Year 7 Mathematics
Curriculum and assessment plan

Aviation High School

Level description	Context and cohort considerations (if applicable)
In Year 7, learning in Mathematics builds on each student's prior learning and experiences. Students engage in a range of approaches to learning and doing mathematics that develop their understanding of and fluency with concepts, procedures and processes by making connections, reasoning, problem-solving and practice. Proficiency in mathematics enables students to respond to familiar and unfamiliar situations by employing mathematical strategies to make informed decisions and solve problems efficiently.	N/A

Students further develop proficiency and positive dispositions towards mathematics and its use as they:

- extend their understanding of the integer and rational number systems, strengthen their fluency with mental calculation, written algorithms and digital tools; and routinely consider the reasonableness of results in context
- use exponents and exponent notation to consolidate and formalise their understanding of representations of natural numbers, and use these to make conjectures involving natural numbers by experiment with the assistance of digital tools
- recognise the use of algebraic expressions and formulas using conventions, notations, symbols and pronumerals. They interpret algebraic expressions and formulas, use substitution to evaluate and determine unknown terms where other values are given, and solve simple equations using a variety of methods
- use mathematical modelling to solve practical problems involving rational numbers, ratios and percentages, formulating and making choices about representations, calculation strategies and communicating solutions within the context
- use variables, constants, relations and functions to express relationships in real life data and interpret key features of their representation in rules, tables and graphs
- extend their knowledge of angles to establish further relationships and apply these when solving measurement and spatial problems
- create and use algorithms to classify shapes in the plane and use tools to construct shapes, including two dimensional representations of prisms and other objects
- use coordinates in the Cartesian plane to describe transformations
- apply the statistical investigation process to obtain numerical data related to questions of interest, choose displays for the distributions of data and interpret summary statistics for determining the centre and spread of the data in context
- conduct probability simulations and experiments involving chance events, construct corresponding sample spaces and observe related frequencies, comparing expected, simulated and experimental results.

Unit 1 — Algebra	Unit 2 — Number	Unit 3 — Data	Unit 4 — Measurement
Duration: Term 1, 9 Weeks	Duration: Term 2, 9 Weeks	Duration: Term 3, 9 Weeks	Duration: Term 4, 9 Weeks
In this unit, students are introduced to algebra as a way of describing patterns and solving problems from everyday life. They use algebraic expressions to represent situations involving numbers and unknown values. Students substitute numbers into formulas to find answers, solve simple linear equations with whole number solutions, and create tables of values to explore how one quantity changes when another changes. Through real-life contexts, students develop confidence in recognising relationships between variables and describing how variation in one variable affects another.	In this unit, students strengthen their understanding of number and apply it to practical, real-world situations. They explore natural numbers through expanded form, prime factorisation and exponent notation, and investigate squares and square roots of perfect squares. Students develop fluency with addition and subtraction of integers and apply all four operations to positive fractions and decimals, selecting efficient strategies for calculation. Students compare and choose between equivalent representations of rational numbers and percentages to support problem-solving. Through mathematical modelling, they apply their knowledge of rational numbers, ratios and percentages to financial and everyday contexts, explaining and justifying their choice of methods and representations.	In this unit, students explore how data and probability are used to investigate questions and make predictions. They plan and conduct statistical investigations involving both discrete and continuous numerical data, selecting appropriate displays to represent their findings. Students interpret data by analysing the shape of distributions, calculating summary statistics and identifying possible outliers. Students also investigate chance by listing sample spaces for single-step experiments, assigning probabilities to outcomes and predicting relative frequencies. Through repeated trials and digital simulations, they compare predicted and observed results and explain possible reasons for differences.	In this unit, students develop their understanding of geometry and measurement through problem-solving and reasoning. They apply knowledge of angle relationships and the angle sum of a triangle to determine unknown angles, explaining their reasoning. Students use formulas to calculate the area of triangles and parallelograms and the volume of rectangular and triangular prisms in practical contexts. They investigate circles by describing the relationships between radius, diameter and circumference. Students classify polygons according to their properties and design simple algorithms to sort and classify shapes. They represent three-dimensional objects in different two-dimensional ways and describe the usefulness of each representation. Students also use coordinates to describe transformations of points on the Cartesian plane.

