Mathematics Level 10 map – template

**Use this curriculum area map to identify where content descriptions and achievement standards are explicitly addressed within your school’s teaching and learning plans. This template will help you to both map the Victorian Curriculum F–10 Version 2.0 and audit your current teaching and learning plans.**

# Instructions

1. Enter your details in the footer on page 1.
2. Enter the title of each teaching and learning unit in the first column of each mapping table. Indicate the connections to the curriculum by checking the box of the relevant content description(s) and writing the number of the relevant sentence(s) from the achievement standard.
3. Complete all the mapping tables, listing all teaching and learning units. Check that all achievement standard sentences have been covered. Detail any comments, notes and actions.
4. Complete the Assessment, Analysis of Curriculum Coverage and Next Steps sections on the final page.

**Hint:** Use your completed curriculum area map to start populating or updating your **curriculum area plan**.

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| **Achievement standard (AS) paragraph for Number strand, with numbered sentences** | **Y/N** |
| 1. By the end of Level 10, students recognise the effect of approximations of real numbers in repeated calculations. |  |

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| **Achievement standard (AS) paragraph for Algebra strand, with numbered sentences** | **Y/N** |
| *See page 2.* |  |

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|  | **Strand** | **Number** | | **Algebra** | | | | | | | | | | | | | | | |
|  | **Content description (CD)** | recognise the effect of using approximations of real numbers in repeated calculations and compare the results when using exact representations  VC2M10N01 | | factorise algebraic expressions by taking out a common algebraic factor  VC2M10A01 | | simplify algebraic products and quotients using exponent laws  VC2M10A02 | | apply the 4 operations to simple algebraic fractions with numerical or single variable denominators  VC2M10A03 | | expand binomial products and factorise monic quadratic expressions using a variety of strategies  VC2M10A04 | | substitute values into formulas to determine an unknown and rearrange formulas to solve for a particular term  VC2M10A05 | | implement algorithms that use data structures using pseudocode or a general purpose programming language  VC2M10A06 | | solve problems involving linear equations, including those derived from formulas  VC2M10A07 | | solve linear inequalities and graph their solutions on a number line  VC2M10A08 | |
| **Teaching and learning unit** | **Semester/Year** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** |
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| **Comments, notes, actions** |  | | | | | | | | | | | | | | | | | | |

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| **Achievement standard (AS) paragraph for Algebra strand, with numbered sentences** | **Y/N** |
| 1. Students 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. |  |
| 1. They make and test conjectures involving functions and relations using digital tools. |  |
| 1. Students substitute into formulas, find unknown values, manipulate linear and quadratic algebraic expressions, expand binomial expressions and factorise monic and simple non-monic quadratic expressions, with and without the use of digital tools. |  |
| 1. They solve problems involving linear equations and inequalities, quadratic equations and pairs of simultaneous linear equations and related graphs, algebraically and graphically, with and without the use of digital tools, and justify solutions. |  |
| 1. They represent linear, quadratic and exponential functions numerically, graphically and algebraically, and use them to model situations and solve practical problems. |  |
| 1. Students can design and implement simple algorithms using pseudocode or other general purpose programming language. |  |

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|  | **Strand** | **Algebra (continued)** | | | | | | | | | | | | | | | |
|  | **Content description (CD)** | solve simultaneous linear equations, using algebraic and graphical techniques including using digital tools  VC2M10A09 | | solve problems involving gradients of parallel and perpendicular lines  VC2M10A10 | | explore the connection between algebraic and graphical representations of relations such as simple quadratic, reciprocal, circle and exponential, using digital tools as appropriate  VC2M10A11 | | solve linear equations involving simple algebraic fractions  VC2M10A12 | | solve simple quadratic equations using a range of strategies, including null factor law  VC2M10A13 | | solve simple exponential equations  VC2M10A14 | | use mathematical modelling to solve applied problems involving inverse proportion, growth and decay, including in financial contexts to establish the compound interest formula as repeated applications of simple interest; 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  VC2M10A15 | | solve equations graphically or using systematic numerical guess-check-and-refine with digital tools, with consideration of whether all solutions have been found  VC2M10A16 | |
| **Teaching and learning unit** | **Semester/Year** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** |
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| **Comments, notes, actions** |  | | | | | | | | | | | | | | | | |

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| **Achievement standard (AS) paragraph for Measurement strand, with numbered sentences** | **Y/N** |
| 1. Students solve measurement problems involving surface area and volume of composite objects. |  |
| 1. They interpret and use logarithmic scales representing small or large quantities or change in applied contexts. |  |
| 1. Students apply Pythagoras’ theorem and trigonometry to solve practical problems involving right-angled triangles. |  |
| 1. They identify the impact of measurement errors on the accuracy of results. |  |
| 1. Students use mathematical modelling to solve practical problems involving direct and inverse proportion and scaling, evaluating and modifying models, and reporting assumptions, methods and findings. |  |

