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| **Achievement Standards - Science** | | | | | | **NOTES** |
| By the end of Year 9, students explain chemical processes and natural radioactivity in terms of atoms and energy transfers and describe examples of important chemical reactions. They describe models of energy transfer and apply these to explain phenomena. They explain global features and events in terms of geological processes and timescales. They analyse how biological systems function and respond to external changes with reference to interdependencies, energy transfers and flows of matter. They describe social and technological factors that have influenced scientific developments and predict how future applications of science and technology may affect people’s lives.  Students design questions that can be investigated using a range of inquiry skills. They design methods that include the control and accurate measurement of variables and systematic collection of data and describe how they considered ethics and safety. They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. They analyse their methods and the quality of their data, and explain specific actions to improve the quality of their evidence. They evaluate others’ methods and explanations from a scientific perspective and use appropriate language and representations when communicating their findings and ideas to specific audiences. | | | | | |  |
| **Content Descriptions - Science** | | | | | |
| **Science Understanding** | Biological Sciences | **Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems**[**ACSSU176**](http://www.scootle.edu.au/ec/search?accContentId=ACSSU176)   * ***investigating the interdependence of communities and the role of Aboriginal and Torres Strait Islander Peoples in maintaining their environment.*** * ***exploring interactions between organisms such as predator/prey, parasites, competitors, pollinators and disease.*** * ***examining factors that affect population sizes such as seasonal changes, destruction of habitats, introduced species.*** * ***considering how energy flows into and out of an ecosystem via the pathways of food webs, and how it must be replaced to maintain the sustainability of the system.*** * ***investigating how ecosystems change as a result of events such as bushfires, drought and flooding.*** | | | |
| **Science as a Human Endeavour** | Use and influence of science | **People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people’s lives, including generating new career opportunities**[**ACSHE160**](http://www.scootle.edu.au/ec/search?accContentId=ACSHE160)   * ***considering how the traditional ecological knowledge of Aboriginal and Torres Strait Islander Peoples is being reaffirmed by modern science and how this is generating new career opportunities in the field of restorative ecology.*** * ***considering the impacts of human activity on an ecosystem from a range of different perspectives.*** | | | |
| **Science Inquiry** | Planning and conducting | **Plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods**[**ACSIS165**](http://www.scootle.edu.au/ec/search?accContentId=ACSIS165)   * ***explaining the choice of variables to be controlled, changed and measured in an investigation.*** * ***ensuring that any investigation involving or impacting on animals is justified, humane and considerate of each animal's needs.*** * ***considering how investigation methods and equipment may influence the reliability of collected data.***   **Select and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately**[**ACSIS166**](http://www.scootle.edu.au/ec/search?accContentId=ACSIS166)   * ***using probes and data loggers to record information.*** * ***applying specific skills for the use of scientific instruments.*** | | | |
| Communicating | **Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations**[**ACSIS174**](http://www.scootle.edu.au/ec/search?accContentId=ACSIS174)   * ***acknowledging and exploring Aboriginal and Torres Strait Islander peoples’ ways of communicating their understanding of the internal systems of organisms.*** | | | |
| **General Capabilities** | | |  | **Cross-Curriculum Priorities** | |
| **Critical and Creative Thinking** | Inquiring:   * identify and clarify information and ideas. * organise and process information.   Generating:   * imagine possibilities and connect ideas.   Reflecting:   * transfer knowledge into new contexts.   Analysing:   * apply logic and reasoning. * draw conclusions and design a course of action. | | **Aboriginal and Torres Strait Islander Histories and Cultures** | **Country/Place**   * Aboriginal and Torres Strait Islander communities maintain a special connection to and responsibility for Country/Place.   **Culture**   * Aboriginal and Torres Strait Islander Peoples’ ways of life are uniquely expressed through ways of being, knowing, thinking and doing. |
| **Intercultural Understanding** | Recognising:   * explore and compare cultural knowledge, beliefs and practices. | | **Sustainability** | **Systems**   * All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival.   **Future**   * Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments. |