



COURSE OUTLINE
MATHEMATICS ESSENTIALS – GENERAL YEAR 11: 2022
UNIT 1



Term	Week	Topic and key teaching points	Syllabus content	Assessment
<p>Throughout the unit, students apply the mathematical thinking process to real-world problems</p> <ul style="list-style-type: none">• interpret the task and gather the key information• identify the mathematics which could help to complete the task• analyse information and data from a variety of sources• apply existing mathematical knowledge and strategies to obtain a solution• verify the reasonableness of the solution• communicate findings in a systematic and concise manner.				



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1	1-4	Topic 1.1: Basic calculations, percentages and rates	Checking and making sense of all calculations 1.1.1 use leading digit approximation to obtain estimates of calculations 1.1.2 check results of calculations for accuracy 1.1.3 understand the meaning and magnitude of numbers involved, including fractions, percentages and the significance of place value after the decimal point 1.1.4 ascertain the reasonableness of answers, in terms of context, to arithmetic calculations 1.1.5 round up or round down answers to the accuracy required, including to the required number of decimal places Basic Calculations 1.1.6 choose and use addition, subtraction, multiplication and division, or combinations of these operations, to solve practical problems 1.1.7 apply arithmetic operations according to their correct order 1.1.8 convert between fractions, decimals and percentages, using a calculator when appropriate 1.1.9 evaluate fractions and decimals of quantities to the required number of decimal places; for example, $\frac{3}{4}$ of 250 ml, 0.4 of 3kg 1.1.10 apply approximation strategies for calculations if appropriate 1.1.11 use mental and/or flexible written strategies when appropriate 1.1.12 use a calculator appropriately and efficiently for multi-step calculations. Percentages 1.1.13 calculate a percentage of a given amount, using mental/written strategies or technology when appropriate 1.1.14 determine one amount expressed as a percentage of another 1.1.15 apply percentage increases and decreases in situations, for example, mark-ups and discounts and GST.	Test 1 Term 1 Week 4 <ul style="list-style-type: none">• Basic calculations• Percentages
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1	5-7	<p>Topic 1.1: Basic calculations, percentages and rates</p> <p>Topic 1.2: Using formulas for practical purposes</p>	<p>Rates (no inverse proportion)</p> <p>1.1.16 identify common usage of rates, such as: km/h as a rate to describe speed or beats/minute as a rate describing pulse rate</p> <p>1.1.17 convert units of rates occurring in practical situations to solve problems. For example, 1 tablespoon (tbsp) = 4 teaspoons (tsp) or 1 tbsp = 20 ml (Australia) or 15 ml (US and UK)</p> <p>1.1.18 use rates to make comparisons.</p> <p>Using formulas for practical purposes</p> <p>1.2.1 identify common use of formulas to describe practical relationships between quantities</p> <p>1.2.2 substitute values for the variables in a mathematical formula in given form to calculate the value of the subject of the formula</p>	<p>Test 2</p> <p>Term 1 Week 7</p> <ul style="list-style-type: none">• Rates (no inverse proportion)• Using formulas for practical purposes
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1	8-10	Topic 1.3 Measurement	Linear	Practical Application 1
2	1-3			
			Area measure	Test 3
			Mass	Term 2 Week 3
			Volume and Capacity	Units of energy

1.3.1 choose and use appropriate metric units of length, their abbreviations, and conversions between them, and appropriate level of accuracy, such as mm for building and other trade contexts, cm for textiles

1.3.2 estimate lengths

1.3.3 convert between metric units of length and other length units for simple practical purposes, for example, 1 inch \approx 2.54cm

1.3.4 calculate perimeters of familiar shapes, including: triangles, squares, rectangles and composites of these shapes

Area measure

1.3.5 choose and use appropriate metric units of area, their abbreviations and conversions between them

1.3.6 estimate the area of different shapes

1.3.7 converts between metric units of area and other area units.

1.3.8 calculate areas of rectangles and triangles, and composites of these shapes.

Mass

1.3.9 choose and use appropriate metric units of mass, their abbreviations and conversions between them.

1.3.10 estimate the mass of different objects

Volume and Capacity

1.3.11 choose and use appropriate metric units of volume, their abbreviations, and conversions between them.

1.3.12 understand the relationship between volume and capacity, recognising that $1 \text{ cm}^3 = 1 \text{ mL}$ and $1 \text{ m}^3 = 1 \text{ kL}$

1.3.13 estimate volume and capacity of various objects

1.3.14 calculate the volume and capacity of cubes and rectangular and triangular prisms

Units of energy

1.3.15 use units of energy to describe consumption of electricity, such as kilowatt hours

- **Linear**
 - **Area measure**
 - **Mass**
 - **Volume and capacity**
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- **Linear**
 - **Area measure**
 - **Mass**
 - **Volume and capacity**
 - **Units of energy**



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			<p>1.3.16 use units of energy used for foods, including kilojoules and calories 1.3.17 use units of energy to describe the amount of energy expended during activity 1.3.18 convert from one unit of energy to another, such as calories/kilojoules</p>	
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2	4-6	Topic 1.4: Graphs	Reading and interpreting graphs 1.4.1 interpret information presented in graphs, such as: conversion graphs, line graphs, step graphs, column graphs and picture graphs 1.4.2 interpret information presented in two-way tables 1.4.3 discuss and interpret graphs found in the media and in factual texts Drawing graphs 1.4.4 determine which type of graph is the best one to display a dataset 1.4.5 use spreadsheets to tabulate and graph data 1.4.5 draw a line graph to represent any data that demonstrates a continuous change, such as hourly temperature.	Practical Application 2 Term 2 Week 6 <ul style="list-style-type: none">• Reading and interpreting graphs• Drawing graphs
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