

# Year 6 standard elaborations — Australian Curriculum v9.0: Science

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## 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 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   |
|-----------------------|--------------------------|---|---|---|---|---|
|                       |                          | <b>The folio of student work contains evidence of the following:</b>  |   |   |   |   |
| Science understanding | Biological sciences      | <u>considered</u> explanation of how changes in physical conditions affect living things  | <u>informed</u> explanation of how changes in physical conditions affect living things  | explanation of how changes in physical conditions affect living things  | <u>description</u> of changes in physical conditions that affect living things  | <u>identification</u> of physical conditions that affect living things  |
|                       | Earth and space sciences | <ul style="list-style-type: none"> <li><u>thorough</u> modelling of the relationship between the sun and planets of the solar system</li> <li><u>reasoned</u> explanation of how the relative positions of Earth and the sun relate to observed phenomena on Earth</li> </ul> | <ul style="list-style-type: none"> <li><u>detailed</u> modelling of the relationship between the sun and planets of the solar system</li> <li><u>informed</u> explanation of how the relative positions of Earth and the sun relate to observed phenomena on Earth</li> </ul> | <ul style="list-style-type: none"> <li>modelling of the relationship between the sun and planets of the solar system</li> <li>explanation of how the relative positions of Earth and the sun relate to observed phenomena on Earth</li> </ul> | <ul style="list-style-type: none"> <li>modelling of the relationship between the sun and planets of the solar system, <u>with guidance</u></li> <li><u>description</u> of the relative positions of Earth and the sun related to observed phenomena on Earth</li> </ul> | <ul style="list-style-type: none"> <li>modelling of the relationship between the sun and planets of the solar system, <u>with direction</u></li> <li><u>identification</u> of the positions of Earth and the sun <u>related to day and night</u></li> </ul> |

|                              |                                   | A  | B  | C  | D  | E   |
|------------------------------|-----------------------------------|--|--|--|--|---|
|                              | Physical sciences                 | <u>thorough</u> identification of the role of circuit components in the transfer and transformation of electrical energy   | <u>informed</u> 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   | <u>guided</u> identification of the role of circuit components in the transfer and transformation of electrical energy   | <u>identification</u> of circuit components   |
|                              | Chemical sciences                 | <ul style="list-style-type: none"> <li>• <u>purposeful</u> classification of reversible and irreversible changes to substances</li> <li>• <u>thorough</u> comparison of reversible and irreversible changes to substances</li> </ul> | <ul style="list-style-type: none"> <li>• <u>informed</u> classification of reversible and irreversible changes to substances</li> <li>• <u>informed</u> comparison of reversible and irreversible changes to substances</li> </ul> | <ul style="list-style-type: none"> <li>• classification of reversible and irreversible changes to substances</li> <li>• comparison of reversible and irreversible changes to substances</li> </ul> | <ul style="list-style-type: none"> <li>• <u>guided</u> classification of reversible and irreversible changes to substances</li> <li>• <u>description</u> of reversible and irreversible changes to substances</li> </ul> | <u>identification</u> of reversible or irreversible changes to substances   |
| Science as a human endeavour | Nature and development of science | <ul style="list-style-type: none"> <li>• <u>reasoned</u> explanation of why science is often collaborative</li> <li>• <u>thorough</u> description of different individuals' contributions to scientific knowledge</li> </ul>         | <ul style="list-style-type: none"> <li>• <u>informed</u> explanation of why science is often collaborative</li> <li>• <u>detailed</u> description of different individuals' contributions to scientific knowledge</li> </ul>       | <ul style="list-style-type: none"> <li>• explanation of why science is often collaborative</li> <li>• description of different individuals' contributions to scientific knowledge</li> </ul>       | <ul style="list-style-type: none"> <li>• <u>description</u> of science as collaborative</li> <li>• <u>identification</u> of different individuals' contributions to scientific knowledge</li> </ul>                      | <ul style="list-style-type: none"> <li>• <u>statement/s about</u> collaboration in science</li> <li>• <u>statement/s about</u> contributions to scientific knowledge</li> </ul> |
|                              | Use and influence of science      | <u>considered</u> description of how individuals and communities use scientific knowledge  | <u>informed</u> description of how individuals and communities use scientific knowledge  | description of how individuals and communities use scientific knowledge  | <u>identification</u> of individuals and communities using scientific knowledge  | <u>statement/s about</u> the use of scientific knowledge  |

