

Year 7 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 7 Australian Curriculum: Science achievement standard

By the end of Year 7 students explain how biological diversity is ordered and organised. They represent flows of matter and energy in ecosystems and predict the effects of environmental changes. They model cycles in the Earth-sun-moon system and explain the effects of these cycles on Earth phenomena. They represent and explain the effects of forces acting on objects. They use particle theory to explain the physical properties of substances and develop processes that separate mixtures. Students identify the factors that can influence development of and lead to changes in scientific knowledge. They explain how scientific responses are developed and can impact society. They explain the role of science communication in shaping viewpoints, policies and regulations.

Students plan and conduct safe, reproducible investigations to test relationships and aspects of scientific models. They identify potential ethical issues and intercultural considerations required for field locations or use of secondary data. They use equipment to generate and record data with precision. They select and construct appropriate representations to organise data and information. They process data and information and analyse it to describe patterns, trends and relationships. They identify possible sources of error in methods and identify unanswered questions in conclusions and claims. They identify evidence to support their conclusions and construct arguments to support or dispute claims. They select and use language and text features appropriately for their purpose and audience when communicating their ideas and findings.

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-7>

Year 7 Science standard elaborations

		A	B	C	D	E
The folio of student work contains evidence of the following:						
Science understanding	Biological sciences	<u>reasoned</u> explanation of how biological diversity is ordered and organised	<u>informed</u> explanation of how biological diversity is ordered and organised	explanation of how biological diversity is ordered and organised	<u>description</u> of the order or organisation of biological diversity	<u>statement/s about</u> ordering biological diversity
		<ul style="list-style-type: none"> <u>purposeful</u> representation of flows of matter and energy in ecosystems <u>reasoned</u> prediction of the effects of environmental changes 	<ul style="list-style-type: none"> <u>informed</u> representation of flows of matter and energy in ecosystems <u>plausible</u> prediction of the effects of environmental changes 	<ul style="list-style-type: none"> representation of flows of matter and energy in ecosystems prediction of the effects of environmental changes 	<ul style="list-style-type: none"> <u>partial</u> representation of flows of matter and energy in ecosystems <u>description</u> of the effects of environmental changes 	<ul style="list-style-type: none"> <u>directed</u> representation of flows of matter and energy in ecosystems <u>statement/s about</u> environmental changes

		A	B	C	D	E
	Earth and space sciences	<ul style="list-style-type: none"> • purposeful modelling of cycles in the Earth-sun-moon system • reasoned explanation of the effects of these cycles on Earth phenomena 	<ul style="list-style-type: none"> • informed modelling of cycles in the Earth-sun-moon system • informed explanation of the effects of these cycles on Earth phenomena 	<ul style="list-style-type: none"> • modelling of cycles in the Earth-sun-moon system • explanation of the effects of these cycles on Earth phenomena 	<ul style="list-style-type: none"> • partial modelling of cycles in the Earth-sun-moon system • description of the effects of these cycles on Earth phenomena 	<ul style="list-style-type: none"> • modelling of cycles in the Earth-sun-moon system, with direction • statement/s about cycles on Earth
	Physical sciences	<ul style="list-style-type: none"> • purposeful representation of the effects of forces acting on objects • reasoned explanation of the effects of forces acting on objects 	<ul style="list-style-type: none"> • informed representation of the effects of forces acting on objects • informed explanation of the effects of forces acting on objects 	<ul style="list-style-type: none"> • representation of the effects of forces acting on objects • explanation of the effects of forces acting on objects 	<ul style="list-style-type: none"> • partial representation of the effects of forces acting on objects • description of forces acting on objects 	<ul style="list-style-type: none"> • statement/s about forces
	Chemical sciences	<ul style="list-style-type: none"> • purposeful use of particle theory to explain the physical properties of substances • considered development of processes that separate mixtures 	<ul style="list-style-type: none"> • effective use of particle theory to explain the physical properties of substances • effective development of processes that separate mixtures 	<ul style="list-style-type: none"> • use of particle theory to explain the physical properties of substances • development of processes that separate mixtures 	<ul style="list-style-type: none"> • description of particle theory • guided development of processes that separate mixtures 	<ul style="list-style-type: none"> • statement/s about particle theory • directed development of processes that separate mixtures
Science as a human endeavour	Nature and development of science	considered identification of the factors that can influence development of and lead to changes in scientific knowledge	informed identification of the factors that can influence development of and lead to changes in scientific knowledge	identification of the factors that can influence development of and lead to changes in scientific knowledge	identification of the factors that can influence development of or lead to changes in scientific knowledge	statement/s about the development of scientific knowledge

