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| Year 6 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.

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| **Year 6 Australian Curriculum: Science achievement standard** |
| By the end of Year 6 students explain how changes in physical conditions affect living things. They model the relationship between the sun and planets of the solar system and explain how the relative positions of Earth and the sun relate to observed phenomena on Earth. They identify the role of circuit components in the transfer and transformation of electrical energy. They classify and compare reversible and irreversible changes to substances. They explain why science is often collaborative and describe different individuals’ contributions to scientific knowledge. They describe how individuals and communities use scientific knowledge.  Students plan safe, repeatable investigations to identify patterns and test relationships and make reasoned predictions. They describe risks associated with investigations and key intercultural considerations when planning field work. They identify variables to be changed, measured and controlled. They use equipment to generate and record data with appropriate precision. They construct representations to organise and process data and information and describe patterns, trends and relationships. They identify possible sources of error in their own and others’ methods and findings, pose questions for further investigation and select evidence to support reasoned conclusions. They select and use language features effectively 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-6> |

## Year 6 Science standard elaborations

|  | | A | B | C | D | E |
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|  | | The folio of student work contains evidence of the following: | | | | |
| Science understanding | Biological  sciences | considered explanation of how changes in physical conditions affect living things | informed explanation of how changes in physical conditions affect living things | explanation of how changes in physical conditions affect living things | description of changes in physical conditions that affect living things | identification of physical conditions that affect living things |
| Earth and space  sciences | * thorough modelling of the relationship between the sun and planets of the solar system * reasoned explanation of how the relative positions of Earth and the sun relate to observed phenomena on Earth | * detailed modelling of the relationship between the sun and planets of the solar system * informed explanation of how the relative positions of Earth and the sun relate to observed phenomena on Earth | * modelling of the relationship between the sun and planets of the solar system * explanation of how the relative positions of Earth and the sun relate to observed phenomena on Earth | * modelling of the relationship between the sun and planets of the solar system, with guidance * description of the relative positions of Earth and the sun related to observed phenomena on Earth | * modelling of the relationship between the sun and planets of the solar system, with direction * identification of the positions of Earth and the sun related to day and night |
| Physical  sciences | thorough identification of the role of circuit components in the transfer and transformation of electrical energy | informed identification of the role of circuit components in the transfer and transformation of electrical energy | identification of the role of circuit components in the transfer and transformation of electrical energy | guided identification of the role of circuit components in the transfer and transformation of electrical energy | identification of circuit components |
| Chemical  sciences | * purposeful classification of reversible and irreversible changes to substances * thorough comparison of reversible and irreversible changes to substances | * informed classification of reversible and irreversible changes to substances * informed comparison of reversible and irreversible changes to substances | * classification of reversible and irreversible changes to substances * comparison of reversible and irreversible changes to substances | * guided classification of reversible and irreversible changes to substances * description of reversible and irreversible changes to substances | identification of reversible or irreversible changes to substances |
| Science as a human endeavour | Nature and development of science | * reasoned explanation of why science is often collaborative * thorough description of different individuals’ contributions to scientific knowledge | * informed explanation of why science is often collaborative * detailed description of different individuals’ contributions to scientific knowledge | * explanation of why science is often collaborative * description of different individuals’ contributions to scientific knowledge | * description of science as collaborative * identification of different individuals’ contributions to scientific knowledge | * statement/s about collaboration in science * statement/s about contributions to scientific knowledge |
| Use and influence  of science | considered description of how individuals and communities use scientific knowledge | informed description of how individuals and communities use scientific knowledge | description of how individuals and communities use scientific knowledge | identification of individuals and communities using scientific knowledge | statement/s about the use of scientific knowledge |
| Science inquiry | Questioning  and predicting | reasoned planning for investigations to:   * identify patterns * test relationships * make reasoned predictions | plausible planning for investigations to:   * identify patterns * test relationships * make reasoned predictions | planning for investigations to:   * identify patterns * test relationships * make reasoned predictions | guided planning for investigations to:   * identify patterns * test relationships * make reasoned predictions | use of provided scaffolds to plan for investigations |
| Planning and conducting | thorough planning for safe, repeatable investigations | detailed planning for safe, repeatable investigations | planning for safe, repeatable investigations | planning for safe, repeatable investigations, with guidance | planning for safe, repeatable investigations, with direction |
| * thorough description of risks associated with investigations * purposeful description of key intercultural considerations when planning field work | * detailed description of risks associated with investigations * informed description of key intercultural considerations when planning field work | * description of risks associated with investigations * description of key intercultural considerations when planning field work | * identification of risks associated with investigations * identification of key intercultural considerations when planning field work | * directed identification of risks associated with investigations * directed identification of key intercultural considerations when planning field work |
| * purposeful identification of variables to be changed, measured and controlled | * informed identification of variables to be changed, measured and controlled | * identification of variables to be changed, measured and controlled | * identification of variables to be changed and measured | * identification of variables to be changed |
| * use of equipment for the purposeful generation and recording of data with appropriate precision | * use of equipment for the informed generation and recording of data with appropriate precision | * use of equipment for the generation and recording of data with appropriate precision | * use of equipment for the generation and recording of data | * directed use of equipment for the generation and recording of data |
| Processing, modelling and analysing | * construction of representations for the purposeful organisation and processing of data and information * thorough description of patterns, trends, and relationships | * construction of representations for the effective organisation and processing of data and information * informed description of patterns, trends, and relationships | * construction of representations for the organisation and processing of data and information * description of patterns, trends, and relationships | * guided construction of representations for the organisation and processing of data and information * identification of patterns, trends, and relationships | use of provided representations for the organisation and processing of data and information |
| Evaluating | * thorough identification of possible sources of error in their own and others’ methods and findings * posing considered questions for further investigation * purposeful selection of evidence to support reasoned conclusions | * informed identification of possible sources of error in their own and others’ methods and findings * posing plausible questions for further investigation * informed selection of evidence to support reasoned conclusions | * identification of possible sources of error in their own and others’ methods and findings * posing questions for further investigation * selection of evidence to support reasoned conclusions | * identification of possible sources of error in their own or others’ methods and findings * posing questions for further investigation, with guidance * selection of evidence to support conclusion/s | * statement/s about possible errors in methods * posing questions for further investigation, with direction * conclusion drawn |
| Communicating | effective selection and purposeful use of language features, including scientific terminology, for their purpose and audience when communicating their ideas and findings. | effective selection and use of language features, including scientific terminology, for their purpose and audience when communicating their ideas and findings. | effective selection and use of language features for their purpose and audience when communicating their ideas and findings. | use of language features for their purpose and audience when communicating their ideas and findings. | use of language features when communicating their ideas and findings. |

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

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