

# Year 8 standard elaborations — Australian Curriculum v9.0: Science

---

## Purpose

The standards elaborations (SEs) support teachers to connect curriculum to evidence in assessment so that students are assessed on what they have had the opportunity to learn. The SEs can be used to:

- make consistent and comparable judgments, on a five-point scale, about the evidence of learning in a folio of student work across a year/band
- develop task-specific standards (or marking guides) for individual assessment tasks
- quality assure planning documents to ensure coverage of the achievement standard across a year/band.

## Structure

The SEs have been developed using the Australian Curriculum achievement standard. The achievement standard for Science describes what students are expected to know and be able to do at the end of each year. Teachers use the SEs during and at the end of a teaching period to make on-balance judgments about the qualities in student work that demonstrate the depth and breadth of their learning.

In Queensland, the achievement standard represents the C standard — a sound level of knowledge and understanding of the content, and application of skills. The SEs are presented in a matrix where the discernible differences and/or degrees of quality between each performance level are highlighted. Teachers match these discernible differences and/or degrees of quality to characteristics of student work to make judgments across a five-point scale.



**Year 8 Australian Curriculum: Science achievement standard**

By the end of Year 8 students explain the role of specialised cell structures and organelles in cellular function and analyse the relationship between structure and function at organ and body system levels. They apply an understanding of the theory of plate tectonics to explain patterns of change in the geosphere. They explain how the properties of rocks relate to their formation and influence their use. They compare different forms of energy and represent transfer and transformation of energy in simple systems. They classify and represent different types of matter and distinguish between physical and chemical change. Students analyse how different factors influence development of and lead to changes in scientific knowledge. They analyse the key considerations that inform scientific responses and how these responses impact society. They analyse the importance of science communication in shaping viewpoints, policies and regulations.

Students plan and conduct safe, reproducible investigations to test relationships and explore models. They describe potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data. They select and use equipment to generate and record data with precision. They select and construct appropriate representations to organise and process data and information. They analyse data and information to describe patterns, trends and relationships and identify anomalies. They identify assumptions and sources of error in methods and analyse conclusions and claims with reference to conflicting evidence and unanswered questions. They construct evidence-based arguments to support conclusions and evaluate claims. They select and use language and text features appropriately for their purpose when communicating their ideas, findings and arguments to specific audiences.

Source: Australian Curriculum, Assessment and Reporting Authority (ACARA), *Australian Curriculum Version 9.0 Science for Foundation–10*  
<https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/science/year-8>

## Year 8 Science standard elaborations

		A	B	C	D	E
<b>The folio of student work contains evidence of the following:</b>						
<b>Science understanding</b>	<b>Biological sciences</b>	<ul style="list-style-type: none"> <li>• <b>thorough</b> explanation of the role of specialised cell structures and organelles in cellular function</li> <li>• <b>purposeful</b> analysis of the relationship between structure and function at organ and body system levels</li> </ul>	<ul style="list-style-type: none"> <li>• <b>detailed</b> explanation of the role of specialised cell structures and organelles in cellular function</li> <li>• <b>informed</b> analysis of the relationship between structure and function at organ and body system levels</li> </ul>	<ul style="list-style-type: none"> <li>• explanation of the role of specialised cell structures and organelles in cellular function</li> <li>• analysis of the relationship between structure and function at organ and body system levels</li> </ul>	<ul style="list-style-type: none"> <li>• <b>description</b> of specialised cell structures and organelles</li> <li>• <b>description</b> of the relationship between structure and function at organ and body system levels</li> </ul>	<ul style="list-style-type: none"> <li>• <b>identification of</b> specialised cell structures and/or organelles</li> <li>• <b>statement/s about</b> the structure and function at organ <b>or</b> body system levels</li> </ul>

