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|  | Year 5 standard elaborations — Australian Curriculum: Mathematics |

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| Purpose | The standard elaborations (SEs) provide additional clarity when using the Australian Curriculum achievement standard to make judgments on a five‑point scale. They promote and support:   * aligning curriculum, assessment and reporting, connecting curriculum and evidence in assessment, so that what is assessed relates directly to what students have had the opportunity to learn * continuing skill development from one year of schooling to another * making judgments on a five-point scale based on evidence of learning in a folio of student work * developing task-specific standards and grading guides. |
| Structure | The SEs are developed using the **Australian Curriculum achievement standard**. In Prep[[1]](#footnote-1) to Year 6, the Mathematics SEs have been organised using the **content and proficiency strands**. Performance is frequently represented in terms of complexity and familiarity of the standard being assessed. Across the elaborations this is described according to:  A — unfamiliar, B — complex familiar, C — simple familiar, D — some simple familiar, E — partial, isolated and obvious.  The Mathematics achievement standard 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. |
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| Year 5 Australian Curriculum: Mathematics achievement standard | |
| By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They identify and explain strategies for finding unknown quantities in number sentences involving the four operations. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students interpret different data sets.  Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12- and 24-hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data. | |
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| **Source** | Australian Curriculum, Assessment and Reporting Authority (ACARA), Australian Curriculum Version 8 Mathematics for Foundation–10, [www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10](http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10) |

