



SAMPLE COURSE OUTLINE

MATHEMATICS
FOUNDATION YEAR 12

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Sample course outline

Mathematics Foundation–Year 12

Unit 3 and Unit 4

Semester 1

Week	Key teaching points
1–3	<p>The four operations: whole numbers and money</p> <p>Plan to solve real-life problems involving whole numbers and money by deciding whether an accurate answer is required or if an estimate is appropriate, choosing one or more of the four operations and using them in the correct sequence. Use informal jottings, calculator or a spreadsheet, when appropriate, to assist when solving problems. Determine the correct order of operations when solving multi-step problems. Consider whether an answer is reasonable, using estimation, rounding and the context of the problem, and then communicate the solutions, and the processes used to arrive at the solution, with language and symbols consistent with the context.</p> <p>3.1.1–3.1.9</p>
4–6	<p>Percentages linked with fractions and decimals</p> <p>Identify and describe percentages found in texts and the media from everyday life and work and describe their purpose. Read, write, say and use common percentages and make connections between everyday fractions, decimals and percentages to interpret and compare quantities. Use the percentage button on a calculator efficiently when finding the percentage of a quantity and use a spreadsheet to solve percentage problems. Consider whether an answer to a problem involving fractions and decimals is reasonable, using estimation and the context of the problem, and then communicate the solutions with language and symbols consistent with the context.</p> <p>3.2.1–3.2.9</p>
7–8	<p>Mental and written strategies using the four operations: fractions and decimals</p> <p>Choose whether to add, subtract, multiply or divide when solving problems involving fractions and decimals. Choose whether an accurate answer or an estimate is appropriate when solving problems involving fractions and decimals. Choose whether to use decimals or simple fraction equivalents when solving problems in practical contexts using informal jottings, calculator or spreadsheet. Solve problems mentally by visualising fractions and using place value and partitioning of decimals. Use properties of operations to anticipate the effect when calculating with fractions and decimals.</p> <p>3.3.1–3.3.5</p>
9–10	<p>Solving problems involving fractions and decimals</p> <p>Use simple fractions and decimals as a guide when solving problems with a calculator involving more complex numbers. Interpret decimal remainders from division calculations in context. Consider whether an answer to a problem involving fractions and decimals is reasonable, using the properties of the operations, estimation and the context of the problem, and then communicate the solutions with language and symbols consistent with the context.</p> <p>3.3.6–3.3.12</p>

Week	Key teaching points
11	<p>Location</p> <p>Locate and describe the purpose of maps and plans in everyday contexts. Read and interpret both web-based and printed maps and plans referring to labels, symbols, keys, distance, direction, coordinates and whole number scales. Place key features on maps and plans, attending to relative position and proximity. Locate north, south, east and west on simple maps, and in their environment, and be able to locate themselves and others on a simple map. Work out distances, practical routes and directions from one place to another on simple maps. Communicate information, both orally and in writing, about location using appropriate language for the given context.</p> <p>3.4.1–3.4.7</p>
12	<p>Time</p> <p>Understand the importance of naming and recording a time, and work out the time that has elapsed in work and community life. Read and use digital and analogue watches, clocks (including 24-hour) and stopwatches. Use various forms of time to record events; for example, timesheets. Convert between 12- and 24-hour time and read complex timetables and calendars. Compare and order time events, convert between one time unit and another, and solve simple problems involving elapsed time which include different time units. Communicate information, both orally and in writing, about time using language and symbols consistent with context.</p> <p>3.4.8–3.4.16</p>
13	<p>Temperature</p> <p>Identify and describe tools and units commonly used to measure temperature. Develop a sense of how hot/cold, as compared to the Celsius unit, and use a thermometer to measure and compare temperatures to the nearest degree, using the symbol for degrees ($^{\circ}$). Calculate change in temperature and find the difference between maximum and minimum temperature. Communicate information, both orally and in writing, about temperature using language and symbols consistent with context.</p> <p>3.4.17–3.4.22</p>
14	<p>Externally set task</p>
14–16	<p>Space and Design</p> <p>Identify, name, classify and describe common 2D and 3D shapes. Draw simple 2D plans to show placement of object with relation to one another by hand and with computer software. Draw simple 3D objects using isometric, perspective, oblique and exploded drawings by hand and with computer software. Match or construct simple 3D objects from drawings of them. Read and interpret plans, diagrams and simple scale drawings of familiar objects. Identify and estimate common angles. Communicate oral and written information about shape and design using language consistent with the context.</p> <p>3.5.1–3.5.8</p>

