Maths Trek

NSW Syllabus Match

Stage 2 – Stage 3

NSW Syllabus Edition

Availability information

The NSW Syllabus Edition for **Years 3–6 will be ready for use in 2026.**

Note: The NSW Syllabus Edition for **K–2 is available now.**

Refer to the NSW Syllabus Match Early Stage 1 – Stage 1 for information on how those year levels match to the NSW Syllabus.

04/25

Refer to the tables to see how the Maths Trek NSW Syllabus Edition topics, investigations and problem-solving units match the NSW Mathematics Syllabus for Stage 2A to Stage 3B.

Stage 2A Syllabus Match — Maths Trek 3

Working mathematically

Outcome MAO-WM-01 is comprehensively covered in the Maths Trek program. Students develop mathematical understanding, fluency, reasoning and problem-solving skills as they work through the sequence of topics, revision, investigations, problem-solving strategies and practice problems.

A student:

- develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01

Number and algebra

Mathematical concept	Outcomes	Content	Topics and investigations
Representing numbers using place value A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • applies an understanding of place value and the role of zero to represent numbers to at least tens of thousands MA2-RN-01 • represents and compares decimals up to 2 decimal places using place value MA2-RN-02	**Whole numbers: Read, represent and order numbers to thousands**	
		• Group physical or virtual objects to show the structure of tens, hundreds and a thousand	**2.3** Place value to thousands
		• Regroup numbers flexibly, recognising one thousand as 10 hundreds and one hundred as 10 tens or 100 ones	**1.3** Regrouping numbers **3.1** Expanded notation
		• Compare and describe the relative size of numbers by positioning numbers on a number line (Reasons about quantity)	**3.3** Comparing numbers
		• Count forwards and backwards by tens and hundreds on and off the decade	**3.2** Counting on and back by 1, 10, 100
		• Represent numbers up to and including thousands using physical or virtual manipulatives, words, numerals, diagrams and digital displays	**1.3** Regrouping numbers **2.3** Place value to thousands **3.1** Expanded notation
		• Read and order numbers of up to at least 4 digits	**3.3** Comparing numbers **14.3** Ordering numbers **15.3** Comparing and ordering numbers
		• Identify the number before and after a number with an internal zero digit	**3.2** Counting on and back by 1, 10, 100
		Whole numbers: Apply place value to partition and regroup numbers up to 4 digits	
		• Record numbers using standard place value form	**1.3** Regrouping numbers **2.3** Place value to thousands **3.1** Expanded notation
		• Partition numbers of up to 4 digits in non-standard forms (Reasons about quantity)	**1.3** Regrouping numbers

ISBN 978 1 74135 328 0

Stage 2A Syllabus Match — Maths Trek 3

Number and algebra

Mathematical concept	Outcomes	Content	Topics and investigations
Additive relations A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • selects and uses mental and written strategies for addition and subtraction involving 2- and 3-digit numbers MA2-AR-01 • completes number sentences involving addition and subtraction by finding missing values MA2-AR-02	**Use the principle of equality**	
		• Recognise equal differences and record them in number sentences	**2.2** Subtraction strategies
		• Use the equals sign to mean 'the same as', rather than to perform an operation	**11.3** Equivalent number sentences
		• Apply the associative property of addition to forming multiples of 10 (Reasons about relations)	**10.2** Turnarounds and friendly pairs
		Recognise and explain the connection between addition and subtraction	
		• Use number relation principles to solve related problems (Reasons about relations)	**1.2** Fact families for addition and subtraction
		• Demonstrate how addition and subtraction are inverse operations	**1.2** Fact families for addition and subtraction **21.3** Inverse operations
		• Use the complement principle of addition and subtraction (Reasons about relations)	**14.1** Addition with bar models **14.2** Subtraction with bar models
		• Explain and check solutions to problems, including by using the inverse operation	**21.3** Inverse operations
		Select strategies flexibly to solve addition and subtraction problems of up to 3 digits	
		• Apply known mental strategies that use partitioning to add and subtract, such as bridging the decades	**4.2** Addition with partitioning **4.3** Subtraction with partitioning **19.2** Addition with place value **19.3** Subtraction with place value **28.2** Addition and subtraction
		• Use the compensation strategy to add and subtract (Reasons about relations)	**2.1** Addition strategies **2.2** Subtraction strategies
		• Apply the levelling and constant difference strategies (Reasons about relations)	**2.2** Subtraction strategies
		• Represent solutions to addition and subtraction problems, including word problems, using an empty number line or bar model	**10.3** Number sentences and word problems **11.1** Solving problems with bar models **14.1** Addition with bar models **14.2** Subtraction with bar models
		• Compare and evaluate strategies used to solve addition and subtraction problems, reasoning which strategy may be most efficient	**2.1** Addition strategies **2.2** Subtraction strategies