	Unit 1		Unit 2		Unit 3		Unit 4	
	Assessment —	Timing	Assessment —	Timing	Assessment —	Timing	Assessment —	Timing
Assessment	**Progressive Assessment Task 1** Short Task looking at patterns, terminology, substitution & like terms Exam Mathspace - online Weighting: 10% **Progressive Assessment Task 2** Short task looking at solving linear equations and relations Exam Mathspace - online Weighting 10% **Term 1 Exam** Whole Term Exam – covering all content Exam Paper Exam in Class Weighting: 80%	Week 4 Lesson 3]Week 7 Lesson 1Week 9 Lesson 2/3	**Progressive Assessment Task 1** Natural numbers, index and expanded form, square numbers & roots Exam Mathspace - Online Weighting: 10% **Exam 1 – Number 1** Additon and subtraction of Integers Exam Paper Exam in Class Weighting: 40% **Progressive Assessment Task 2** Fractions, decimals and percentage Exam Mathspace - Online Weighting: 10% **Exam 2 – Number 2** Fraction, decimal & percentage, ratios Exam Paper Exam in Class Weighting: 40%	Week 3 Lesson 3	**Progressive Assessment Task 1** Types of data, data displays and frequency tables Mathspace - Online Weighting: 10% **Assessment 1 – Statistical Investigation** PSMT Short response Weighting: 40% **Progressive Assessment Task 2** The language of probability, theoretical & experimental probability Mathspace - Online Short response (electronic) Weighting: 10% **Assessment 2 – Simulation Investigation** PSMT Short response Weighting: 40%	Week 3 Lesson 3 Week 4 Week 7 Lesson 3 Week 10 Week 9	**Classify Quadrilaterals by Designing an Algorithm** PSMT Short Response Weighting: 20% **Term 4 Exam** Whole Term Exam – covering all content Exam Mathspace – Online Weighting: 80%	Weeks 3 & 4 2 Lessons Week 9

	Unit 1	Unit 2	Unit 3	Unit 4
Achievement standard	By the end of Year 7, students represent natural numbers in expanded form and as products of prime factors, using exponent notation. They solve problems involving squares of numbers and square roots of perfect square numbers. Students solve problems involving addition and subtraction of integers. They use all 4 operations in calculations involving positive fractions and decimals, choosing efficient calculation strategies. Students choose between equivalent representations of rational numbers and percentages to assist in calculations. They use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios, in financial and other applied contexts, justifying choices of representation. Students use algebraic expressions to represent situations, describe the relationships between variables from authentic data and substitute values into formulas to determine unknown values. They solve linear equations with natural number solutions. Students create tables of values related to algebraic expressions and formulas, and describe the effect of variation. They apply knowledge of angle relationships and the sum of angles in a triangle to solve problems, giving reasons. Students use formulas for the areas of triangles and parallelograms and the volumes of rectangular and triangular prisms to solve problems. They describe the relationships between the radius, diameter and circumference of a circle. Students classify polygons according to their features and create an algorithm designed to sort and classify shapes. They represent objects two-dimensionally in different ways, describing the usefulness of these representations. Students use coordinates to describe transformations of points in the plane.	By the end of Year 7, students represent natural numbers in expanded form and as products of prime factors, using exponent notation. 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Achievement standard	They plan and conduct statistical investigations involving discrete and continuous numerical data, using appropriate displays. Students interpret data in terms of the shape of distribution and summary statistics, identifying possible outliers. They decide which measure of central tendency is most suitable and explain their reasoning. Students list sample spaces for single step experiments, assign probabilities to outcomes and predict relative frequencies for related events. They conduct repeated single-step chance experiments and run simulations using digital tools, giving reasons for differences between predicted and observed results.	They plan and conduct statistical investigations involving discrete and continuous numerical data, using appropriate displays. Students interpret data in terms of the shape of distribution and summary statistics, identifying possible outliers. They decide which measure of central tendency is most suitable and explain their reasoning. Students list sample spaces for single step experiments, assign probabilities to outcomes and predict relative frequencies for related events. They conduct repeated single-step chance experiments and run simulations using digital tools, giving reasons for differences between predicted and observed results.	They plan and conduct statistical investigations involving discrete and continuous numerical data, using appropriate displays. Students interpret data in terms of the shape of distribution and summary statistics, identifying possible outliers. They decide which measure of central tendency is most suitable and explain their reasoning. Students list sample spaces for single step experiments, assign probabilities to outcomes and predict relative frequencies for related events. They conduct repeated single-step chance experiments and run simulations using digital tools, giving reasons for differences between predicted and observed results.	They plan and conduct statistical investigations involving discrete and continuous numerical data, using appropriate displays. Students interpret data in terms of the shape of distribution and summary statistics, identifying possible outliers. They decide which measure of central tendency is most suitable and explain their reasoning. Students list sample spaces for single step experiments, assign probabilities to outcomes and predict relative frequencies for related events. They conduct repeated single-step chance experiments and run simulations using digital tools, giving reasons for differences between predicted and observed results.
Moderation	Faculty based Moderation in Week 10	Blind Moderation in Week 10	Faculty based Moderation in Week 10	Blind Moderation in Week 10