Semester 2

Week	Key teaching points
1–2	<p>Rates</p> <p>Identify common use of rates and ratios in everyday contexts and determine whether an accurate answer or an estimate is appropriate. Understand what rates are (relationship between two amounts) and use repeated addition, multiplication or division to work out simple rates, either mentally or with a calculator. Compare rates to determine which is the ‘better buy’ in a particular situation. Determine whether an answer is reasonable in everyday problems involving rates and communicate the solution in language and symbols consistent with the context.</p> <p>4.1.1–4.1.6, 4.1.12–4.1.13</p>
3–4	<p>Ratios</p> <p>Understand simple ratios as proportional relationships between two or more amounts. Read, write, say and use simple ratios as a fraction, percentage or numbers separated by a colon; that is 3:1, in practical contexts. Use ratios to solve problems in context (read simple scales on maps and plans, make mixtures given directions). Use repeated addition, multiplication or division to increase or decrease amounts in practical situations. Determine whether an answer is reasonable in everyday problems involving ratios and communicate the solution in language and symbols consistent with the context.</p> <p>4.1.7–4.1.13</p>
5–6	<p>Statistics</p> <p>Identify and describe the use of statistics and various data displays in everyday contexts. Collect and organise familiar data in appropriate tables, charts and graphs. Construct graphs and charts from simple everyday data using spreadsheets. Read and interpret tables and graphs and draw simple inferences beyond the data. Critically evaluate graphs to determine if they are misleading. Understand and use mean, mode and median as averages in straightforward, everyday contexts. Determine whether a prediction or inference is reasonable in statistics contexts. Communicate oral and written information about statistics in language and symbols consistent with the context.</p> <p>4.2.2, 4.2.8–4.2.14</p>
7–8	<p>Probability</p> <p>Identify everyday events in which predictions are made based on probability. Understand that chance is measured on a 0 to 1 scale and be able to place everyday terms for chance on the scale and relate them to fractions, decimals and percentages. Using simple, everyday fractions, decimals and percentages: order outcomes from least likely to most likely and describe, compare and interpret the likelihood of everyday chance events. Predict the likelihood of common everyday events happening, based on past experience or data. Determine whether a prediction or inference is reasonable in probability contexts. Communicate oral and written information about probability in language and symbols consistent with the context.</p> <p>4.2.1, 4.2.3–4.2.7, 4.2.13–4.2.14</p>
9–10	<p>Application of the mathematical thinking process in a work context</p> <p>Integrate functional numeracy concepts to solve a problem related to starting a new job. Use the four operations in calculations. Choose the appropriate operation to efficiently determine income and expenses mentally, with a calculator or spreadsheet. Read and interpret maps. Read and use various forms of timetable and work out how to be on time. Work out elapsed time using different time units.</p> <p>4.3.1, 4.3.2–4.3.4, 4.3.5–4.3.7, 4.3.11</p>

Week	Key teaching points
11–13	<p>Application of the mathematical thinking process in a personal context</p> <p>Integrate functional numeracy concepts to solve a problem related to decorating and furnishing a room within a budget. Choose the appropriate operations to efficiently determine the cost of items within a limited budget. Use measurements of length, perimeter, area and capacity to determine placement of items within the space. Read, interpret and draw a plan, attending to shape and location.</p> <p>4.3.1, 4.3.2–4.3.4, 4.3.8–4.3.9, 4.3.11–4.3.12</p>
14–16	<p>Application of the mathematical thinking process in a community context</p> <p>Integrate functional numeracy concepts to solve a problem related to planning the date and time for a community event based on the predictability of weather – temperature and rainfall. Tell the time and work out elapsed time. Read and use calendars. Interpret and use tables, charts and graphs.</p> <p>4.3.1, 4.3.2–4.3.4, 4.3.7, 4.3.10</p>