		A	B	C	D	E
	Use and influence of science	<u>reasoned</u> explanation of how scientific responses are developed and can impact society	<u>informed</u> explanation of how scientific responses are developed and can impact society	explanation of how scientific responses are developed and can impact society	<u>description</u> of an impact of scientific responses on society	<u>statement/s about</u> scientific responses
		<u>reasoned</u> explanation of the role of science communication in shaping viewpoints, policies and regulations	<u>informed</u> explanation of the role of science communication in shaping viewpoints, policies and regulations	explanation of the role of science communication in shaping viewpoints, policies and regulations	<u>description</u> of the role of science communication in shaping viewpoints, policies and regulations	<u>description</u> of science communication
Science inquiry	Questioning and predicting	<u>purposeful</u> planning of investigations to test: <ul style="list-style-type: none"> relationships aspects of scientific models 	<u>plausible</u> planning of investigations to test: <ul style="list-style-type: none"> relationships aspects of scientific models 	planning of investigations to test: <ul style="list-style-type: none"> relationships aspects of scientific models 	<u>guided</u> planning of investigations to test: <ul style="list-style-type: none"> relationships aspects of scientific models 	<u>directed</u> planning of investigations to test: <ul style="list-style-type: none"> relationships aspects of scientific models
	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> identification of potential ethical issues and intercultural considerations required for field locations or use of secondary data	<u>informed</u> identification of potential ethical issues and intercultural considerations required for field locations or use of secondary data	identification of potential ethical issues and intercultural considerations required for field locations or use of secondary data	<u>guided</u> identification of potential ethical issues and intercultural considerations required for field locations or use of secondary data	<u>directed</u> identification of potential ethical issues and intercultural considerations required for field locations or use of secondary data
	use of equipment for the <u>considered</u> generation and recording of data with precision	use of equipment for the <u>effective</u> generation and recording of data with precision	use of equipment for the generation and recording of data with precision	use of equipment for the generation and recording of data	<u>directed</u> use of equipment for the generation and recording of data	

		A	B	C	D	E
	Processing, modelling and analysing	selection and construction of appropriate representations for the <u>purposeful</u> organisation of data and information	selection and construction of appropriate representations for the <u>effective</u> organisation of data and information	selection and construction of appropriate representations for the organisation of data and information	selection and construction of representations for the organisation of data and information	<u>use of provided</u> representations for the organisation of data and information
		<ul style="list-style-type: none"> • <u>thorough</u> processing of data and information • <u>thorough</u> analysis of data and information to describe patterns, trends and relationships 	<ul style="list-style-type: none"> • <u>detailed</u> processing of data and information • <u>detailed</u> analysis of data and information to describe patterns, trends and relationships 	<ul style="list-style-type: none"> • processing of data and information • analysis of data and information to describe patterns, trends and relationships 	<ul style="list-style-type: none"> • processing of data and information, <u>with</u> <u>guidance</u> • <u>use</u> of data and information to <u>identify</u> patterns, trends and relationships 	<p><u>statement/s about</u> patterns, trends or relationships</p>
	Evaluating	<ul style="list-style-type: none"> • <u>considered</u> identification of possible sources of error in methods • <u>considered</u> identification of unanswered questions in conclusions and claims 	<ul style="list-style-type: none"> • <u>informed</u> identification of possible sources of error in methods • <u>informed</u> identification of unanswered questions in conclusions and claims 	<ul style="list-style-type: none"> • identification of possible sources of error in methods • identification of unanswered questions in conclusions and claims 	<ul style="list-style-type: none"> • <u>guided</u> identification of possible sources of error in methods • <u>guided</u> identification of unanswered questions in conclusions and claims 	<ul style="list-style-type: none"> • <u>statement/s about</u> errors in methods • <u>directed</u> identification of unanswered questions in conclusions and claims
		<ul style="list-style-type: none"> • <u>purposeful</u> identification of evidence to support their conclusions • <u>considered</u> construction of arguments to support or dispute claims 	<ul style="list-style-type: none"> • <u>informed</u> identification of evidence to support their conclusions • <u>informed</u> construction of arguments to support or dispute claims 	<ul style="list-style-type: none"> • identification of evidence to support their conclusions • construction of arguments to support or dispute claims 	<ul style="list-style-type: none"> • <u>guided</u> identification of evidence to support their conclusions • <u>guided</u> construction of arguments to support or dispute claims 	<ul style="list-style-type: none"> • <u>directed</u> identification of evidence to support their conclusions • <u>directed</u> construction of arguments to support or dispute claims

		A	B	C	D	E
	Communicating	appropriate selection and purposeful use of language and text features, including scientific terminology, for their purpose and audience when communicating their ideas and findings.	appropriate selection and use of language and text features, including scientific terminology, for their purpose and audience when communicating their ideas and findings.	appropriate selection and use of language and text features for their purpose and audience when communicating their ideas and findings.	use of language and text features for their purpose and audience when communicating their ideas and findings.	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 — 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](#).