Mathematics Level 8 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 8, students recognise irrational numbers as numbers that cannot develop from the division of integer values by natural numbers and terminating or recurring decimals. |  |
| 1. They apply the exponent laws to calculations with numbers involving positive integer exponents. |  |
| 1. Students solve problems involving the 4 operations with integers and positive rational numbers. |  |
| 1. They use mathematical modelling to solve practical problems involving ratios, percentages and rates in measurement and financial contexts. |  |

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|  | **Strand** | **Number** | | | | | | | | | | | |
|  | **Content description (CD)** | recognise irrational numbers in applied contexts, including and numbers that develop from the square root of positive real numbers that are not perfect squares, and recognise that irrational numbers cannot develop from the division of integer values by natural numbers  VC2M8N01 | | establish and apply the exponent laws with positive integer exponents and the zero exponent, using exponent notation with numbers  VC2M8N02 | | convert between fractions and terminating or recurring decimals, using digital tools as appropriate  VC2M8N03 | | use the 4 operations with integers and with rational numbers, choosing and using efficient mental and written strategies, and digital tools where appropriate, and making estimates for these computations  VC2M8N04 | | solve problems involving the use of percentages, including percentage increases and decreases and percentage error, with and without digital tools  VC2M8N05 | | use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts involving profit and loss; formulate problems, choosing efficient mental and written calculation strategies and using digital tools where appropriate; interpret and communicate solutions in terms of the context, reviewing the appropriateness of the model  VC2M8N06 | |
| **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 Algebra strand, with numbered sentences** | **Y/N** |
| 1. Students apply algebraic properties to simplify, rearrange, expand and factorise linear expressions. |  |
| 1. They graph linear relations and solve linear equations with rational solutions and one-variable inequalities, graphically and algebraically. |  |
| 1. Students plot linear and non-linear relations on the Cartesian plane, with and without the use of digital tools. |  |
| 1. Students use mathematical modelling to solve problems using linear relations, interpreting and reviewing the model in context. |  |
| 1. They make and test conjectures involving linear relations by developing algorithms and using digital tools. |  |

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|  | **Strand** | **Algebra** | | | | | | | | | |
|  | **Content description (CD)** | create, expand, factorise, rearrange and simplify linear expressions, applying the associative, commutative, identity, distributive and inverse properties  VC2M8A01 | | graph linear relations on the Cartesian plane using digital tools where appropriate; solve linear equations and one-variable inequalities using graphical and algebraic techniques; verify solutions by substitution  VC2M8A02 | | use mathematical modelling to solve applied problems involving linear relations, including financial contexts involving profit and loss; formulate problems with linear functions, and choose a representation; interpret and communicate solutions in terms of the context, and review the appropriateness of the model  VC2M8A03 | | use algorithms and related testing procedures to identify and correct errors  VC2M8A04 | | experiment with linear functions and relations using digital tools, making and testing conjectures and generalising emerging patterns  VC2M8A05 | |
| **Teaching and learning unit** | **Semester/Year** | **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. composite shapes, and volume of right prisms. |  |
| 1. They use Pythagoras’ theorem to solve measurement problems involving unknown lengths of right-angled triangles. |  |
| 1. Students use formulas to solve problems involving the area and circumference of circles. |  |
| 1. They solve problems of duration involving 12- and 24-hour cycles across multiple time zones. |  |

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|  | **Strand** | **Measurement** | | | | | | | | | | | | | |
|  | **Content description (CD)** | solve problems involving the area and perimeter of irregular and composite shapes using appropriate units  VC2M8M01 | | solve problems involving the volume and capacity of right prisms using appropriate units  VC2M8M02 | | solve problems involving the circumference and area of a circle using formulas and appropriate units  VC2M8M03 | | solve problems involving time and duration, including using 12- and 24-hour time across multiple time zones  VC2M8M04 | | recognise and use rates to solve problems involving the comparison of 2 related quantities of different units of measure  VC2M8M05 | | use Pythagoras’ theorem to solve problems involving the side lengths of right-angled triangles  VC2M8M06 | | use mathematical modelling to solve practical problems involving ratios and rates, including distance-time problems for travel at a constant speed and financial contexts; formulate problems; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model  VC2M8M07 | |
| **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** |  | | | | | | | | | | | | | | |

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| **Achievement standard (AS) paragraph for Space strand, with numbered sentences** | **Y/N** |
| 1. Students use 3 dimensions to locate and describe position. |  |
| 1. They identify conditions for congruency and similarity in triangles and other common shapes, and design and test algorithms to test for congruency and similarity. |  |
| 1. Students apply the properties of quadrilaterals to solve problems. |  |
| **Achievement standard (AS) paragraph for Statistics strand, with numbered sentences** | **Y/N** |
| 1. Students conduct statistical investigations and explain the implications of obtaining data through sampling. |  |
| 1. Students analyse and describe the distribution of data. |  |
| 1. They compare the variation in distributions of random samples of the same and different size from a given population with respect to shape, measures of central tendency and range. |  |

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|  | **Strand** | **Space** | | | | | | | | **Statistics** | | | | | | | |
|  | **Content description (CD)** | identify the conditions for congruence and similarity of triangles and explain the conditions for other sets of common shapes to be congruent or similar, including those formed by transformations  VC2M8SP01 | | establish properties of quadrilaterals using congruent triangles and angle properties, and solve related problems explaining reasoning  VC2M8SP02 | | describe in different ways the position and location of three-dimensional objects in 3 dimensions, including using a three-dimensional Cartesian coordinate system with the use of dynamic geometry software or other digital tools  VC2M8SP03 | | design and test algorithms involving a sequence of steps and decisions that identify congruency or similarity of shapes, and describe how the algorithm works  VC2M8SP04 | | distinguish between a population and a sample, and investigate techniques for data collection including census, sampling, experiment and observation, and explain the practicalities and implications of obtaining data through these techniques  VC2M8ST01 | | analyse and report on the distribution of data from primary and secondary sources using random and non-random sampling techniques  VC2M8ST02 | | compare variations in distributions and proportions obtained from random samples of the same size drawn from a population and recognise the effect of sample size on this variation  VC2M8ST03 | | plan and conduct statistical investigations involving samples of a population; use ethical and fair methods to make inferences about the population and report findings, acknowledging uncertainty  VC2M8ST04 | |
| **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 Probability strand, with numbered sentences** | **Y/N.** |
| 1. Students represent the possible combinations of 2 events with tables and diagrams, and determine related probabilities to solve practical problems. |  |
| 1. They conduct experiments or simulations using digital tools to determine related probabilities of compound events. |  |

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|  | **Strand** | **Probability** | | | | | |
|  | **Content description (CD)** | recognise that complementary events have a combined probability of one; use this relationship to calculate probabilities in applied contexts  VC2M8P01 | | determine all possible outcome combinations for 2 events, using two-way tables, tree diagrams and Venn diagrams, and use these to determine probabilities of specific events in practical situations  VC2M8P02 | | conduct repeated chance experiments and simulations, using digital tools to determine probabilities for compound events, and describe results  VC2M8P03 | |
| **Teaching and learning unit** | **Semester/Year** | **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.> |