ISBN 978 1 74135 328 0

Stage 2A Syllabus Match — Maths Trek 3

Number and algebra

Mathematical concept	Outcomes	Content	Topics and investigations
Additive relations A cont.		**Represent money values in multiple ways**	
		• Recognise the relationship between dollars and cents	**21.2** Dollars and cents
		• Represent equivalent amounts of money using different denominations	**21.1** Equivalent values of money
		• Perform calculations with money, including finding change	**21.2** Dollars and cents
Multiplicative relations A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • represents and uses the structure of multiplicative relations to 10 × 10 to solve problems MA2-MR-01 • completes number sentences involving multiplication and division by finding missing values MA2-MR-02	**Generate and describe patterns**	
		• Model, describe and record patterns of multiples	**16.1** Number patterns **16.2** Multiples 2, 4, 5, 10 **16.3** Multiples and repeated addition
		• Create and continue a variety of number patterns that increase or decrease by a constant amount	**16.1** Number patterns **16.2** Multiples 2, 4, 5, 10 **16.3** Multiples and repeated addition
		• Recognise the significance of the final digit of a whole number in determining whether a given number is even or odd (Reasons about relations)	**4.1** Odd and even numbers
		• Recognise the connection between even numbers and the multiplication facts for 2 (Reasons about relations)	**17.1** Multiplication facts 2, 4
		• Investigate the result of multiplying by one and zero (Reasons about relations)	**17.1** Multiplication facts 2, 4 **17.2** Multiplication facts 5, 10
		Use arrays to establish multiplication facts from multiples of 2 and 4, 5 and 10	
		• Create and represent multiplicative structure, using the term multiples when connecting grouping to arrays	**17.1** Multiplication facts 2, 4 **17.2** Multiplication facts 5, 10 **28.1** Fact families for multiplication and division
		• Use the array structure to coordinate the number of groups with the number in each group	**17.1** Multiplication facts 2, 4 **17.2** Multiplication facts 5, 10 **28.1** Fact families for multiplication and division
		• Record the first 10 multiples formed by counting by twos, fours, fives and tens	**16.2** Multiples 2, 4, 5, 10 **16.3** Multiples and repeated addition
		• Relate *doubling* to multiplication facts for multiples of 2	**17.1** Multiplication facts 2, 4
		• Recognise that doubling is multiplying by 2 and *halving* is dividing by 2 (Reasons about relations)	**24.1** Division facts 2, 4
		• Recognise the relationship between one multiple and its double (Reasons about relations)	**16.3** Multiples and repeated addition
		• Model square numbers and record in numerical and diagrammatic form	**17.3** Square numbers

ISBN 978 1 74135 328 0

Stage 2A Syllabus Match — Maths Trek 3

Number and algebra

Mathematical concept	Outcomes	Content	Topics and investigations
Multiplicative relations A cont.		**Recall multiplication facts of 2 and 4, 5 and 10 and related division facts**	
		• Recognise and use the symbols for multiplied by (×), divided by (÷) and equals (=)	**17.1** Multiplication facts 2, 4 **17.2** Multiplication facts 5, 10 **24.1** Division facts 2, 4 **24.2** Division facts 5, 10 **24.3** Division problem-solving
		• Link multiplication and division fact families using arrays	**28.1** Fact families for multiplication and division
		• Generate multiplication fact families for multiples of 2 and 4, 5 and 10	**28.1** Fact families for multiplication and division
		• Model and apply the commutative property of multiplication	**28.1** Fact families for multiplication and division
		Represent and solve problems involving multiplication fact families	
		• Describe multiplication problems using *for each* and *times as many*	**20.3** Multiplication problem-solving
		• Find the total of partially covered arrays	**28.1** Fact families for multiplication and division
		• Apply the inverse relationship of multiplication and division (Reasons about relations)	**24.3** Division problem-solving
Partitioned fractions A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • represents and compares halves, quarters, thirds and fifths as lengths on a number line and their related fractions formed by halving (eighths, sixths and tenths) MA2-PF-01	**Create fractional parts of a length using techniques other than repeated halving**	
		• Make thirds of a length	**29.3** Fractions as part of a whole
		• Create fifths of a length	**29.3** Fractions as part of a whole
		Model and represent unit fractions, and their multiples, to a complete whole on a number line	
		• Model fractions with fraction strips and diagrams for halves, quarters, eighths, thirds	**29.3** Fractions as part of a whole **30.1** Fractions on a number line
		• Describe fraction families formed by dividing the whole into the same total number of equal parts as having the same denominator	**30.1** Fractions on a number line
		• Determine the complementary fractional part needed to complete one whole (halves, quarters, eighths, thirds) (Reasons about relations)	**30.1** Fractions on a number line
		• Recreate the whole unit from a fractional part ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ and $\frac{1}{8}$) (Reversible reasoning)	**29.3** Fractions as part of a whole **30.1** Fractions on a number line

