

# Year 3 standard elaborations — Australian Curriculum: Science

## Purpose

The standard elaborations (SEs) provide additional clarity when using the Australian Curriculum achievement standard to make judgments on a five-point scale. They can be used as a tool for:

- making consistent and comparable judgments about the evidence of learning in a folio of student work
- developing task-specific standards for individual assessment tasks.

## Structure

The SEs are developed using the **Australian Curriculum achievement standard**. The achievement standard for Science describes the learning expected of students at each year level. Teachers use the achievement standard during and at the end of a period of teaching to make on-balance judgments about the quality of learning students demonstrate.

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. The **discernible differences** or degrees of quality associated with the five-point scale are highlighted to identify the characteristics of student work on which teacher judgments are made. Terms are described in the Notes section following the matrix.

### Year 3 Australian Curriculum: Science achievement standard

By the end of Year 3, students use their understanding of the movement of Earth, materials and the behaviour of heat to suggest explanations for everyday observations. They group living things based on observable features and distinguish them from non-living things. They describe how they can use science investigations to respond to questions.

Students use their experiences to identify questions and make predictions about scientific investigations. They follow procedures to collect and record observations and suggest possible reasons for their findings, based on patterns in their data. They describe how safety and fairness were considered and they use diagrams and other representations to communicate their ideas.

Source: Australian Curriculum, Assessment and Reporting Authority (ACARA), *Australian Curriculum Version 8 Science for Foundation–10*, [www.australiancurriculum.edu.au/Science/Curriculum/F-10](http://www.australiancurriculum.edu.au/Science/Curriculum/F-10)

## Year 3 Science standard elaborations

		A	B	C	D	E
<b>The folio of student work has the following characteristics:</b>						
<b>Science understanding</b>	<b>Physical sciences; Chemical sciences; Earth and Space sciences</b>	use of science understanding of the movement of Earth, materials and the behaviour of heat to suggest <u>reasoned</u> explanations for everyday observations	use of science understanding of the movement of Earth, materials and the behaviour of heat to suggest <u>informed</u> explanations for everyday observations	use of science understanding of the movement of Earth, materials and the behaviour of heat to suggest explanations for everyday observations	use of science <u>information about</u> the movement of Earth, materials and the behaviour of heat to <u>describe</u> everyday observations	<u>statements about</u> everyday observations
	<b>Biological sciences</b>	<u>reasoned</u> grouping of living things based on observable features and <u>explanation of how</u> they are distinguished from non-living things	<u>informed</u> grouping of living things based on observable features and <u>explanation of how</u> they are distinguished from non-living things	grouping of living things based on observable features and distinguishing them from non-living things	grouping of living things and non-living things	<u>statements about</u> living and non-living things

		A	B	C	D	E
<b>The folio of student work has the following characteristics:</b>						
Science as a human endeavour	Nature and development of science	thorough description of how and why science investigations are used to respond to questions	informed description of how science investigations can be used to respond to questions	description of how science investigations can be used to respond to questions	description of the process of a science investigation	statements about science investigations
		use of experiences to identify questions and make reasoned predictions about scientific investigations	use of experiences to identify questions and make plausible predictions about scientific investigations	use of experiences to identify questions and make predictions about scientific investigations	guided identification of questions and guided making of predictions about scientific investigations	directed identification of questions and directed making of predictions about scientific investigations
Science inquiry skills	Questioning and predicting	following of procedures to systematically collect and accurately record observations	following of procedures to systematically collect and record observations	following of procedures to collect and record observations	following of procedures to partially collect and partially record of observations	directed collection and recording of observations
	Planning and conducting					

		A	B	C	D	E
<b>The folio of student work has the following characteristics:</b>						
<b>Science inquiry skills</b>	<b>Processing and analysing data and information</b>	reasons for findings <u>explained by</u> patterns in data	reasons for findings <u>informed by description of</u> patterns in data	suggestion of possible reasons for findings, based on patterns in data	suggestion of possible reasons for findings	<u>statements about</u> findings
	<b>Evaluating</b>	description of how safety <u>implications were managed</u> and fairness was considered	description of safety <u>implications</u> and how fairness was considered	description of how safety and fairness were considered	<u>identification of</u> safety and fairness considerations	<u>directed identification of</u> safety considerations
	<b>Communicating</b>	use of <u>accurate</u> diagrams, other representations and <u>relevant science terminology</u> to <u>coherently</u> communicate ideas	use of diagrams, other representations and <u>relevant science terminology</u> to communicate ideas	use of diagrams and other representations to communicate ideas	communication of ideas <u>using everyday language</u>	<u>fragmented</u> communication of ideas

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

# Notes

## Australian Curriculum common dimensions

The SEs describe the qualities of achievement in the two dimensions common to all Australian Curriculum learning area achievement standards:

- understanding
- skills.