## Year 5 Mathematics standard elaborations

|  | | A | B | C | D | E |
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|  | | The folio of a student’s work has the following characteristics: | | | | |
| Number and algebra | Understanding | identification and description of factors and multiples in unfamiliar situations | identification and description of factors and multiples in complex familiar situations | identification and description of factors and multiples | identification and description of aspects of factors and multiples | statements about factors and/or multiples |
| ordering, comparison and representation of decimals and unit fractions | ordering and comparison of decimals and unit fractions | ordering of decimals and unit fractions | ordering of aspects of decimals and aspects of unit fractions | directed ordering of aspects of unit fractions |
| location of decimals and fractions on an open number line and explanation of placement | location of decimals and fractions on a number line and explanation of placement | location of decimals and unit fractions on a number line | location of aspects of decimals and aspects of unit fractions on a number line | directed location of aspects of unit fractions on a number line |
| Fluency | Fluency is critical across all content strands in Mathematics.  In Year 5, fluency of number and algebra is not explicitly identified in the achievement standard. It appears in the content descriptions so there are opportunities to strengthen student fluency. | | | | |
| Number and algebra | Problem-solving | use of a range of efficient strategies to solve problems involving the four operations in unfamiliar situations | use of a range of efficient strategies to solve problems involving the four operations in complex familiar situations | use of a range of strategies to solve simple problems involving the four operations | use of strategies to solve aspects of simple problems involving the four operations | directed use of strategies to solve aspects of simple problems involving the four operations |
| creation and explanation of plans for simple budgets in unfamiliar situations | creation and explanation of plans for simple budgets | explanation of plans for simple budgets | partial explanation of plans for simple budgets | statements about aspects of plans for simple budgets |
| addition and subtraction of fractions with the same denominator in unfamiliar situations | addition and subtraction of fractions with the same denominator in complex familiar situations | addition and subtraction of fractions with the same denominator | addition and subtraction of some simple familiar fractions with the same denominator | directed addition and/or subtraction of some simple familiar fractions with the same denominator |
| Number and algebra | Reasoning | identification and explanation of strategies for finding unknown quantities in number sentences involving the four operations and identification of equivalent number sentences in unfamiliar situations | identification and explanation of strategies for finding unknown quantities in number sentences involving the four operations and identification of equivalent number sentences | identification and explanation of strategies for finding unknown quantities in number sentences involving the four operations | identification of strategies for finding unknown quantities in number sentences | directed identification of a strategy for finding an unknown quantity in number sentences |
| use of efficient strategies for estimation and rounding to check the reasonableness of answers | use of a range of strategies for estimation and rounding to check the reasonableness of answers | use of estimation and rounding to check the reasonableness of answers | use of aspects of rounding to make an estimation | directed use of aspects of rounding to make an estimation |
| continuation of patterns of fractions and decimals by addition and subtraction in unfamiliar contexts and description of the rule | continuation of patterns of fractions and decimals by addition and subtraction and description of the rule | continuation of patterns of fractions and decimals by addition and subtraction | continuation of aspects of patterns of fractions and decimals by addition and subtraction | directed continuation of aspects of patterns by addition and subtraction |
| Measurement and geometry | Understanding | explanation of key features that connect  three-dimensional objects with their two-dimensional representations | description of key features that connect  three-dimensional objects with their two-dimensional representations | connection of  three-dimensional objects with their two-dimensional representations | connection of a limited number of  three-dimensional objects with their two-dimensional representations | directed connection of a limited number of  three-dimensional objects with their two-dimensional representations |
| description of transformations of  two-dimensional shapes in unfamiliar situations | description of transformations of  two-dimensional shapes in complex familiar situations | description of transformations of  two-dimensional shapes | description of aspects of transformations of  two-dimensional shapes | statements about aspects of transformations of  two-dimensional shapes |
| [identification](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Identify) and explanation of line and rotational symmetry in unfamiliar situations | [identification](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Identify) and explanation of line and rotational symmetry in complex familiar situations | [identification](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Identify) of line and rotational symmetry | identification of aspects of line and rotational symmetry | directed identification of aspects of line and rotational symmetry |
| conversion between 12- and 24-hour time in unfamiliar situations | conversion between 12- and 24-hour time in complex familiar situations | conversion between 12- and 24-hour time | conversion between aspects of 12- and 24-hour time | directed conversion between aspects of 12- and 24-hour time |
| Measurement and geometry | Fluency | use of and explanation of appropriate units of measurement for length, area, volume, capacity and mass in unfamiliar situations | use of and explanation of appropriate units of measurement for length, area, volume, capacity and mass | use of appropriate units of measurement for length, area, volume, capacity and mass | partial use of appropriate units of measurement | directed use of appropriate units of measurement |
| use of a grid reference system in unfamiliar situations to locate landmarks and describe routes | use of a grid reference system to locate landmarks and describe routes | use of a grid reference system to locate landmarks | partial use of a grid reference system to locate landmarks | directed use of a grid reference system to locate landmarks |
| measurement and construction of different angles in unfamiliar situations | measurement and construction of different angles in complex familiar situations | measurement and construction of different angles | measurement and construction of aspects of different angles | measurement of aspects of different angles |
| Problem-solving | use of efficient strategies for calculation of perimeter and area of rectangles in unfamiliar situations | use of efficient strategies for calculation of perimeter and area of rectangles in complex familiar situations | calculation of perimeter and area of rectangles | calculation of aspects of perimeter and area of rectangles | directed calculation of aspects of perimeter and area of rectangles |
| Reasoning | Reasoning is critical across all content strands in Mathematics.  In Year 5, reasoning of measurement and geometry is not explicitly identified in the achievement standard. It appears in the content descriptions so there are opportunities to strengthen student reasoning. | | | | |
| Statistics and probability | Understanding | listing of outcomes of chance experiments with equally likely outcomes, and assignment of probabilities between 0 and 1 in unfamiliar situations | listing of outcomes of chance experiments with equally likely outcomes, and assignment of probabilities between 0 and 1 in complex familiar situations | listing of outcomes of chance experiments with equally likely outcomes, and assignment of probabilities between 0 and 1 | partial identification of outcomes of chance experiments with equally likely outcomes | statements about outcomes of chance experiments with equally likely outcomes |
| Fluency | Fluency is critical across all content strands in Mathematics.  In Year 5, fluency of statistics and probability is not explicitly identified in the achievement standard. It appears in the content descriptions so there are opportunities to strengthen student fluency. | | | | |
| Problem-solving | construction of data displays appropriate for the data and justification of choice of representations | construction of data displays appropriate for the data and explanation of choice of representations | construction of data displays appropriate for the data | construction of data displays | construction of aspects of data displays |
| Reasoning | interpretation and comparison of different data sets to draw conclusions | interpretation and comparison of different data sets | interpretation of different data sets | partial interpretation of different data sets | statements about data sets |
| posing of effective questions to gather data in unfamiliar situations | posing of effective questions to gather data in complex familiar situations | posing of questions to gather data | guided posing of questions to gather data | use of provided questions to gather data |

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| Key | shading emphasises the qualities that discriminate between 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 and skills.