ISBN 978 1 74135 328 0

Stage 2A Syllabus Match — Maths Trek 3

Measurement and space

Mathematical concept	Outcomes	Content	Topics and investigations
Geometric measure A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • uses grid maps and directional language to locate positions and follow routes MA2-GM-01 • measures and estimates lengths in metres, centimetres and millimetres MA2-GM-02 • identifies angles and classifies them by comparing to a right angle MA2-GM-03	**Position: Interpret movement on a map**	
		• Orient a map to determine directions to travel	**32.1** Maps and plans
		• Use given directions to follow routes on land and Aboriginal maps without a grid reference system (Reasons about spatial structure)	**32.3** Maps and directions
		• Describe a route taken on a map using landmarks and directional language	**32.1** Maps and plans; **32.3** Maps and directions
		Position: Locate positions on grid maps	
		• Locate positions by coordinating horizontal and vertical references	**32.2** Grid references; **32.3** Maps and directions
		• Use the array (row and column) structure of grid maps to locate position, horizontal before vertical	**32.2** Grid references; **32.3** Maps and directions
		Length: Measure and compare objects using metres, centimetres and millimetres	
		• Measure and record lengths and distances using a combination of metres and centimetres	**8.3** Measuring with metres and centimetres
		• Estimate lengths and distances using known lengths as benchmarks, in metres and centimetres and check by measuring	**8.1** Measuring with metres; **8.2** Measuring with centimetres
		• Compare and order lengths and distances using metres and centimetres	**8.1** Measuring with metres; **8.3** Measuring with metres and centimetres
		• Recognise the need for a formal unit smaller than the centimetre to measure length	**23.2** Measuring with millimetres
		• Identify that there are 10 millimetres in one centimetre	**23.2** Measuring with millimetres
		• Use the millimetre as a unit to measure lengths with a ruler	**23.2** Measuring with millimetres
		• Record lengths using the abbreviation for millimetres (mm)	**23.2** Measuring with millimetres
		Angles: Identify angles as measures of turn	
		• Identify angles with 2 arms in practical situations	**25.2** Angles
		• Identify the arms and vertex of an angle	**25.2** Angles
		• Recognise an angle as the amount of turning between 2 arms	**25.2** Angles