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| **Achievement standard (AS) paragraph for Space strand, with numbered sentences** | **Y/N** |
| 1. Students use deductive reasoning, theorems and algorithms to solve spatial problems. |  |
| 1. They interpret networks used to represent practical situations and describe connectedness. |  |

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|  | **Strand** | **Measurement** | | | | | | | | **Space** | | | |
|  | **Content description (CD)** | solve problems involving the surface area and volume of composite objects using appropriate units  VC2M10M01 | | interpret and use logarithmic scales in applied contexts involving small and large quantities and change  VC2M10M02 | | solve practical problems by applying Pythagoras’ theorem and trigonometry to right-angled triangles, including problems involving direction and angles of elevation and depression  VC2M10M03 | | use mathematical modelling to solve practical problems involving direct and inverse proportion and scaling of objects; formulate problems and interpret solutions in terms of the situation, including the impact of measurement errors on the accuracy of results; evaluate and modify models as necessary, and report assumptions, methods and findings  VC2M10M04 | | apply deductive reasoning to formulate proofs involving shapes in the plane and use theorems to solve spatial problems  VC2M10SP01 | | interpret networks and network diagrams used to represent relationships in practical situations and describe connectedness  VC2M10SP02 | |
| **Teaching and learning unit** | **Semester/Year** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** |
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| **Comments, notes, actions** |  | | | | | | | | | | | | |

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| **Achievement standard (AS) paragraph for Statistics strand, with numbered sentences** | **Y/N** |
| 1. Students compare univariate data sets by referring to summary statistics and the shape of their displays. |  |
| 1. They plan and conduct statistical investigations involving bivariate data, including where the independent variable is time. |  |
| 1. They represent the distribution of data involving 2 variables, using tables and scatterplots, and comment on possible association. |  |
| 1. They analyse inferences and conclusions in the media, noting potential sources of bias. |  |
| 1. Students compare the distribution of continuous numerical data, using various displays, and discuss distributions in terms of centre, spread, shape and outliers. |  |

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| **Achievement standard (AS) paragraph for Probability strand, with numbered sentences** | **Y/N.** |
| 1. Students apply conditional probability to solve problems involving compound events. |  |
| 1. They design and conduct simulations involving conditional probability, using digital tools. |  |

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|  | **Strand** | **Statistics** | | | | | | | | | | **Probability** | | | |
|  | **Content description (CD)** | compare data distributions for continuous numerical variables using quartiles and interquartile range and appropriate data displays including boxplots, histograms and dot plots; discuss the shapes of these distributions in terms of centre, spread, shape and outliers in the context of the data  VC2M10ST01 | | construct scatterplots and consider a line of good fit; comment on the association between the 2 numerical variables in terms of strength, direction and linearity  VC2M10ST02 | | construct two-way tables and discuss possible relationship between categorical variables  VC2M10ST03 | | analyse claims, inferences and conclusions of statistical reports in the media and other places, by linking claims to displays, statistics and representative data, including ethical considerations and identification of potential sources of bias  VC2M10ST04 | | plan and conduct statistical investigations of situations that involve bivariate data, including where the independent variable is time; evaluate and report findings with consideration of limitations of any inferences  VC2M10ST05 | | use the language of ‘if … then …’, ‘given’, ‘of’ and ‘knowing that’ to investigate conditional statements and identify common mistakes in interpreting such language, and describe and interpret situations involving conditional probability; design and conduct simulations using digital tools to model conditional probability and interpret results  VC2M10P01 | | describe the results of two- and three-step chance experiments, both with and without replacements, assign probabilities to outcomes and determine probabilities of events; investigate the concept of independence  VC2M10P02 | |
| **Teaching and learning unit** | **Semester/Year** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** | **CD** | **AS no.** |
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| **Comments, notes, actions** |  | | | | | | | | | | | | | | |

# Assessment

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| **Teaching and learning unit** | **Assessment task name(s) and type(s)** | **AS no.** |
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# Analysis of curriculum coverage

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| <The following questions could be used as prompts for the analysis process:   * Have you addressed all the content descriptions? * Have you addressed all the sentences in the achievement standard? * Where are there gaps in the content description coverage? * Where are there gaps in the achievement standard coverage? * Are all content descriptions equal? Do you think they all take the same amount of time to teach? * Is anything being over-taught? * Is anything being missed completely or given insufficient attention?> |

# Next steps

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| <The following questions could be used as prompts for next steps:   * What implications would gaps in content description coverage have on your teaching and learning plans? * What implications would gaps in achievement standard coverage have on assessment? * How will you address any gaps?   Use your completed curriculum area map to start populating or updating your curriculum area plan.> |