

# Australian Curriculum: Mathematics — Year 7

By the end of Year 7, students solve problems involving the comparison, addition and subtraction of integers. They make the connections between whole numbers and [index notation](#) and the relationship between perfect squares and [square](#) roots. They solve problems involving percentages and all four operations with fractions and decimals. They compare the cost of items to make financial decisions. Students represent numbers using variables. They connect the laws and properties for numbers to algebra. They interpret simple linear representations and model authentic information. Students describe different views of [three-dimensional](#) objects. They represent transformations in the [Cartesian plane](#). They solve simple numerical problems involving angles formed by a [transversal](#) crossing two lines. Students identify issues involving the collection of continuous [data](#). They describe the relationship between the [median](#) and [mean](#) in [data](#) displays.

Students use fractions, decimals and percentages, and their equivalences. They express one quantity as a [fraction](#) or [percentage](#) of another. Students solve simple linear equations and evaluate algebraic expressions after numerical substitution. They assign ordered pairs to given points on the [Cartesian plane](#). Students use formulas for the [area](#) and [perimeter](#) of rectangles and calculate volumes of rectangular prisms. Students classify triangles and quadrilaterals. They name the types of angles formed by a [transversal](#) crossing [parallel line](#). Students determine the [sample space](#) for simple experiments with [equally likely outcomes](#) and assign probabilities to those outcomes. They calculate [mean](#), [mode](#), [median](#) and [range](#) for [data](#) sets. They construct stem-and-leaf plots and dot-plots.

CURRICULUM	SEMESTER 1		SEMESTER 2	
	Unit 1	Unit 2	Unit 3	Unit 4
Unit name	Number Core Skills	Algebra	Area Perimeter and Volume	Data and Statistics
Unit description	Number Core Skills	Algebra	Area Perimeter and Volume	Data and Statistics

ASSESSMENT		SEMESTER 1			SEMESTER 2	
		Summative assessment task 1	Summative assessment task 2	Summative assessment task 3	Summative assessment task 4	Summative assessment task 5
Range and balance of summative assessment conventions	Technique	End of Term 1 Exam	End of Term 2 Exam	End of Term 3 Exam	PSMT: Sports Stats	End of Term 4 Exam
	Type of text					
	Mode	Short response, extended response	Short response, extended response	Short response, extended response	Written Report	Short response, extended response
	Conditions	Closed Calculator allowed 1 x 70 lessons	Closed Calculator allowed 1 x 70 lessons	Closed Calculator allowed 1 x 70 lessons	Open Calculator allowed 4 lessons	Closed Calculator allowed 1 x 70 lessons
<b>Aspects of the achievement standard</b>						
solve problems involving the comparison, addition and subtraction of integers.						
make the connections between whole numbers and <a href="#">index notation</a> and the relationship between perfect squares and <a href="#">square</a> roots.						
solve problems involving percentages and all four operations with fractions and decimals.						
compare the cost of items to make financial decisions.						
represent numbers using variables.						
connect the laws and properties for numbers to algebra.						
interpret simple linear representations and model authentic information						
describe different views of <a href="#">three-dimensional</a> objects.						
represent transformations in the <a href="#">Cartesian plane</a> .						
solve simple numerical problems involving angles formed by a <a href="#">transversal</a> crossing two lines.						
identify issues involving the collection of continuous <a href="#">data</a> .						
describe the relationship between the <a href="#">median</a> and <a href="#">mean</a> in <a href="#">data</a> displays.						
use fractions, decimals and percentages, and their equivalences express one quantity as a <a href="#">fraction</a> or <a href="#">percentage</a> of another						
solve simple linear equations and evaluate algebraic expressions after numerical substitution.						
Assign ordered pairs to given points on the <a href="#">Cartesian plane</a> .						
use formulas for the <a href="#">area</a> and <a href="#">perimeter</a> of rectangles and calculate volumes of rectangular prisms.						
Classify triangles and quadrilaterals						
Name the types of angles formed by a <a href="#">transversal</a> crossing <a href="#">parallel line</a>						
Determine the <a href="#">sample space</a> for simple experiments with <a href="#">equally likely outcomes</a> and assign probabilities to those outcomes.						
Calculate <a href="#">mean</a> , <a href="#">mode</a> , <a href="#">median</a> and <a href="#">range</a> for <a href="#">data</a> sets.						
Construct stem-and-leaf plots and dot-plots.						
Guaranteed and viable curriculum						



5 Shaded cells indicate opportunities that summative assessments provide for students to demonstrate evidence against all aspects of the achievement standard

PROFICIENCIES			
<p>The Australian Curriculum: Mathematics proficiency strands are understanding, fluency, problem-solving and reasoning. They describe how content is explored or developed; that is, the thinking and doing of mathematics. The inclusion of the proficiencies in the curriculum is to ensure that student learning and student independence are at the centre of the curriculum. The curriculum focuses on developing increasingly sophisticated and refined mathematical proficiency skills. They enable students to respond to familiar and unfamiliar situations by employing mathematical strategies to make informed decisions and solve problems efficiently.</p>			
<p><b>Understanding</b></p> <p>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.</p>	<p><b>Fluency</b></p> <p>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.</p>	<p><b>Problem-solving</b></p> <p>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.</p>	<p><b>Reasoning</b></p> <p>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.</p>

