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| Year 10 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 10, 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:   * investigate the accuracy of decimal approximations to irrational real numbers; consider the accuracy of computation with real numbers in context and the use of logarithmic scales to deal with phenomena involving small and large quantities and change * apply numerical, graphical and algebraic approaches to analyse the behaviour of pairs of linear equations and linear inequalities in 2 variables * generalise and extend their repertoire of algebraic techniques involving quadratic and exponential algebraic expressions * use mathematical modelling to solve problems in applied situations exhibiting growth or decay using linear, quadratic and exponential functions; and solve related equations, numerically, graphically and algebraically, with the use of digital tools as applicable * solve measurement problems involving the surface area and volume of common objects, composite objects and irregular objects; use Pythagoras’ theorem and trigonometry of right-angled triangles to solve spatial problems in two- and three-dimensions, and manipulate images of their representations using digital tools * apply geometric theorems to deduce results and solve problems involving plane shapes, and interpret networks and network diagrams in authentic contexts * investigate conditional probability and its relation to dependent and independent events, including sampling with and without replacement; devise and use simulations to test intuitions involving chance events that may or may not be independent * compare different ways of representing the distribution of continuous data and interpret key features of the distribution; explore association between pairs of variables, decide the form of representation, interpret the data with respect to the context and discuss possible conclusions; use scatterplots to informally discuss and consider association between 2 numerical variables and informally consider lines of good fit by eye, interpolation, extrapolation and limitations. | 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 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] |
| Achievement standard | By the end of Year 10, students recognise the effect of approximations of real  numbers in repeated calculations. They use mathematical modelling to solve problems involving growth and decay in financial and other applied situations, applying  linear,  quadratic and exponential functions as appropriate, and solve related equations, numerically and graphically. Students make and test conjectures involving functions and relations using digital tools. They solve problems involving simultaneous linear equations and linear inequalities in 2 variables graphically and justify solutions.  Students interpret and use logarithmic scales representing small or large quantities or change in applied contexts. They solve measurement problems involving surface area and volume of composite objects. Students apply Pythagoras’ theorem and trigonometry to solve practical problems involving right-angled triangles. They identify the impact of measurement errors on the accuracy of results. Students use mathematical modelling to solve practical problems involving  proportion and scaling, evaluating and modifying models, and reporting assumptions, methods and findings. They use deductive reasoning, theorems and algorithms to solve  spatial problems. Students interpret networks used to represent practical situations and describe connectedness  They plan and conduct statistical investigations involving bivariate data. Students represent the distribution of data involving 2 variables, using tables and scatter plots, and comment on possible association. They analyse inferences  and conclusions in the media, noting potential sources of bias. Students compare the distribution of continuous numerical  data  using various displays, and discuss distributions in terms of centre, spread, shape and outliers. They apply conditional probability  to solve problems involving compound events. Students design and conduct simulations involving conditional probability, using digital tools. | | By the end of Year 10, students recognise the effect of approximations of real  numbers in repeated calculations. They use mathematical modelling to solve problems involving growth and decay in financial and other applied situations, applying  linear,  quadratic and exponential functions as appropriate, and solve related equations, numerically and graphically. Students make and test conjectures involving functions and relations using digital tools. They solve problems involving simultaneous linear equations and linear inequalities in 2 variables graphically and justify solutions.  Students interpret and use logarithmic scales representing small or large quantities or change in applied contexts. They solve measurement problems involving surface area and volume of composite objects. 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| 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 | |
| **recognise the effect of using approximations of real numbers in repeated calculations and compare the results when using exact representations** AC9M10N01 |  |  |  |  | expand, factorise and simplify expressions and solve equations algebraically, applying exponent laws involving products, quotients and powers of variables, and the distributive property  **AC9M10A01** |  |  |  |  | solve problems involving the surface area and volume of composite objects using appropriate units **AC9M10M01** |  |  |  |  | |
|  |  |  |  |  | solve linear inequalities and simultaneous linear equations in 2 variables; interpret solutions graphically and communicate solutions in terms of the situation  AC9M10A02 |  |  |  |  | interpret and use logarithmic scales  in applied contexts involving small and large quantities and change  AC9M10M02 |  |  |  |  | |
|  |  |  |  |  | recognise the connection between algebraic and graphical representations of exponential relations and solve related exponential equations, using digital tools where appropriate  AC9M10A03 |  |  |  |  | solve practical problems applying Pythagoras’ theorem and trigonometry of right-angled triangles, including problems involving direction and angles of elevation and depression  AC9M10M03 |  |  |  |  | |
|  |  |  |  |  | use mathematical modelling to solve applied problems involving growth and decay, including financial contexts; formulate problems, choosing to apply linear, quadratic or exponential models; interpret solutions in terms of the situation; evaluate and modify models as necessary and report assumptions, methods and findings  AC9M10A04 |  |  |  |  | identify the impact of measurement errors on the accuracy of results in practical contexts AC9M10M04 |  |  |  |  | |
|  |  |  |  |  | experiment with functions and relations using digital tools, making and testing conjectures and generalising emerging patterns  AC9M10A05 |  |  |  |  | use mathematical modelling to solve practical problems involving proportion and scaling of objects; formulate problems and interpret solutions in terms of the situation; evaluate and modify models as necessary, and report assumptions, methods and findings  AC9M10M05 |  |  |  |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Space | 1 | 2 | 3 | 4 | Statistics | 1 | 2 | 3 | 4 | Probability | 1 | 2 | 3 | 4 | |
| **apply deductive reasoning to proofs involving shapes in the plane and use theorems to solve spatial problems**  AC9M10SP01 |  |  |  |  | analyse claims, inferences and conclusions of statistical reports in the media, including ethical considerations and identification of potential sources of bias  **AC9M10ST01** |  |  |  |  | use the language of “if .... then”, “given”, “of”, “knowing that” to describe and interpret situations involving conditional probability  AC9M10P01 |  |  |  |  | |
| interpret networks and network diagrams used to represent relationships in practical situations and describe connectedness  AC9M10SP02 |  |  |  |  | compare data distributions for continuous numerical variables using appropriate data displays including boxplots; discuss the shapes of these distributions in terms of centre, spread, shape and outliers in the context of the data  AC9M10ST02 |  |  |  |  | design and conduct repeated chance experiments and simulations using digital tools to model conditional probability and interpret results AC9M10P02 |  |  |  |  | |
| design, test and refine solutions to spatial problems using algorithms and digital tools; communicate and justify solutions  AC9M10SP03 |  |  |  |  | construct scatterplots and comment on the association between the 2 numerical variables in terms of strength, direction and linearity AC9M10ST03 |  |  |  |  |  |  |  |  |  | |
|  |  |  |  |  | construct two way tables and discuss possible relationship between categorical variables AC9M10ST04 |  |  |  |  |  |  |  |  |  | |
|  |  |  |  |  | plan and conduct statistical investigations of situations that involve bivariate data; evaluate and report findings with consideration of limitations of any inferences  AC9M10ST05 |  |  |  |  |  |  |  |  |  | |

**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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