Year 1 standard elaborations — Australian Curriculum v9.0: Mathematics

Purpose

The standards elaborations (SEs) have been designed to 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 Mathematics describes what students are expected to know and be able to do at the end of each year. Teachers use the SEs to inform the development of assessment tasks and 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 WW 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. Terms are described in the Notes section following the matrix.

Year 1 Australian Curriculum: Mathematics achievement standard

By the end of Year 1, students connect number names, numerals and quantities, and order numbers to at least 120. They demonstrate how one- and two-digit numbers can be partitioned in different ways and that two-digit numbers can be partitioned into tens and ones. Students partition collections into equal groups and skip count in twos, fives or tens to quantify collections to at least 120. They solve problems involving addition and subtraction of numbers to 20 and use mathematical modelling to solve practical problems involving addition, subtraction, equal sharing and grouping, using calculation strategies. Students use numbers, symbols and objects to create skip counting and repeating patterns, identifying the repeating unit.

They compare and order objects and events based on the attributes of length, mass, capacity and duration, communicating reasoning. Students measure the length of shapes and objects using uniform informal units. They make, compare and classify shapes and objects using obvious features. Students give and follow directions to move people and objects within a space.

They collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies.

Year 1 Mathematics standard elaborations

		Applying (AP)	Making connections (MC)	Working with (WW)	Exploring (EX)	Becoming aware (BA)
		The folio of student work contains evidence of the following:				
Mathematical proficiencies	Understanding	• accurately and consistently identifying, representing, describing and connecting mathematical concepts and relationships • in complex unfamiliar, complex familiar and simple familiar situations, identifying, representing, describing and connecting mathematical concepts and relationships	• accurately identifying, representing, describing and connecting mathematical concepts and relationships • in complex familiar and simple familiar situations, identifying, representing, describing and connecting mathematical concepts and relationships	• identifying, representing, describing and connecting mathematical concepts and relationships • in simple familiar situations, identifying, representing, describing and connecting mathematical concepts and relationships	• partially identifying, representing and describing mathematical concepts and relationships • in some simple familiar situations, identifying, representing, describing and connecting mathematical concepts and relationships	• in a fragmented manner, identifying, representing and describing mathematical concepts and relationships • in isolated and obvious situations, identifying, representing, describing and connecting mathematical concepts and relationships
	Fluency	• choosing, using and applying comprehensive facts, definitions, and procedures to find solutions • in complex unfamiliar, complex familiar and simple familiar situations, choosing, using and applying facts, definitions, and procedures to find solutions	• choosing, using and applying effective facts, definitions, and procedures to find solutions • in complex familiar and simple familiar situations, choosing, using and applying facts, definitions, and procedures to find solutions	• choosing, using and applying facts, definitions, and procedures to find solutions • in simple familiar situations, choosing, using and applying facts, definitions, and procedures to find solutions	• choosing and using partial facts, definitions, and procedures to find solutions • in some simple familiar situations, choosing, using and applying facts, definitions, and procedures to find solutions	• choosing and using fragmented facts, definitions, and procedures to find solutions • in isolated and obvious situations, choosing, using and applying facts, definitions, and procedures to find solutions

		Applying (AP)	Making connections (MC)	Working with (WW)	Exploring (EX)	Becoming aware (BA)
		The folio of student work contains evidence of the following:				
Reasoning		• comprehensively explaining mathematical thinking, strategies used, and conclusions reached • in complex unfamiliar, complex familiar, and simple familiar situations, explaining mathematical thinking, strategies used, and conclusions reached	• with detail, explaining mathematical thinking, strategies used, and conclusions reached • in complex familiar and simple familiar situations, explaining mathematical thinking, strategies used, and conclusions reached	• explaining mathematical thinking, strategies used, and conclusions reached • in simple familiar situations, explaining mathematical thinking, strategies used, and conclusions reached	• partially explaining mathematical thinking, strategies used, and conclusions reached • in some simple familiar situations, explaining mathematical thinking, strategies used, and conclusions reached	• in a fragmented manner, explaining mathematical thinking, strategies used, and conclusions reached • in isolated and obvious situations, explaining mathematical thinking, strategies used, and conclusions reached
Problem-solving		• purposefully using problem-solving approaches to find solutions to problems.	• effectively using problem-solving approaches to find solutions to problems.	• using problem-solving approaches to find solutions to problems.	• partially using problem-solving approaches to make progress towards finding solutions to problems.	• in a fragmented manner, using problem-solving approaches to make progress towards finding solutions to problems.

Key	**Shading** identifies the qualities or discernible differences in 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 begins 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	Explores the curriculum content; demonstrates understanding of aspects of the required knowledge; uses a varying level of skills in situations familiar to them
BA	Becomes aware of the curriculum content; demonstrates a basic understanding of aspects of required knowledge; begins to use skills in situations familiar to them

Notes

The SEs for Mathematics are organised using the four Mathematical proficiencies, Understanding, Fluency, Reasoning and Problem-solving. The proficiencies represent the actions students demonstrate when working mathematically. The proficiencies are embedded as verbs in the achievement standard and related content descriptions.

Table 1 shows how aspects of the Australian Curriculum achievement standard can be demonstrated as evidence (at the WW standard) and related to the proficiencies.

In the Mathematics SEs, there are two types of qualifiers to describe performance across the five-point scale: those describing degrees of quality, and those describing degrees of difficulty. Table 2 describes degrees of difficulty, in terms of the complexity and familiarity of situations.

Tables 1 and 2 should be used in conjunction with the ACARA Australian Curriculum Mathematics glossary: https://v9.australiancurriculum.edu.au/content/dam/en/curriculum/ac-version-9/downloads/mathematics/mathematics-glossary-v9.docx

Table 1: Relationship between Australian Curriculum achievement standard and Mathematical proficiencies

Aspect of the achievement standard	Related content description/s	Examples of evidence	Mathematical proficiencies
Students connect number names, numerals and quantities, and order numbers to at least 120.	**Number** • recognise, represent and order numbers to at least 120 using physical and virtual materials, numerals, number lines and charts AC9M1N01	• connecting number names, numerals and quantities to at least 120	Understanding
		• ordering numbers to at least 120	Fluency
They demonstrate how one- and two-digit numbers can be partitioned in different ways and that two-digit numbers can be partitioned into tens and ones.	**Number** • partition one- and two-digit numbers in different ways using physical and virtual materials, including partitioning two-digit numbers into tens and ones AC9M1N02 • add and subtract numbers within 20, using physical and virtual materials, part-part-whole knowledge to 10 and a variety of calculation strategies AC9M1N04	• demonstrating how – one- and two-digit numbers can be partitioned in different ways – two-digit numbers can be partitioned into tens and ones	Fluency
Students partition collections into equal groups and skip count in twos, fives or tens to quantify collections to at least 120.	**Number** • quantify sets of objects, to at least 120, by partitioning collections into equal groups using number knowledge and skip counting AC9M1N03	• quantifying collections to at least 120 by partitioning collections into equal groups and skip counting in twos, fives or tens	Fluency

Aspect of the achievement standard	Related content description/s	Examples of evidence	Mathematical proficiencies
They solve problems involving addition and subtraction of numbers to 20 and use mathematical modelling to solve practical problems involving addition, subtraction, equal sharing and grouping, using calculation strategies.	**Number** • add and subtract numbers within 20, using physical and virtual materials, part-part-whole knowledge to 10 and a variety of calculation strategies AC9M1N04 • use mathematical modelling to solve practical problems involving additive situations including simple money transactions; represent the situations with diagrams, physical and virtual materials, and use calculation strategies to solve the problem AC9M1N05 • use mathematical modelling to solve practical problems involving equal sharing and grouping; represent the situations with diagrams, physical and virtual materials, and use calculation strategies to solve the problem AC9M1N06	• solving problems involving addition and subtraction of numbers to 20 • using calculation strategies to solve practical problems involving addition, subtraction, equal sharing and grouping	Fluency
		• using mathematical modelling to solve practical problems	Problem-solving
Students use numbers, symbols and objects to create skip counting and repeating patterns, identifying the repeating unit.	**Algebra** • recognise, continue and create pattern sequences, with numbers, symbols, shapes and objects, formed by skip counting, initially by twos, fives and tens AC9M1A01 • recognise, continue and create repeating patterns with numbers, symbols, shapes and objects, identifying the repeating unit AC9M1A02	• creating – skip counting patterns – repeating patterns using numbers, symbols and objects • identifying the repeating unit	Understanding

Aspect of the achievement standard	Related content description/s	Examples of evidence	Mathematical proficiencies

They compare and order objects and events based on the attributes of length, mass, capacity and duration, communicating reasoning.	**Measurement**
	• compare directly and indirectly and order objects and events using attributes of length, mass, capacity and duration, communicating reasoning AC9M1M01
	• describe the duration and sequence of events using years, months, weeks, days and hours AC9M1M03
		• ordering objects based on the attributes of
		  – length
		  – mass
		  – capacity
		• ordering events based on the attributes of duration
			Fluency

		• comparing objects based on the attributes of
		  – length
		  – mass
		  – capacity
		  communicating reasoning
		• comparing events based on the attribute of duration, communicating reasoning
			Reasoning

Students measure the length of shapes and objects using uniform informal units.	**Measurement** • measure the length of shapes and objects using informal units, recognising that units need to be uniform and used end-to-end AC9M1M02	• measuring the length of shapes and objects using uniform informal units	Fluency
They make, compare and classify shapes and objects using obvious features.	**Space** • make, compare and classify familiar shapes; recognise familiar shapes and objects in the environment, identifying the similarities and differences between them AC9M1SP01	• making shapes and objects using obvious features	Understanding
		• classifying shapes and objects using obvious features	Fluency
		• comparing shapes and objects using obvious features	Reasoning
Students give and follow directions to move people and objects within a space.	**Space** • give and follow directions to move people and objects to different locations within a space AC9M1SP02	• giving directions to move people and objects within a space • following directions to move within a space	Fluency

Aspect of the achievement standard	Related content description/s	Examples of evidence	Mathematical proficiencies
They collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies.	**Statistics** • acquire and record data for categorical variables in various ways including using digital tools, objects, images, drawings, lists, tally marks and symbols AC9M1ST01 • represent collected data for a categorical variable using one-to-one displays and digital tools where appropriate; compare the data using frequencies and discuss the findings AC9M1ST02	• creating one-to-one displays	Understanding
		• collecting and recording categorical data	Fluency
		• comparing and discussing the data using frequencies	Reasoning

Table 2: Key terms used in Mathematics SEs

Term	Description
Simple familiar	In questions of this degree of difficulty, students respond to situations where: • relationships and interactions are obvious and have few elements; and • all of the information to solve the problem is identifiable, that is – the required procedure is clear from the way the problem is posed, or – in a context that has been a focus of prior learning. Students are not required to interpret, clarify and analyse problems to develop responses.
Complex familiar	In questions of this degree of difficulty, students respond to situations where: • relationships and interactions have a number of elements, such that connections are made with subject matter within and/or across the strands of mathematics; and • all of the information to solve the problem is identifiable, that is – the required procedure is clear from the way the problem is posed, or – in a context that has been a focus of prior learning. Some interpretation, clarification and analysis will be required to develop responses. Shifting the level of complexity may include making changes to the: • amount of scaffolding • number of steps required to solve the problem/situation • changes to increments, benchmarks or scales on axes • number of attributes considered.
Complex unfamiliar	In questions of this degree of difficulty, students respond to situations where: • relationships and interactions have a number of elements, such that connections are made with subject matter within and/or across the strands of mathematics; and • all the information to solve the problem is not immediately identifiable, that is – the required procedure is not clear from the way the problem is posed, and – in a context in which students have had limited prior experience. Students interpret, clarify and analyse problems to develop responses. Shifting the level of familiarity may include making changes to the: • context for application, e.g. financial, measurement, spatial or statistical • type of representation, e.g. physical, visual or symbolic • orientation of representation, e.g. horizontal or vertical • merge of subject matter/concepts from across different strands.