Year 10 Science

ACiQ v9.0

Australian Curriculum Version 9.0: Achievement standard aligned to content descriptions

This resource shows alignment between aspects of the achievement standard and relevant content descriptions for Year 10. A similar resource is available for other year levels.

The Australian Curriculum (AC) v9.0 code for each content description includes an element indicating the strand it is organised by, e.g. AC9S10U01 indicates Science understanding strand.

Key to content description codes: Science	
e.g. **AC9SFU01** Australian Curriculum (**AC**) Version 9 (**9**) Science (**S**) Year (**10**) Strand (**U**, **H**, **I**) Content description number (**##**)	Strands: • SU — Science understanding • SHE — Science as a human endeavour • SI — Science inquiry

Year 10 Australian Curriculum: Science achievement standard

By the end of Year 10 students explain the processes that underpin heredity and genetic diversity and describe the evidence supporting the theory of evolution by natural selection. They sequence key events in the origin and evolution of the universe and describe the supporting evidence for the big bang theory. They describe trends in patterns of global climate change and identify causal factors. They explain how Newton's laws describe motion and apply them to predict motion of objects in a system. They explain patterns and trends in the periodic table and predict the products of reactions and the effect of changing reactant and reaction conditions. Students analyse the importance of publication and peer review in the development of scientific knowledge and analyse the relationship between science, technologies and engineering. They analyse the key factors that influence interactions between science and society.

Students plan and conduct safe, valid and reproducible investigations to test relationships or develop explanatory models. They explain how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select equipment and use it efficiently to generate and record appropriate sample sizes and replicable data with precision. They select and construct effective representations to organise, process and summarise data and information. They analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies. They evaluate the validity and reproducibility of methods, and the validity of conclusions and claims. They construct logical arguments based on analysis of a variety of 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 diverse audiences.

Achievement standard aspect	Relevant content description/s	AC v9.0 code
By the end of Year 10	**Students learn to:**	
Students explain the processes that underpin heredity and genetic diversity and describe the evidence supporting the theory of evolution by natural selection.	• explain the role of meiosis and mitosis and the function of chromosomes, DNA and genes in heredity and predict patterns of Mendelian inheritance	AC9S10U01
	• use the theory of evolution by natural selection to explain past and present diversity and analyse the scientific evidence supporting the theory	AC9S10U02
They sequence key events in the origin and evolution of the universe and describe the supporting evidence for the big bang theory.	• describe how the big bang theory models the origin and evolution of the universe and analyse the supporting evidence for the theory	AC9S910U03
They describe trends in patterns of global climate change and identify causal factors.	• use models of energy flow between the geosphere, biosphere, hydrosphere and atmosphere to explain patterns of global climate change	AC9S10U04
They explain how Newton's laws describe motion and apply them to predict motion of objects in a system.	• investigate Newton's laws of motion and quantitatively analyse the relationship between force, mass and acceleration of objects	AC9S10U05
They explain patterns and trends in the periodic table and predict the products of reactions and the effect of changing reactant and reaction conditions.	• explain how the structure and properties of atoms relate to the organisation of the elements in the periodic table	AC9S10U06
	• identify patterns in synthesis, decomposition and displacement reactions and investigate the factors that affect reaction rates	AC9S10U07
Students analyse the importance of publication and peer review in the development of scientific knowledge and analyse the relationship between science, technologies and engineering.	• explain how scientific knowledge is validated and refined, including the role of publication and peer review	AC9S10H01
	• investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering	AC9S10H02
They analyse the key factors that influence interactions between science and society.	• analyse the key factors that contribute to science knowledge and practices being adopted more broadly by society	AC9S10H03
	• examine how the values and needs of society influence the focus of scientific research	AC9S10H04
Students plan and conduct safe, valid and reproducible investigations to test relationships or develop explanatory models.	• develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models	AC9S10I01
	• plan and conduct valid, reproducible investigations to answer questions and test hypotheses, including identifying and controlling for possible sources of error and, as appropriate, developing and following risk assessments, considering ethical issues, and addressing key considerations regarding heritage sites and artefacts on Country/Place	AC9S10I02
They explain how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data.	• plan and conduct valid, reproducible investigations to answer questions and test hypotheses, including identifying and controlling for possible sources of error and, as appropriate, developing and following risk assessments, considering ethical issues, and addressing key considerations regarding heritage sites and artefacts on Country/Place	AC9S10I02

Achievement standard aspect	Relevant content description/s	AC v9.0 code
They select equipment and use it efficiently to generate and record appropriate sample sizes and replicable data with precision.	• select and use equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate	AC9S10I03
They select and construct effective representations to organise, process and summarise data and information.	• select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information	AC9S10I04
They analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies.	• analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies	AC9S10I05
They evaluate the validity and reproducibility of methods, and the validity of conclusions and claims.	• assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty	AC9S10I06
They construct logical arguments based on analysis of a variety of evidence to support conclusions and evaluate claims.	• construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims, and consider any ethical issues and cultural protocols associated with accessing, using or citing secondary data or information	AC9S10I07
They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to diverse audiences.	• write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate.	AC9S10I08

More information

If you would like more information, please visit the QCAA website www.qcaa.qld.edu.au. Alternatively, email the K–10 Curriculum and Assessment branch at australiancurriculum@qcaa.qld.edu.au.