		A	B	C	D	E
Earth and space sciences		<u>reasoned</u> explanation of patterns of change in the geosphere through application of an understanding of the theory of plate tectonics	<u>informed</u> explanation of patterns of change in the geosphere through application of an understanding of the theory of plate tectonics	explanation of patterns of change in the geosphere through application of an understanding of the theory of plate tectonics	<u>description</u> of patterns of change in the geosphere through <u>guided</u> application of an understanding of the theory of plate tectonics	<u>statement/s about</u> the theory of plate tectonics
		<u>considered</u> explanation of how the properties of rocks relate to their formation and influence their use	<u>informed</u> explanation of how the properties of rocks relate to their formation and influence their use	explanation of how the properties of rocks relate to their formation and influence their use	<u>description</u> of the properties of <u>sedimentary, igneous and metamorphic</u> rocks	<u>identification</u> of properties of rocks
Physical sciences		<ul style="list-style-type: none"> <li>• <u>thorough</u> comparison of different forms of energy</li> <li>• <u>purposeful</u> representation of transfer and transformation of energy in simple systems</li> </ul>	<ul style="list-style-type: none"> <li>• <u>detailed</u> comparison of different forms of energy</li> <li>• <u>effective</u> representation of transfer and transformation of energy in simple systems</li> </ul>	<ul style="list-style-type: none"> <li>• comparison of different forms of energy</li> <li>• representation of transfer and transformation of energy in simple systems</li> </ul>	<ul style="list-style-type: none"> <li>• <u>description</u> of different forms of energy</li> <li>• <u>partial</u> representation of transfer and transformation of energy in simple systems</li> </ul>	<ul style="list-style-type: none"> <li>• <u>identification of</u> forms of energy</li> <li>• <u>directed</u> representation of transfer and transformation of energy in simple systems</li> </ul>
Chemical sciences		<ul style="list-style-type: none"> <li>• <u>considered</u> classification of different types of matter</li> <li>• <u>purposeful</u> representation of different types of matter</li> <li>• <u>reasoned</u> distinction between physical and chemical changes</li> </ul>	<ul style="list-style-type: none"> <li>• <u>informed</u> classification of different types of matter</li> <li>• <u>informed</u> representation of different types of matter</li> <li>• <u>informed</u> distinction between physical and chemical changes</li> </ul>	<ul style="list-style-type: none"> <li>• classification of different types of matter</li> <li>• representation of different types of matter</li> <li>• distinction between chemical and physical changes</li> </ul>	<ul style="list-style-type: none"> <li>• <u>description</u> of different types of matter</li> <li>• <u>partial</u> representation of different types of matter</li> <li>• <u>description</u> of physical and chemical changes</li> </ul>	<ul style="list-style-type: none"> <li>• <u>identification of</u> types of matter</li> <li>• <u>directed</u> representation of different types of matter</li> <li>• <u>identification</u> of physical or chemical changes</li> </ul>

		A	B	C	D	E
Science as a human endeavour	Nature and development of science	<u>thorough</u> analysis of how different factors influence development of and lead to changes in scientific knowledge	<u>detailed</u> analysis of how different factors influence development of and lead to changes in scientific knowledge	analysis of how different factors influence development of and lead to changes in scientific knowledge	<u>description</u> of factors that influence the development of and lead to changes in scientific knowledge	<u>identification</u> of factors that influence the development of scientific knowledge
	Use and influence of science	<ul style="list-style-type: none"> <li><u>thorough</u> analysis of the key considerations that inform scientific responses and how these responses impact society</li> <li><u>thorough</u> analysis of the importance of science communication in shaping viewpoints, policies and regulations</li> </ul>	<ul style="list-style-type: none"> <li><u>detailed</u> analysis of the key considerations that inform scientific responses and how these responses impact society</li> <li><u>detailed</u> analysis of the importance of science communication in shaping viewpoints, policies and regulations</li> </ul>	<ul style="list-style-type: none"> <li>analysis of the key considerations that inform scientific responses and how these responses impact society</li> <li>analysis of the importance of science communication in shaping viewpoints, policies and regulations</li> </ul>	<ul style="list-style-type: none"> <li><u>description</u> of considerations that inform scientific responses</li> <li><u>description</u> of the importance of science communication in shaping viewpoints, policies and regulations</li> </ul>	<ul style="list-style-type: none"> <li><u>statement/s about</u> considerations that inform scientific responses</li> <li><u>statement/s about</u> the importance of science communication</li> </ul>
Science inquiry	Questioning and predicting	<u>purposeful</u> planning of investigations to: <ul style="list-style-type: none"> <li>test relationships</li> <li>explore models</li> </ul>	<u>plausible</u> planning of investigations to: <ul style="list-style-type: none"> <li>test relationships</li> <li>explore models</li> </ul>	planning of investigations to: <ul style="list-style-type: none"> <li>test relationships</li> <li>explore models</li> </ul>	<u>guided</u> planning of investigations to: <ul style="list-style-type: none"> <li>test relationships</li> <li>explore models</li> </ul>	<u>directed</u> planning of investigations to: <ul style="list-style-type: none"> <li>test relationships</li> <li>explore models</li> </ul>