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Content descriptions	Units				Content descriptions	Units				Content descriptions	Units			
Number	**1**	**2**	**3**	**4**	**Algebra**	**1**	**2**	**3**	**4**	**Measurement**	**1**	**2**	**3**	**4**
describe the relationship between perfect square numbers and square roots, and use squares of numbers and square roots of perfect square numbers to solve problems AC9M7N01	☐	☑	☐	☐	recognise and use variables to represent everyday formulas algebraically and substitute values into formulas to determine an unknown AC9M7A01	☑	☐	☐	☑	solve problems involving the area of triangles and parallelograms using established formulas and appropriate units AC9M7M01	☐	☐	☐	☑
represent natural numbers as products of powers of prime numbers using exponent notation AC9M7N02	☐	☑	☐	☐	formulate algebraic expressions using constants, variables, operations and brackets AC9M7A02	☑	☐	☐	☐	solve problems involving the volume of right prisms including rectangular and triangular prisms, using established formulas and appropriate units AC9M7M02	☐	☐	☐	☑
represent natural numbers in expanded notation using place value and powers of 10 AC9M7N03	☐	☑	☐	☐	solve one-variable linear equations with natural number solutions; verify the solution by substitution AC9M7A03	☑	☐	☐	☐	describe the relationship between π and the features of circles including the circumference, radius and diameter AC9M7M03	☐	☐	☐	☑
find equivalent representations of rational numbers and represent rational numbers on a number line AC9M7N04	☐	☑	☐	☐	describe relationships between variables represented in graphs of functions from authentic data AC9M7A04	☑	☐	☐	☐	identify corresponding, alternate and co interior relationships between angles formed when parallel lines are crossed by a transversal; use them to solve problems and explain reasons AC9M7M04	☐	☐	☐	☑
round decimals to a given accuracy appropriate to the context and use appropriate rounding and estimation to check the reasonableness of solutions AC9M7N05	☐	☑	☐	☐	generate tables of values from visually growing patterns or the rule of a function; describe and plot these relationships on the Cartesian plane AC9M7A05	☑	☐	☐	☐	demonstrate that the interior angle sum of a triangle in the plane is 180° and apply this to determine the interior angle sum of other shapes and the size of unknown angles AC9M7M05	☐	☐	☐	☑
use the 4 operations with positive rational numbers including fractions, decimals and percentages to solve problems using efficient calculation strategies AC9M7N06	☐	☑	☐	☐	manipulate formulas involving several variables using digital tools, and describe the effect of systematic variation in the values of the variables AC9M7A06	☑	☐	☐	☐	use mathematical modelling to solve practical problems involving ratios; formulate problems, interpret and communicate solutions in terms of the situation, justifying choices made about the representation AC9M7M06	☐	☑	☐	☐
compare, order and solve problems involving addition and subtraction of integers AC9M7N07	☐	☑	☐	☐										
recognise, represent and solve problems involving ratios AC9M7N08	☐	☑	☐	☐										
use mathematical modelling to solve practical problems, involving rational numbers and percentages, including financial contexts; formulate problems, choosing representations and efficient calculation strategies, using digital tools as appropriate; interpret and communicate solutions in terms of the situation, justifying choices made about the representation AC9M7N09	☐	☑	☐	☐										

Content descriptions	Units				Content descriptions	Units				Content descriptions	Units			
Space	1	2	3	4	**Statistics**	1	2	3	4	**Probability**	1	2	3	4
represent objects in 2 dimensions; discuss and reason about the advantages and disadvantages of different representations AC9M7SP01	☐	☐	☐	☑	acquire data sets for discrete and continuous numerical variables and calculate the range, median, mean and mode; make and justify decisions about which measures of central tendency provide useful insights into the nature of the distribution of data AC9M7ST01	☐	☐	☑	☐	identify the sample space for single-stage events; assign probabilities to the outcomes of these events and predict relative frequencies for related events AC9M7P01	☐	☐	☑	☐
classify triangles, quadrilaterals and other polygons according to their side and angle properties; identify and reason about relationships AC9M7SP02	☐	☐	☐	☑	create different types of numerical data displays including stem and leaf plots using software where appropriate; describe and compare the distribution of data, commenting on the shape, centre and spread including outliers and determining the range, median, mean and mode AC9M7ST02	☐	☐	☑	☐	conduct repeated chance experiments and run simulations with a large number of trials using digital tools; compare predictions about outcomes with observed results, explaining the differences AC9M7P02	☐	☐	☑	☐
describe transformations of a set of points using coordinates in the Cartesian plane, translations and reflections on an axis, and rotations about a given point AC9M7SP03	☐	☐	☐	☑	plan and conduct statistical investigations involving data for discrete and continuous numerical variables; analyse and interpret distributions of data and report findings in terms of shape and summary statistics AC9M7ST03	☐	☐	☑	☐					
design and create algorithms involving a sequence of steps and decisions that will sort and classify sets of shapes according to their attributes, and describe how the algorithms work AC9M7SP04	☐	☐	☐	☑										

General capabilities	Units			
	1	2	3	4
Critical and creative thinking	☐	☐	☑	☐
Digital literacy	☐	☑	☑	☑
Ethical understanding	☐	☐	☐	☐
Intercultural understanding	☐	☐	☐	☐
Literacy	☑	☑	☑	☑
Numeracy	☑	☑	☑	☑
Personal and social capability	☐	☐	☐	☐

Cross-curriculum priorities	Units			
	1	2	3	4
Aboriginal and Torres Strait Islander histories and cultures	☐	☐	☐	R
Asia and Australia's engagement with Asia	☐	☐	☐	R
Sustainability	☐	R	R	☐