|                 |                                     | A   | B  | C   | D   | E   |
|-----------------|-------------------------------------|---|--|---|---|---|
| Science inquiry | Questioning and predicting          | <p><b>reasoned</b> planning for investigations to:</p> <ul style="list-style-type: none"> <li>identify patterns</li> <li>test relationships</li> <li>make reasoned predictions</li> </ul>   | <p><b>plausible</b> planning for investigations to:</p> <ul style="list-style-type: none"> <li>identify patterns</li> <li>test relationships</li> <li>make reasoned predictions</li> </ul>   | <p>planning for investigations to:</p> <ul style="list-style-type: none"> <li>identify patterns</li> <li>test relationships</li> <li>make reasoned predictions</li> </ul>                                 | <p><b>guided</b> planning for investigations to:</p> <ul style="list-style-type: none"> <li>identify patterns</li> <li>test relationships</li> <li>make reasoned predictions</li> </ul>   | <p><b>use of provided scaffolds</b> to plan for investigations</p>  |
|                 | Planning and conducting             | <p><b>thorough</b> planning for safe, repeatable investigations</p>   | <p><b>detailed</b> planning for safe, repeatable investigations</p>  | <p>planning for safe, repeatable investigations</p>   | <p>planning for safe, repeatable investigations, <b>with guidance</b></p>   | <p>planning for safe, repeatable investigations, <b>with direction</b></p>  |
|                 |                                     | <ul style="list-style-type: none"> <li><b>thorough</b> description of risks associated with investigations</li> <li><b>purposeful</b> description of key intercultural considerations when planning field work</li> </ul>                   | <ul style="list-style-type: none"> <li><b>detailed</b> description of risks associated with investigations</li> <li><b>informed</b> description of key intercultural considerations when planning field work</li> </ul>                    | <ul style="list-style-type: none"> <li>description of risks associated with investigations</li> <li>description of key intercultural considerations when planning field work</li> </ul>                   | <ul style="list-style-type: none"> <li><b>identification</b> of risks associated with investigations</li> <li><b>identification</b> of key intercultural considerations when planning field work</li> </ul>                       | <ul style="list-style-type: none"> <li><b>directed</b> identification of risks associated with investigations</li> <li><b>directed</b> identification of key intercultural considerations when planning field work</li> </ul> |
|                 |                                     | <ul style="list-style-type: none"> <li><b>purposeful</b> identification of variables to be changed, measured and controlled</li> </ul>  | <ul style="list-style-type: none"> <li><b>informed</b> identification of variables to be changed, measured and controlled</li> </ul>   | <ul style="list-style-type: none"> <li>identification of variables to be changed, measured and controlled</li> </ul>  | <ul style="list-style-type: none"> <li>identification of variables to be changed and measured</li> </ul>  | <ul style="list-style-type: none"> <li>identification of variables to be changed</li> </ul>   |
|                 |                                     | <ul style="list-style-type: none"> <li>use of equipment for the <b>purposeful</b> generation and recording of data with appropriate precision</li> </ul>  | <ul style="list-style-type: none"> <li>use of equipment for the <b>informed</b> generation and recording of data with appropriate precision</li> </ul>   | <ul style="list-style-type: none"> <li>use of equipment for the generation and recording of data with appropriate precision</li> </ul>  | <ul style="list-style-type: none"> <li>use of equipment for the generation and recording of data</li> </ul>   | <ul style="list-style-type: none"> <li><b>directed</b> use of equipment for the generation and recording of data</li> </ul>   |
|                 | Processing, modelling and analysing | <ul style="list-style-type: none"> <li>construction of representations for the <b>purposeful</b> organisation and processing of data and information</li> <li><b>thorough</b> description of patterns, trends, and relationships</li> </ul> | <ul style="list-style-type: none"> <li>construction of representations for the <b>effective</b> organisation and processing of data and information</li> <li><b>informed</b> description of patterns, trends, and relationships</li> </ul> | <ul style="list-style-type: none"> <li>construction of representations for the organisation and processing of data and information</li> <li>description of patterns, trends, and relationships</li> </ul> | <ul style="list-style-type: none"> <li><b>guided</b> construction of representations for the organisation and processing of data and information</li> <li><b>identification</b> of patterns, trends, and relationships</li> </ul> | <p><b>use of provided</b> representations for the organisation and processing of data and information</p>   |

|  |               | A  | B   | C  | D  | E  |
|--|---------------|--|---|--|--|--|
|  | Evaluating    | <ul style="list-style-type: none"> <li>• <b>thorough</b> identification of possible sources of error in their own and others' methods and findings</li> <li>• posing <b>considered</b> questions for further investigation</li> <li>• <b>purposeful</b> selection of evidence to support reasoned conclusions</li> </ul> | <ul style="list-style-type: none"> <li>• <b>informed</b> identification of possible sources of error in their own and others' methods and findings</li> <li>• posing <b>plausible</b> questions for further investigation</li> <li>• <b>informed</b> selection of evidence to support reasoned conclusions</li> </ul> | <ul style="list-style-type: none"> <li>• identification of possible sources of error in their own and others' methods and findings</li> <li>• posing questions for further investigation</li> <li>• selection of evidence to support reasoned conclusions</li> </ul> | <ul style="list-style-type: none"> <li>• identification of possible sources of error in their own <b>or</b> others' methods and findings</li> <li>• posing questions for further investigation, <b>with guidance</b></li> <li>• selection of evidence to support conclusion/s</li> </ul> | <ul style="list-style-type: none"> <li>• <b>statement/s about</b> possible errors in methods</li> <li>• posing questions for further investigation, <b>with direction</b></li> <li>• conclusion drawn</li> </ul> |
|  | Communicating | effective selection and <b>purposeful</b> 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, <b>including scientific terminology</b> , 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.  |

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

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