ISBN 978 1 74135 328 0

Stage 2A Syllabus Match — Maths Trek 3

Measurement and space

Mathematical concept	Outcomes	Content	Topics and investigations
Geometric measure A cont.		• Compare angles and explain that the length of the arms does not affect the size of the angle (Reasons about spatial relations)	**25.2** Angles
		• Use the term *right angle* to describe a quarter-turn in a range of orientations (Reasons about spatial orientation)	**30.3** Right angles
Two-dimensional spatial structure A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • compares two-dimensional shapes and describes their features MA2-2DS-01 • performs transformations by combining and splitting two-dimensional shapes MA2-2DS-02 • estimates, measures and compares areas using square centimetres and square metres MA2-2DS-03	**2D shapes: Compare and describe features of two-dimensional shapes**	
		• Describe and compare two-dimensional shapes, including parallelograms, rectangles, rhombuses, squares, trapeziums and kites	**20.2** Quadrilaterals
		• Identify and describe polygons that have parallel sides and those that do not	**20.2** Quadrilaterals
		• Identify quadrilaterals that have all sides equal in length	**20.2** Quadrilaterals
		• Identify right angles in shapes	**20.2** Quadrilaterals
		• Group quadrilaterals using one or more attributes	**20.2** Quadrilaterals
		2D shapes: Transform shapes by reflecting, translating and rotating	
		• Identify lines of symmetry in pictures, artefacts, designs and the environment	**19.1** Line symmetry
		• Draw lines of symmetry on given shapes and identify quadrilaterals that do not have lines of symmetry	**20.2** Quadrilaterals
		• Create and record tessellating designs by reflecting, translating and rotating triangles	**30.2** Tessellation
		• Apply and describe amounts of rotation including half-turns, quarter-turns and three-quarter-turns when creating designs	**30.2** Tessellation
		Area: Use square centimetres to measure and estimate the areas of rectangles	
		• Create the array structure of area using squares (1 cm × 1 cm) in rows and columns	**12.3** Area with square centimetres
		• Recognise that area can be measured in square centimetres	**12.3** Area with square centimetres
		• Discuss strategies to estimate area in square centimetres	**12.3** Area with square centimetres
		• Explain how the grid structure of rows and columns helps to find the area (Reasons about spatial structure)	**12.3** Area with square centimetres

ISBN 978 1 74135 328 0

Stage 2A Syllabus Match — Maths Trek 3

Measurement and space

Mathematical concept	Outcomes	Content	Topics and investigations
Two-dimensional spatial structure A cont.		• Estimate and measure the areas of squares and rectangles (within the range of 100 square centimetres)	**12.3** Area with square centimetres
		• Record area in square centimetres using numerals and words	**12.3** Area with square centimetres
		• Use efficient strategies for counting large numbers of square centimetres	**12.3** Area with square centimetres
		Area: Use square metres to measure and estimate the areas of rectangles	
		• Recognise the need for a formal unit larger than the square centimetre to measure area	**12.2** Area with square metres
		• Construct a square metre and use it to measure the areas of large squares and rectangles	**12.2** Area with square metres
		• Recognise that an area of one square metre need not be a square (Reasons about spatial structure)	**12.2** Area with square metres
		• Record areas in square metres using numerals and words	**12.2** Area with square metres
		• Estimate the areas of squares and rectangles in square metres	**12.2** Area with square metres
Three-dimensional spatial structure A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • makes and sketches models and nets of three-dimensional objects including prisms and pyramids MA2-3DS-01 • estimates, measures and compares capacities (internal volumes) using litres, millilitres and volumes using cubic centimetres MA2-3DS-02	3D objects: Make models of three-dimensional objects to compare and describe key features	
		• Identify the differences between prisms (including cubes), pyramids and cylinders	**26.1** Pyramids and prisms **26.2** Nets of 3D objects
		• Construct models of prisms, pyramids and cylinders using physical or virtual manipulatives, identifying their features	**26.1** Pyramids and prisms **26.2** Nets of 3D objects
		• Deconstruct everyday packages that are prisms (including cubes) to create nets	**26.2** Nets of 3D objects
		• Investigate the variety of nets that can be used to create a particular prism	**26.2** Nets of 3D objects
		Volume: Measure and order containers using litres	
		• Recognise the need for formal units to measure capacity (internal volume) accurately	**15.2** Measuring with litres
		• Use the litre as a unit to measure capacities (internal volumes) to the nearest litre	**15.2** Measuring with litres
		• Relate the litre to familiar everyday containers	**15.2** Measuring with litres
		• Recognise that one-litre containers can be a variety of shapes (Reasons about spatial structure)	**15.2** Measuring with litres