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| Dimension | Description |
| understanding | 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 |
| skills | the specific techniques, strategies and processes in a learning area |

### Terms used in Year 5 Mathematics SEs

The following terms are used in the Year 5 Mathematics SEs. Definitions are drawn from the ACARA Australian Curriculum Mathematics glossary ([www.australiancurriculum.edu.au/f-10-curriculum/mathematics/glossary](https://www.australiancurriculum.edu.au/f-10-curriculum/mathematics/glossary)) and from other sources to ensure consistent understanding.

| Term | Description |
| --- | --- |
| aspects | particular parts or features |
| comparison; compare | estimate, measure or note how things are similar or dissimilar |
| complex familiar | students are required to choose and apply procedures in a situation involving a number of elements, components or steps in a context that has been a focus of prior learning |
| description; descriptive; describe | give an account of characteristics or features |
| directed; direction | following the instructions of the facilitator |
| effectively; effective | meeting the assigned purpose in a considered and/or efficient manner to produce a desired or intended result |
| efficient | in a well-organised and competent way; in the context of Mathematics, this means solving a problem using minimal steps |
| explanation; explanatory; explain | provide additional information that demonstrates understanding of reasoning and/or application; in mathematics this could include showing working to justify a response |
| fluency | students develop skills in choosing appropriate procedures; carrying out procedures flexibly, accurately, efficiently and appropriately; and recalling factual knowledge and concepts readily;  students are fluent when they calculate answers efficiently, when they recognise robust ways of answering questions, when they choose appropriate methods and approximations, when they recall definitions and regularly use facts, and when they can manipulate expressions and equations to find solutions;  in Year 5, fluency includes such things as choosing appropriate units of measurement for calculation of perimeter and area, using estimation to check the reasonableness of answers to calculations and using instruments to measure angles |
| guided; guidance | visual and/or verbal prompts to facilitate or support independent action |
| identification; identify | establish or indicate who or what someone or something is |
| informed | having relevant knowledge; being conversant with the topic;  in the context of Mathematics, informed means referring to mathematical background knowledge and/or observations |
| interpretation; interpret | explaining the meaning of information or actions;  in the context of Mathematics, this involves giving meaning to information presented in various forms, e.g. words, symbols, diagrams, graphs |
| partial | incomplete, half-done, unfinished |
| problem-solving | students develop the ability to make choices, interpret, formulate, model and investigate problem situations, and communicate solutions effectively;  students formulate and solve problems when they use mathematics to represent unfamiliar or meaningful situations, when they design investigations and plan their approaches, when they apply their existing strategies to seek solutions, and when they verify that their answers are reasonable;  in Year 5, problem-solving includes such things as formulating and solving authentic problems using whole numbers and measurements and creating financial plans |
| reasoning | students develop an increasingly sophisticated capacity for logical thought and actions, such as analysing, proving, evaluating, explaining, inferring, justifying and generalising;  students are reasoning mathematically when they explain their thinking, when they deduce and justify strategies used and conclusions reached, when they adapt the known to the unknown, when they transfer learning from one context to another, when they prove that something is true or false and when they compare and contrast related ideas and explain their choices;  in Year 5, reasoning includes such things as investigating strategies to perform calculations efficiently, continuing patterns involving fractions and decimals, interpreting results of chance experiments, posing appropriate questions for data investigations and interpreting data sets |
| reasons; reasoned | logical and sound; presented with justification |
| represent | use words, images, symbols or signs to convey meaning |
| statement; state | a sentence or assertion |
| thorough | demonstrating depth and breadth, inclusive of relevant detail |
| understanding | students build a robust knowledge of adaptable and transferable mathematical concepts; they make connections between related concepts and progressively apply the familiar to develop new ideas; they develop an understanding of the relationship between the ‘why’ and the ‘how’ of mathematics;  students build understanding when they connect related ideas, when they represent concepts in different ways, when they identify commonalities and differences between aspects of content, when they describe their thinking mathematically and when they interpret mathematical information;  in Year 5, understanding includes such things as making connections between representations of numbers, using fractions to represent probabilities, comparing and ordering fractions and decimals and representing them in various ways, describing transformations and identifying line and rotational symmetry |
| unfamiliar | students are required to choose and apply procedures in a situation involving a number of elements, components or steps in a context in which students have had limited prior experience |
| use; use of | to operate or put into effect |

1. Prep in Queensland is the Foundation Year of the Australian Curriculum and refers to the year before Year 1. Children beginning Prep in January must be five years of age by 30 June. [↑](#footnote-ref-1)