Dimension	Description
<b>understanding</b>	the concepts underpinning and connecting knowledge in a learning area, related to a student's ability to appropriately select and apply knowledge to solve problems in that learning area
<b>skills</b>	the specific techniques, strategies and processes in a learning area

## Terms used in Year 3 Science SEs

These terms clarify the descriptors in the Year 3 Science SEs. They help to clarify the descriptors and should be used in conjunction with the ACARA Australian Curriculum Science glossary:

[www.australiancurriculum.edu.au/f-10-curriculum/science/glossary](http://www.australiancurriculum.edu.au/f-10-curriculum/science/glossary).

Term	Description
<b>accuracy;</b> <b>accurate</b>	consistent with a standard, rule, convention or known fact; in the context of Science: <ul style="list-style-type: none"><li>• <i>accurate</i> measurements are close to the accepted value</li><li>• <i>accurate</i> representations are a true representation of observations or collected data</li></ul>
<b>coherent</b>	rational; well-structured and makes sense
<b>communicating</b> <b>(sub-strand)</b>	conveying information or ideas to others through appropriate representations, text types and modes
<b>comparison;</b> <b>compare</b>	estimate, measure or note how things are similar or dissimilar
<b>description;</b> <b>descriptive;</b> <b>describe</b>	give an account of characteristics or features
<b>direction;</b> <b>directed</b>	following the instructions of the facilitator
<b>evaluating</b> <b>(sub-strand)</b>	considering the quality of available evidence and the merit or significance of a claim, proposition or conclusion with reference to that evidence; in Year 3, this includes reflecting on the investigation, including whether it was fair or not
<b>explanation;</b> <b>explanatory;</b> <b>explain</b>	provide additional information that demonstrates understanding of reasoning and/or application

Term	Description
<b>fair test</b>	an investigation where one variable (the independent variable) is changed and all other conditions (controlled variables) are kept the same; what is measured or observed is referred to as the dependent variable
<b>fragmented</b>	disjointed, incomplete or isolated
<b>guidance; guided</b>	visual and/or verbal prompts to facilitate or support independent action
<b>identification; identify</b>	establish or indicate who or what someone or something is
<b>informed</b>	having relevant knowledge; being conversant with the topic; in the context of Science, <i>informed</i> means referring to scientific background knowledge and/or empirical observations
<b>partial</b>	attempted; incomplete evidence provided
<b>planning and conducting (sub-strand)</b>	making decisions regarding how to investigate or solve a problem and carrying out an investigation, including the collection of data; in Year 3, this includes: <ul style="list-style-type: none"> <li>• with guidance, planning and conducting investigations</li> <li>• safely using appropriate materials and equipment</li> <li>• considering the elements of fair tests</li> <li>• making and recording observations using formal measurements</li> </ul>
<b>plausibility; plausible</b>	credible and possible; in the context of Science, a <i>plausible</i> prediction is based on scientific knowledge.
<b>processing and analysing data and information (sub-strand)</b>	representing data in meaningful and useful ways; identifying trends, patterns and relationships in data, and using this evidence to justify conclusions; in Year 3, this includes: <ul style="list-style-type: none"> <li>• using a range of methods to represent data</li> <li>• identifying patterns and trends in data</li> </ul>
<b>questioning and predicting (sub-strand)</b>	identifying and constructing questions, proposing hypotheses and suggesting possible outcomes; in Year 3, this includes: identifying questions that can be investigated scientifically making predictions based on prior knowledge
<b>questions (that can be investigated scientifically)</b>	a <i>question</i> that is connected to scientific concepts and methods and is able to be investigated through the systematic observation and interpretation of data; there are three types of investigable questions: <ol style="list-style-type: none"> <li>1. <b>descriptive questions:</b> produce a qualitative or quantitative description of an object, material, organism or event</li> <li>2. <b>relational questions:</b> identify associations between the characteristics of different phenomena</li> <li>3. <b>cause–effect questions:</b> determine whether one or more variables cause or affect one or more outcome variables</li> </ol> <p>Sharkawy, A 2010, 'A Quest to Improve: Helping students learn how to pose investigable questions', <i>Science and Children</i>, vol. 48, no. 4, pp. 32–35</p>

Term	Description
<b>reasons; reasoned</b>	logical and sound; presented with justification; in the context of Science, <i>reasoned</i> also means that the evidence is provided through reference to scientific background knowledge and/or empirical observations as part of the justification
<b>relevance; relevant</b>	having some logical connection with; applicable and pertinent
<b>representation</b>	use words, images, symbols or signs to convey meaning; in the context of Science, <i>representation</i> is an important learning and presentation tool that contributes strongly to science literacy development; scientists represent ideas in a variety of ways, including models, graphs, charts, drawings, diagrams and written texts; the use of these models and other representations is to help understand or present meaning about an idea, an object, a process or a system, or even something that cannot be directly observed, e.g. an atom or inside our body
<b>science knowledge</b>	<i>science knowledge</i> refers to facts, concepts, principles, laws, theories and models that have been established by scientists over time; over Years 3 to 6, students develop their understanding of a range of systems operating at different time and geographic scales
<b>statement; state</b>	a sentence or assertion
<b>systematic</b>	methodical, organised and logical
<b>thorough</b>	demonstrating depth and breadth, inclusive of relevant detail