ISBN 978 1 74135 328 0

Stage 2A Syllabus Match — Maths Trek 3

Measurement and space

Mathematical concept	Outcomes	Content	Topics and investigations
Three-dimensional spatial structure A cont.		• Record capacities (internal volumes) using the abbreviation for litres (L)	**15.2** Measuring with litres
		• Estimate the capacity (internal volume) of a container in litres and check by measuring	**15.2** Measuring with litres
		Volume: Compare objects using familiar metric units of volume	
		• Construct rectangular prisms using cubic-centimetre blocks and describe the volumes in terms of layers	**25.3** Connecting cubes
		• Record volumes using numerals and words	**25.3** Connecting cubes
		• Compare the volumes of 2 or more objects made from cubic-centimetre blocks	**25.3** Connecting cubes
Non-spatial measure A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • estimates, measures and compares the masses of objects using kilograms and grams MA2-NSM-01 • represents and interprets analog and digital time in hours, minutes and seconds MA2-NSM-02	Mass: Compare objects using the kilogram	
		• Recognise the need for a formal unit to measure mass	**12.1** Measuring with kilograms
		• Identify familiar objects that have a mass of about one kilogram	**12.1** Measuring with kilograms
		• Record masses using the abbreviation for kilograms (kg)	**12.1** Measuring with kilograms
		• Find objects that have an estimated mass of *more than*, *less than* and *about the same as* one kilogram and check by comparing to a 1 kg mass	**12.1** Measuring with kilograms
		Time: Represent and read analog time	
		• Use minutes to describe the duration of events	**29.1** Seconds, minutes, hours **29.2** Duration of time
		• Identify 30 minutes as being a half-hour and 60 minutes as an hour	**29.2** Duration of time
		• Connect the quarter-hour to 15 minutes	**23.3** Time to the nearest minute **29.2** Duration of time
		• Recognise that the position of the numerals on an analog timepiece often represents 2 different values	**23.3** Time to the nearest minute **29.2** Duration of time
		• Recognise that 5-minute intervals (corresponding to the hour markers) are used as benchmarks to read time on an analog clock	**7.1** Time past the hour **15.1** Time to the hour
		• Read time as past the hour to half-past and then towards the hour	**7.1** Time past the hour **15.1** Time to the hour
		• Read analog clocks to the minute	**23.3** Time to the nearest minute

ISBN 978 1 74135 328 0

Stage 2A Syllabus Match — Maths Trek 3

Statistics and probability

Mathematical concept	Outcomes	Content	Topics and investigations
Data A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • collects discrete data and constructs graphs using a given scale MA2-DATA-01 • interprets data in tables, dot plots and column graphs MA2-DATA-02	**Collect discrete data**	
		• Pose questions about a matter of interest to obtain information that can be recorded in categories	6.1 Collecting and organising data
		• Collect data from identified sources	6.1 Collecting and organising data
		• Predict and create a list of categories for efficient data collection in relation to a matter of interest	INV How do I measure up?
		Organise and display data using tables and graphs	
		• Create a list or table to organise the data	6.1 Collecting and organising data INV How do I measure up?
		• Construct column graphs (with scale intervals of 1) and dot plots using relevant software where appropriate	7.2 Column graphs 10.1 Dot plots 28.3 Column graphs
		• Mark equal spaces (intervals) on axes, name and label axes and choose appropriate titles for column graphs	7.2 Column graphs 28.3 Column graphs
		Interpret and compare data	
		• Describe and interpret information presented in tally tables and column graphs	6.2 Predicting possible outcomes 6.3 Predicting possible outcomes with spinners 7.3 Interpreting graphs 28.3 Column graphs
		• Investigate how data is interpreted to make decisions	6.2 Predicting possible outcomes 6.3 Predicting possible outcomes with spinners 7.3 Interpreting graphs 28.3 Column graphs
		• Represent the same dataset using more than one type of display and compare the displays (Statistical reasoning)	11.2 Comparing graphs
Chance A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • records and compares the results of chance experiments MA2-CHAN-01	**Identify possible outcomes from chance experiments**	
		• Use the term *outcome* to describe any possible result of a chance experiment	6.2 Predicting possible outcomes 6.3 Predicting possible outcomes with spinners
		• Record all possible outcomes in a chance experiment where the outcomes are equally likely	6.2 Predicting possible outcomes 6.3 Predicting possible outcomes with spinners
		• Record all possible combinations in a chance situation where the outcomes are equally likely	26.3 Possible combinations
		• Predict the number of times each outcome might occur in a chance experiment involving a set number of trials (Probabilistic reasoning)	6.2 Predicting possible outcomes 6.3 Predicting possible outcomes with spinners
		• Conduct experiments and compare the predicted and actual results where the outcomes are equally likely	6.2 Predicting possible outcomes 6.3 Predicting possible outcomes with spinners

ISBN 978 1 74135 328 0

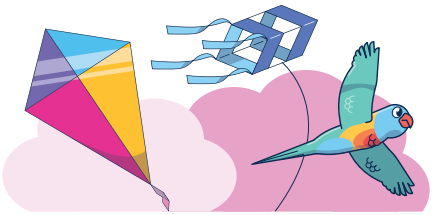
Stage 2B Syllabus Match — Maths Trek 4

Working mathematically

Outcome MAO-WM-01 is comprehensively covered in the Maths Trek program. Students develop mathematical understanding, fluency, reasoning and problem-solving skills as they work through the sequence of topics, revision, investigations, problem-solving strategies and practice problems.

A student:

- develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01



Number and algebra

Mathematical concept	Outcomes	Content	Topics
Representing numbers using place value B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • applies an understanding of place value and the role of zero to represent numbers to at least tens of thousands MA2-RN-01 • represents and compares decimals up to 2 decimal places using place value MA2-RN-02	**Whole numbers: Order numbers in the thousands** • Arrange numbers in the thousands in ascending and descending order	**16.3** Comparing and ordering numbers
		• Recognise and describe how rearranging digits changes the size of a number (Reasons about relations)	**16.3** Comparing and ordering numbers
		• Identify the nearest thousand, 10 thousand or 100 thousand to numbers	**8.2** Rounding to ten thousands
		Whole numbers: Apply place value to partition, regroup and rename numbers up to 6 digits • Name thousands using the place value grouping of ones, tens and hundreds of thousands	**1.2** Place value to ten thousands **3.1** Place value and expanded notation **10.2** Place value and expanded notation **19.3** Place value to hundred thousands
		• Use place value to expand the number notation	**3.1** Place value and expanded notation **10.2** Place value and expanded notation
		• Partition numbers of up to 6 digits in non-standard forms	**10.2** Place value and expanded notation
		Whole numbers: Recognise and represent numbers that are 10, 100 or 1000 times as large • Recognise the number of tens, hundreds or thousands in a number	**1.2** Place value to ten thousands **19.3** Place value to hundred thousands
		• Describe how making a number 10, 100 or 1000 times as large changes the place value of digits	**2.3** Multiplication by 10 **16.2** Multiplying and dividing by 10, 100, 1000

ISBN 978 1 74135 328 0

Stage 2B Syllabus Match — Maths Trek 4

Number and algebra

Mathematical concept	Outcomes	Content	Topics	
Representing numbers using place value B cont.		**Decimals: Extend the application of the place value system from whole numbers to tenths and hundredths**		
		• Divide a length representing one whole into 10 equal parts and label the divisions using decimal notation	**11.2** Tenths on a number line	
		• Use the decimal point as a marker to identify the position of the ones digit when expressing tenths as decimals	**11.1** Place value to tenths	**11.2** Tenths on a number line
		• Recognise that 10-tenths is recorded as 1.0 and regroup when using decimal notation	**11.2** Tenths on a number line	
		• Represent and compare tenths as decimals using linear representations (Reasons about relations)	**11.2** Tenths on a number line	
		• Subdivide tenths into 10 equal parts and record hundredths using place value	**24.3** Hundredths on a number line	
		• Express decimals as both tenths and hundredths	**24.2** Place value to hundredths	
		• Locate and order decimals representing tenths and hundredths on a number line, describing their relative size	**24.3** Hundredths on a number line	
		• Interpret zero digits at the end of a decimal	**24.2** Place value to hundredths	
		• Distinguish between the role of zero in various positions	**24.3** Hundredths on a number line	
		Decimals: Make connections between fractions and decimal notation		
		• Record equivalent measurements using decimals	**28.2** Connecting fractions and decimals	
		• Connect fraction strips showing tenths to a number line marked in hundredths	**28.2** Connecting fractions and decimals	
		• Compare and order decimals of up to 2 decimal places	**24.3** Hundredths on a number line	**28.2** Connecting fractions and decimals
		• Make connections between fractions and decimal notation for key benchmark values (Reasons about relations)	**28.2** Connecting fractions and decimals	

ISBN 978 1 74135 328 0

Stage 2B Syllabus Match — Maths Trek 4

Number and algebra

Mathematical concept	Outcomes	Content	Topics	
Additive relations B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • selects and uses mental and written strategies for addition and subtraction involving 2- and 3-digit numbers MA2-AR-01 • completes number sentences involving addition and subtraction by finding missing values MA2-AR-02	**Partition, rearrange and regroup numbers to at least 1000 to solve additive problems**		
		• Use quantity values and non-standard partitioning to solve addition and subtraction problems	**23.1** Turnarounds and friendly pairs	
		• Model addition with and without regrouping and record the method used	**1.3** Addition **15.2** Addition	**19.1** Addition **28.1** Addition and subtraction
		• Model subtraction with and without regrouping and record the method used	**2.1** Subtraction **15.3** Subtraction	**19.2** Subtraction **28.1** Addition and subtraction
		• Use an algorithm with understanding to record addition and subtraction calculations, where efficient, involving 3-digit numbers	**15.2** Addition **15.3** Subtraction **19.1** Addition	**19.2** Subtraction **28.1** Addition and subtraction
		• Recognise how hundreds are exchanged in subtraction algorithms requiring regrouping	**15.3** Subtraction **19.2** Subtraction	**28.1** Addition and subtraction
		• Recognise when mental strategies would be more efficient than a vertical algorithm for subtraction (Reasons about relations)	**19.2** Subtraction	
		• Solve subtraction questions with missing digits given the difference (Reasons about relations)	**15.3** Subtraction	
		Apply addition and subtraction to familiar contexts, including money and budgeting		
		• Use estimation to check the validity of solutions to addition and subtraction problems, including those involving money	**6.3** Budgets	**17.1** Estimation strategies
		• Reflect on a chosen strategy for solving a problem, considering whether it can be improved	**19.1** Addition	
		• Interpret problems involving money as requiring either addition or subtraction	**6.2** Calculating with money	**6.3** Budgets
		Complete number sentences involving additive relations to find unknown quantities		
		• Calculate missing numbers by completing number sentences involving addition and subtraction (Algebraic reasoning)	**26.3** Inverse operations	
		• Find the missing number in an equivalent number sentence involving operations of addition or subtraction on both sides of the equals sign (Algebraic reasoning)	**15.1** Equivalent number sentences	
		• Create word problems that correspond to given addition and subtraction number sentences	**19.1** Addition	**19.2** Subtraction

ISBN 978 1 74135 328 0

Stage 2B Syllabus Match — Maths Trek 4

Number and algebra

Mathematical concept	Outcomes	Content	Topics
Multiplicative relations B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • represents and uses the structure of multiplicative relations to 10 × 10 to solve problems MA2-MR-01 • completes number sentences involving multiplication and division by finding missing values MA2-MR-02	**Investigate number sequences involving related multiples**	
		• Generate number patterns using related multiples	**2.2** Multiples
		• Investigate number patterns involving related multiples	**2.2** Multiples
		Use known number facts and strategies	
		• Apply the known strategy of doubling to connect multiples of 3 to 6 and 4 to 8 (Reasons about relations)	**3.2** Multiplication facts 2, 4, 8, 5, 10 **3.3** Multiplication facts 3, 6, 9
		• Use known facts to find unknown multiples (Reasons about relations)	**3.2** Multiplication facts 2, 4, 8, 5, 10 **3.3** Multiplication facts 3, 6, 9
		Use the structure of the area model to represent multiplication and division	
		• Create and represent multiplicative structure, moving from arrays to partially covered area models	**4.3** Modelling multiplication with arrays **10.1** Factors **25.3** Modelling division with area
		Use number properties to find related multiplication facts	
		• Use the commutative property of multiplication	**3.2** Multiplication facts 2, 4, 8, 5, 10 **3.3** Multiplication facts 3, 6, 9 **4.3** Modelling multiplication with arrays **10.1** Factors
		• Use the associative property within multiplication to regroup the factors (Reasons about structure)	**4.3** Modelling multiplication with arrays
		• Use flexible partitioning within multiplication (Reasons about relations)	**4.3** Modelling multiplication with arrays
		• Generate and recall multiplication fact families up to 10 x 10	**3.2** Multiplication facts 2, 4, 8, 5, 10 **3.3** Multiplication facts 3, 6, 9 **25.1** Division facts 2, 4, 8, 5, 10 **25.2** Division facts 3, 6, 9 **28.3** Fact families for multiplication and division
		Operate with multiples of 10	
		• Use multiplication facts with multiples of 10 to multiply a one-digit number by a multiple of 10	**2.3** Multiplication by 10
		• Use place value to rename groups of 10 to multiply	**2.3** Multiplication by 10
		• Apply the commutative and associative properties to multiply by multiples of 10	**30.1** Turnarounds and friendly pairs

ISBN 978 1 74135 328 0

Stage 2B Syllabus Match — Maths Trek 4

Number and algebra

Mathematical concept	Outcomes	Content	Topics
Multiplicative relations B cont.		**Represent and solve word problems with number sentences involving multiplication or division**	
		• Use the equals sign to record equivalent number relationships involving multiplication (Reasons about relations)	**15.1** Equivalent number sentences
		• Complete number sentences involving multiplication and division by calculating missing numbers (Reasons about relations)	**26.3** Inverse operations
		• Represent and solve multiplication and division (both sharing and grouping) word problems using number sentences	**6.1** Multiplication problem-solving **23.3** Multiplication using the area model **25.3** Modelling division with area **26.1** Division problem-solving **26.2** Multiplication using the area model
Partitioned fractions B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • represents and compares halves, quarters, thirds and fifths as lengths on a number line and their related fractions formed by halving (eighths, sixths and tenths) MA2-PF-01	**Model equivalent fractions as lengths**	
		• Represent the equivalence of fractions with related denominators as lengths, using concrete materials, diagrams and number lines	**21.1** Equivalent fractions
		• Recognise the need to have equal wholes to compare partitioned fractions (Reasoning about relations)	**21.1** Equivalent fractions
		• Represent fractions with the same-size whole to make valid comparisons (denominators of 2, 4 and 8; 3 and 6; 5 and 10)	**21.1** Equivalent fractions
		Represent fractional quantities equal to and greater than one	
		• Rename 2 halves, 3 thirds, 4 quarters, 5 fifths, 6 sixths, 8 eighths and 10 tenths as one whole	**23.2** Mixed numerals
		• Regroup fractional parts beyond one	**23.2** Mixed numerals
		• Represent totals of halves, thirds, quarters and fifths that extend beyond one	**20.3** Fractions on a number line **23.2** Mixed numerals
		• Determine the relative location of one-quarter and one-half when a number line extends beyond one	**20.3** Fractions on a number line

ISBN 978 1 74135 328 0

Stage 2B Syllabus Match — Maths Trek 4

Measurement and space

Mathematical concept	Outcomes	Content	Topics
Geometric measure B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • uses grid maps and directional language to locate positions and follow routes MA2-GM-01 • measures and estimates lengths in metres, centimetres and millimetres MA2-GM-02 • identifies angles and classifies them by comparing to a right angle MA2-GM-03	**Position: Create and interpret grid maps**	
		• Create simple maps and plans from an aerial view, labelling grid references	**17.2** Grid references
		• Identify and mark locations on maps and plans, given their grid references	**17.2** Grid references
		Position: Use directional language and describe routes with grid maps	
		• Use a given grid map and compass directions (N, S, E, W) to plan, describe and show a route from one location to another	**17.3** Maps, pathways and directions
		• Use natural resources or landmarks to identify north, south, east, west	**17.3** Maps, pathways and directions
		• Relate compass directions to amounts of turn	**17.3** Maps, pathways and directions
		• Describe a return journey between 2 locations on a grid map (Reasons about spatial orientation)	**17.3** Maps, pathways and directions
		Length: Use scaled instruments to measure and compare lengths	
		• Select and use an appropriate scaled instrument to measure lengths and distances	**11.3** Measuring perimeter **29.2** Measuring with millimetres **29.3** Millimetres, centimetres and metres
		• Select and use an appropriate unit to estimate, measure and compare lengths and distances	**11.3** Measuring perimeter **29.2** Measuring with millimetres **29.3** Millimetres, centimetres and metres
		• Recognise the features of a three-dimensional object associated with length that can be measured	**29.2** Measuring with millimetres **29.3** Millimetres, centimetres and metres
		• Use the term *perimeter* to describe the distance around the boundary	**11.3** Measuring perimeter **12.1** Calculating perimeter
		• Estimate and measure the perimeters of quadrilaterals	**12.1** Calculating perimeter
		• Convert between metres and centimetres, and between centimetres and millimetres	**29.2** Measuring with millimetres **29.3** Millimetres, centimetres and metres
		• Record lengths and distances using decimal notation to 2 decimal places	**29.3** Millimetres, centimetres and metres

ISBN 978 1 74135 328 0

Stage 2B Syllabus Match — Maths Trek 4

Measurement and space

Mathematical concept	Outcomes	Content	Topics
Geometric measure B cont.		**Angles: Compare angles to a right angle**	
		• Compare angles to a right angle using an informal means	**21.2** Angles
		• Recognise and describe angles as *less than*, *equal to*, *about the same as* or *greater than* a right angle	**21.2** Angles
		• