

Prep Year standard elaborations — Australian Curriculum: Mathematics

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:

- aligning curriculum, assessment and reporting, and 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* 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:

AP — unfamiliar, MC — complex familiar, WW — simple familiar, EX — some simple familiar, BA — 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 **working with (WW) 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.

Prep Year Australian Curriculum: Mathematics achievement standard

By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They explain the order and duration of events. They use appropriate language to describe location.

Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information and make simple inferences.

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

* 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.

Prep Year Mathematics standard elaborations

		Applying (AP)	Making connections (MC)	Working with (WW)	Exploring (EX)	Becoming aware (BA)
The folio of a student's work has the following characteristics:						
Number and algebra	Understanding	making connections between number names, numerals and quantities up to 10 <u>and beyond in unfamiliar contexts</u>	making connections between number names, numerals and quantities up to 10 <u>and beyond</u>	making connections between number names, numerals and quantities up to 10	making connections between <u>aspects of</u> number names, numerals and quantities up to 10	<u>directed</u> making of connections between <u>aspects of</u> number names, numerals and quantities
	Fluency	counting to and from 20 <u>and beyond from any starting point</u>	counting to and from 20 <u>from any starting point</u>	counting to and from 20	counting <u>using aspects of the sequence of numbers</u> to and from 20	<u>directed</u> counting <u>using aspects of the sequence of numbers</u> to 20
	Problem-solving	<p><i>Problem-solving</i> is critical across all content strands in Mathematics.</p> <p>In Prep, problem-solving 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 problem-solving.</p>				
	Reasoning	ordering of collections <u>and explanation of ordering</u>	ordering of small collections <u>and description of ordering</u>	ordering of small collections	<u>guided</u> ordering of small collections	<u>directed</u> ordering of small collections

		Applying (AP)	Making connections (MC)	Working with (WW)	Exploring (EX)	Becoming aware (BA)
Measurement and geometry	Understanding	explanation of the order and duration of events in unfamiliar contexts	explanation of the order and duration of events in complex familiar contexts	explanation of the order and duration of events	guided explanation of the order and duration of events	directed explanation of the order and duration of events
		connection of events and the days of the week in unfamiliar contexts	connection of events and the days of the week in complex familiar contexts	connection of events and the days of the week	guided connection of events and the days of the week	directed connection of events and the days of the week
	Fluency	proficient use of appropriate language to describe location	reliable use of appropriate language to describe location	use of appropriate language to describe location	use of aspects of appropriate language to describe location	directed use of aspects of appropriate language to describe location
	Problem-solving	<ul style="list-style-type: none"> grouping of objects based on common characteristics sorting of shapes and objects explanation of key features used to sort 	<ul style="list-style-type: none"> grouping of objects based on common characteristics sorting of shapes and objects description of key features used to sort 	<ul style="list-style-type: none"> grouping of objects based on common characteristics sorting of shapes and objects 	<ul style="list-style-type: none"> guided grouping of objects based on common characteristics sorting of shapes and objects 	<ul style="list-style-type: none"> directed grouping of objects based on common characteristics sorting of shapes and objects
	Reasoning	comparison and description of objects using mass, length and capacity and explanation of reasoning	comparison and description of objects using mass, length and capacity	comparison of objects using mass, length and capacity	guided comparison of objects using aspects of mass, length and capacity	directed comparison of objects using aspects of mass, length and capacity

		Applying (AP)	Making connections (MC)	Working with (WW)	Exploring (EX)	Becoming aware (BA)
Statistics and probability (in Prep, the emphasis is on statistics)	Understanding and fluency	<p><i>Understanding and fluency</i> are critical across all content strands in Mathematics.</p> <p>In Prep, understanding and fluency of statistics are not explicitly identified in the achievement standard. They appear in the content descriptions so there are opportunities to strengthen student understanding and fluency.</p>				
	Problem-solving	composition and answering of simple questions to collect information and classification of the information	answering of simple questions to collect information and classification of the information	answering of simple questions to collect information	guided answering of simple questions to collect information	directed answering of simple questions to collect information
	Reasoning	making of inferences from collected information and detailed explanation of reasoning	making of inferences from collected information and explanation of reasoning	making of simple inferences from collected information	guided making of simple inferences from collected information	directed making of simple inferences from collected information

Key	shading emphasises the qualities that discriminate between the AP–BA descriptors
AP	applies the curriculum content; demonstrates a thorough understanding of the required knowledge; demonstrates a high level of skill that can be transferred to new situations
MC	makes connections using the curriculum content; demonstrates a clear understanding of the required knowledge; applies a high level of skill in situations familiar to them, and is beginning to transfer skills to new situations
WW	works with the curriculum content; demonstrates understanding of the required knowledge; applies skills in situations familiar to them
EX	exploring the curriculum content; demonstrates understanding of aspects of the required knowledge; uses a varying level of skills in situations familiar to them
BA	becoming aware of the curriculum content; demonstrates a basic understanding of aspects of required knowledge; beginning to use skills in situations familiar to them

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.

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 Prep Mathematics SEs

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

Term	Description
aspects	particular parts or features
classify; classification	arrange into named categories in order to sort, group or identify
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
connection; connect	establish a link
description; descriptive; describe	give an account of characteristics or features
directed; direction	following the instructions of the facilitator
effective	meeting the assigned purpose in a considered and/or efficient manner to produce a desired or intended result
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 Prep, fluency includes such things as readily counting numbers in sequences, continuing patterns and comparing the lengths of objects
guided; guidance	visual and/or verbal prompts to facilitate or support independent action

Term	Description
identification; identify	establish or indicate who or what someone or something is
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
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 Prep, problem-solving includes such things as using materials to model authentic problems, sorting objects, using familiar counting sequences to solve unfamiliar problems and discussing the reasonableness of the answer
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 Prep, reasoning includes such things as explaining comparisons of quantities, creating patterns and explaining processes for indirect comparison of length
reasons; reasoned	logical and sound; presented with justification
reliable; reliability	constant and dependable or consistent and repeatable
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 Prep, understanding includes such things as connecting names, numerals and quantities
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