		A	B	C	D	E
	Planning and conducting	<u>thorough</u> planning and conducting of safe, reproducible investigations	<u>detailed</u> planning and conducting of safe, reproducible investigations	planning and conducting of safe, reproducible investigations	planning and conducting of safe investigations	conducting of safe investigations
		<u>considered</u> description of potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data	<u>informed</u> description of potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data	description of potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data	<u>identification</u> of potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data	<u>directed</u> identification of potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data
	Processing, modelling and analysing	selection and use of equipment for the <u>purposeful</u> generation and recording of data with precision	selection and use of equipment for the <u>effective</u> generation and recording of data with precision	selection and use of equipment to generate and record data with precision	selection and use of equipment to generate and record data	use of equipment to generate and record data
		selection and construction of appropriate representations for the <u>purposeful</u> organisation and processing of data and information	selection and construction of appropriate representations for the <u>effective</u> organisation and processing of data and information	selection and construction of appropriate representations for the organisation and processing of data and information	selection and construction of representations for the organisation and processing of data and information	<u>use of provided</u> representations for the organisation and processing of data and information
		<ul style="list-style-type: none"> <li>• <u>thorough</u> analysis of data and information to describe patterns, trends and relationships</li> <li>• <u>thorough</u> analysis of data and information to identify anomalies</li> </ul>	<ul style="list-style-type: none"> <li>• <u>detailed</u> analysis of data and information to describe patterns, trends and relationships</li> <li>• <u>detailed</u> analysis of data and information to identify anomalies</li> </ul>	<ul style="list-style-type: none"> <li>• analysis of data and information to describe patterns, trends and relationships</li> <li>• analysis of data and information to identify anomalies</li> </ul>	<ul style="list-style-type: none"> <li>• <u>use</u> of data and information to <u>identify</u> patterns, trends and relationships</li> <li>• <u>use</u> of data and information to identify anomalies</li> </ul>	<u>statement/s about</u> patterns, trends, relationships <u>or</u> anomalies

		A	B	C	D	E
	Evaluating	<ul style="list-style-type: none"> <li>• <b>considered</b> identification of assumptions and sources of error in methods</li> <li>• <b>purposeful</b> analysis of conclusions and claims with reference to conflicting evidence and unanswered questions</li> </ul>	<ul style="list-style-type: none"> <li>• <b>informed</b> identification of assumptions and sources of error in methods</li> <li>• <b>informed</b> analysis of conclusions and claims with reference to conflicting evidence and unanswered questions</li> </ul>	<ul style="list-style-type: none"> <li>• identification of assumptions and sources of error in methods</li> <li>• analysis of conclusions and claims with reference to conflicting evidence and unanswered questions</li> </ul>	<ul style="list-style-type: none"> <li>• <b>guided</b> identification of assumptions <b>or</b> sources of error in methods</li> <li>• <b>identification</b> of conflicting evidence and unanswered questions in conclusions and claims</li> </ul>	<ul style="list-style-type: none"> <li>• <b>statement/s about</b> assumptions or errors</li> <li>• identification of conflicting evidence <b>or</b> unanswered questions in conclusions and claims, <b>with direction</b></li> </ul>
	Communicating	appropriate selection and use of language and text features for their purpose for <b>considered</b> communication of their ideas, findings and arguments to specific audiences.	appropriate selection and use of language and text features for their purpose for <b>informed</b> communication of their ideas, findings and arguments to specific audiences.	appropriate selection and use of language and text features for their purpose when communicating their ideas, findings and arguments to specific audiences.	use of language and text features for their purpose when communicating their ideas, findings and arguments.	use of language and text features when communicating their ideas and findings.

**Key** shading emphasises the qualities that discriminate between the A–E descriptors

 © State of Queensland (QCAA) 2023

**Licence:** <https://creativecommons.org/licenses/by/4.0> | **Copyright notice:** [www.qcaa.qld.edu.au/copyright](http://www.qcaa.qld.edu.au/copyright) — lists the full terms and conditions, which specify certain exceptions to the licence. | **Attribution:** (include the link): © State of Queensland (QCAA) 2023

Unless otherwise indicated material from Australian Curriculum is © ACARA 2010–present, licensed under CC BY 4.0. For the latest information and additional terms of use, please check the [Australian Curriculum website](http://www.australiancurriculum.edu.au) and its [copyright notice](http://www.australiancurriculum.edu.au/copyright).