Year 9 Science

Achievement

By the end of Year 9 students explain how body systems provide a coordinated response to stimuli. They describe how the processes of sexual and asexual reproduction enable survival of the species. They explain how interactions within and between Earth's spheres affect the carbon cycle. They analyse energy conservation in simple systems and apply wave and particle models to describe energy transfer. They explain observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass. Students explain the role of publication and peer review in the development of scientific knowledge and explain the relationship between science, technologies and engineering. They analyse the different ways in which science and society are interconnected.

Students plan and conduct safe, reproducible investigations to test or identify relationships and models. They describe how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select and use equipment to generate and record replicable data with precision. They select and construct appropriate representations to organise, process and summarise data and information. They analyse and connect data and information to identify and explain patterns, trends, relationships and anomalies. They analyse the impact of assumptions and sources of error in methods and evaluate the validity of conclusions and claims. They construct logical arguments based on evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to specific audiences.

Assessment Criteria

An overall level of achievement in this subject is determined by the teacher's on-balance judgment of the evidence presented in students' summative assessment across the following:

- **Science Understanding:** Biological Sciences, Chemical Sciences, Earth and Space Sciences, Physical Sciences.
- **Science as a human endeavour** - Nature and development of science, Use and influence of science.
- **Science Inquiry Skills:** Questioning and predicting, Planning and conducting, Processing, modelling and analysing, Evaluating, Communicating.

Delivery (mode, time requirements, lessons)

Students have access to a scheduled lesson each week. Lessons are delivered via Collaborate and teleconferencing. Students are also expected to undertake independent study to complete tasks and assessment in accordance with the Work Rate Calendar. Course materials can be accessed in Blackboard.

Student Requirements

Computer, internet access, email, printer, scanner, headset with microphone, stationery, resource list and SRS list.

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Units and Learning Experiences, Summative Assessment, Criteria Assessed, Approximate timing/due date of summative assessment		
Semester 1	Term 1	**Unit 1 Physics: Thermal Insulation and Light and Sound** Use wave and particle models to describe energy transfer through different mediums and examine the usefulness of each model for explaining phenomena. Apply the law of conservation of energy to analyse system efficiency in terms of energy inputs, outputs, transfers and transformations.
		Summative assessment, criteria assessed, approximate timing/due date: • Assessment task – Design and conduct an investigation into energy transfer. Use your data to describe models of energy transfer and apply these to explain heat energy transfer in thermal flasks. Physical Sciences, Questioning and predicting, Planning and conducting, Processing, modelling and analysing, Communicating. Week 5. • Assessment task – Transfer of light and sound exam. Physical Sciences, Planning and conducting, modelling and analysing, Communicating. Week 9.
	Term 2	**Unit 2 Chemistry: Isotopes and Atomic Structure** Research a radioisotope describe and explain its structure, radioactivity and a practical use of this radioisotope, and evaluate how its applications affect people's lives. Use knowledge of the periodic table, atomic structure, arrangement and mass of atoms to balance chemical equations.
		Summative assessment, criteria assessed, approximate timing/due date: • Assessment task – Research your chosen radioisotope. Chemical Sciences, Use and influence of science, Communicating. Week 4. • Assessment task – Atomic Structure exam. Explain observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass. Chemical Sciences, Planning and conducting. Week 8.
Semester 2	Term 3	**Unit 3 Biology: My Life in Balance and Sexual and Asexual Reproduction** Compare the role of body systems in regulating and coordinating the body's response to a stimulus and describe the operation of a negative feedback mechanism. Describe the form and function of reproductive cells and organs in animals and plants, and analyse how the processes of sexual and asexual reproduction enable the survival of the species.
		Summative assessment, criteria assessed, approximate timing/due date: • Assessment task – Biology Exam. Describe how the processes of sexual and asexual reproduction enable survival of the species and explain how body systems provide a coordinated response to stimuli. Biological Sciences. Week 9.
	Term 4	**Unit 4 Earth Science: Carbon Cycle** Represent the carbon cycle and examine how key processes including combustion, photosynthesis and respiration rely on interactions between Earth's spheres (the geosphere, biosphere, hydrosphere and atmosphere).
		Summative assessment, criteria assessed, approximate timing/due date: • Assessment task – Global systems exam. Analyse information about the carbon cycle, describing significant stores, flows and human impact through and between spheres. To communicate understanding of interactions between global systems, and human ethical obligations to the environment. Earth and Space Sciences, Communicating. Week 6.

Disclaimer All of the above information is accurate at the time of development.