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| --- |
| Year 7 Mathematics Curriculum and assessment plan  [Insert school name, implementation year] |

Use this template to plan an overview or summary of the teaching, learning and assessment for a year level in the Australian Curriculum: Mathematics. For planning advice, refer to the *Planning for teaching, learning and assessment* document available on the Planning tab for each learning area at [www.qcaa.qld.edu.au/p-10/aciq/version-9/learning-areas](http://www.qcaa.qld.edu.au/p-10/aciq/version-9/learning-areas).

**How to use this template:** Type information into the fields (yellow shading). When the plan is complete, delete the highlighted instructions (blue shading). To do so, select the instruction text, click the **Home tab > Styles dropdown > Clear All/Clear Formatting >** text will revert to Normal style and you can delete the text.

| 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.  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. | Describe the context and cohort.  Consider the following to make informed professional decisions during the planning process:   * + relevant student data and information, e.g. achievement data   + available resources, e.g. timetabling   + school and sector priorities.   [Insert context and cohort considerations] |

**Note:** Insert/delete rows/columns, as required, to provide an overview of the teaching, learning and assessment sequence across the year level.

| Unit 1 — [Insert unit title] | Unit 2 — [Insert unit title] | Unit 3 — [Insert unit title] | Unit 4 — [Insert unit title] |
| --- | --- | --- | --- |
| Duration: [Insert semester, term and/or weeks] | Duration: [Insert semester, term and/or weeks] | Duration: [Insert semester, term and/or weeks] | Duration: [Insert semester, term and/or weeks] |
| [Insert unit description and learning focus] | [Insert unit description and learning focus] | [Insert unit description and learning focus] | [Insert unit description and learning focus] |

**Note:**

Adjust the table to reflect the number of units you will offer.

Highlight the aspects of the achievement standard that will be assessed within each unit.

|  | Unit 1 | | Unit 2 | | Unit 3 | | Unit 4 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing |
| Assessment | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] |  | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] |
| 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 | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | |

**Note:** Adjust the table to reflect the number of units you will offer. Check or uncheck the columns as appropriate for each unit.

| 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 ππ 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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |

**Note:** Adjust the table to reflect the number of units you will offer. Check or uncheck the columns as appropriate for each unit.

| 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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |

**Note:** Adjust the table to reflect the number of units you will offer. Check or uncheck the columns as appropriate for each unit.

| General capabilities | Units | | | |  | Cross-curriculum priorities | Units | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 |  |  | 1 | 2 | 3 | 4 |
| Critical and creative thinking |  |  |  |  |  | Aboriginal and Torres Strait Islander histories and cultures |  |  |  |  |
| Digital literacy |  |  |  |  |  | Asia and Australia’s engagement with Asia |  |  |  |  |
| Ethical understanding |  |  |  |  |  | Sustainability |  |  |  |  |
| Intercultural understanding |  |  |  |  |
| Literacy |  |  |  |  |
| Numeracy |  |  |  |  |
| Personal and social capability |  |  |  |  |

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