

Rationale

Learning mathematics creates opportunities for and enriches the lives of all Australians. The Australian Curriculum: Mathematics provides students with essential mathematical skills and knowledge in *Number and Algebra, Measurement and Geometry, and Statistics and Probability*. It develops the numeracy capabilities that all students need in their personal, work and civic life, and provides the fundamentals on which mathematical specialties and professional applications of mathematics are built.

Mathematics has its own value and beauty and the Australian Curriculum: Mathematics aims to instil in students an appreciation of the elegance and power of mathematical reasoning. Mathematical ideas have evolved across all cultures over thousands of years, and are constantly developing. Digital technologies are facilitating this expansion of ideas and providing access to new tools for continuing mathematical exploration and invention. The curriculum focuses on developing increasingly sophisticated and refined mathematical understanding, fluency, reasoning and problem-solving skills. These capabilities enable students to respond to familiar and unfamiliar situations by employing mathematical strategies to make informed decisions and solve problems efficiently.

The Australian Curriculum: Mathematics ensures that the links between the various components of mathematics, as well as the relationship between mathematics and other disciplines, are made clear. Mathematics is composed of multiple but interrelated and interdependent concepts and systems which students apply beyond the mathematics classroom. In science, for example, understanding sources of error and their impact on the confidence of conclusions is vital, as is the use of mathematical models in other disciplines. In geography, interpretation of data underpins the study of human populations and their physical environments; in history, students need to be able to imagine timelines and time frames to reconcile related events; and in English, deriving quantitative and spatial information is an important aspect of making meaning of texts.

The curriculum anticipates that schools will ensure all students benefit from access to the power of mathematical reasoning and learn to apply their mathematical understanding creatively and efficiently. The mathematics curriculum provides students with carefully paced, in-depth study of critical skills and concepts. It encourages teachers to help students become self-motivated, confident learners through inquiry and active participation in challenging and engaging experiences.

Year 1 Achievement Standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half-hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions, draw simple data displays and make simple inferences.

Aims

The Australian Curriculum: Mathematics aims to ensure that students:

- are confident, creative users and communicators of mathematics, able to investigate, represent and interpret situations in their personal and work lives and as active citizens
- develop an increasingly sophisticated understanding of mathematical concepts and fluency with processes, and are able to pose and solve problems and reason in *Number and Algebra, Measurement and Geometry, and Statistics and Probability*
- recognise connections between the areas of mathematics and other disciplines and appreciate mathematics as an accessible and enjoyable discipline to study.

Key Ideas

In Mathematics, the key ideas are the proficiency strands of understanding, fluency, problem-solving and reasoning. The proficiency strands describe the actions in which students can engage when learning and using the content. While not all proficiency strands apply to every content description, they indicate the breadth of mathematical actions that teachers can emphasise.

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.

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.

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.

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.

Year 1 Level Description

The proficiency strands **Understanding, Fluency, Problem Solving and Reasoning** are an integral part of mathematics content across the three content strands: **Number and Algebra, Measurement and Geometry, and Statistics and Probability**. The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored or developed. They provide the language to build in the developmental aspects of the learning of mathematics. The achievement standards reflect the content and encompass the proficiencies.

At this year level:

Understanding includes connecting names, numerals and quantities, and partitioning numbers in various ways

Fluency includes readily counting number in sequences forward and backwards, locating numbers on a line, and naming the days of the week

Problem Solving includes using materials to model authentic problems, giving and receiving directions to unfamiliar places, and using familiar counting sequences to solve unfamiliar problems and discussing the reasonableness of the answer

Reasoning includes explaining direct and indirect comparisons of length using uniform informal units, justifying representations of data, and explaining patterns that have been created.

Year 1 Content Descriptions

Number and Algebra	Measurement and Geometry	Statistics and Probability
<p>Number and place value</p> <p>Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero.</p> <p>Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line.</p> <p>Count collections to 100 by partitioning numbers using place value.</p> <p>Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts.</p> <p>Fractions and decimals</p> <p>Recognise and describe one-half as one of two equal parts of a whole.</p> <p>Money and financial mathematics</p> <p>Recognise, describe and order Australian coins according to their value.</p> <p>Patterns and algebra</p> <p>Investigate and describe number patterns formed by skip counting and patterns with object.</p>	<p>Using units of measurement</p> <p>Measure and compare the lengths and capacities of pairs of objects using uniform informal units.</p> <p>Tell time to the half-hour.</p> <p>Describe duration using months, weeks, days and hours.</p> <p>Shape</p> <p>Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features.</p> <p>Location and transformation</p> <p>Give and follow directions to familiar locations.</p>	<p>Chance</p> <p>Identify outcomes of familiar events involving chance and describe them using everyday language such as 'will happen', 'won't happen' or 'might happen'.</p> <p>Data representation and interpretation</p> <p>Choose simple questions and gather responses and make simple inferences.</p> <p>Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays.</p>