and flows of matter. They evaluate the evidence for scientific theories that explain the origin of the universe and the diversity of life on Earth. They explain the role of DNA and genes in cell division and genetic inheritance. They apply geological timescales to elaborate their explanations of both natural selection and evolution. They explain how similarities in the chemical behaviour of elements and their compounds and their atomic structures are represented in the way the periodic table has been constructed. They compare the properties of a range of elements representative of the major groups and periods in the periodic table. They use atomic symbols and balanced chemical equations to summarise chemical reactions, including neutralisation and combustion. They explain natural radioactivity in terms of atoms and energy change. They explain how different factors influence the rate of reactions. They explain global features and events in terms of geological processes and timescales, and describe and analyse interactions and cycles within and between Earth's spheres. They give both qualitative and quantitative explanations of the relationships between distance, speed, acceleration, mass and force to predict and explain motion.

Students analyse how the models and theories they use have developed over time and discuss the factors that prompted their review. They predict how future applications of science and technology may affect people's lives.

By the end of Level 10, students develop questions and hypotheses that can be investigated using a range of inquiry skills. They independently design and improve appropriate methods of investigation including the control and accurate measurement of variables and systematic collection of data. They explain how they have considered reliability, safety, fairness and ethics in their methods and identify where digital technologies can be used to enhance the quality of data. They analyse trends in data, explain relationships between variables and identify sources of uncertainty. When selecting evidence and developing and justifying conclusions, they account for inconsistencies in results and identify alternative explanations for findings. 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 use appropriate scientific language, representations and text types when communicating their findings and ideas for specific purposes.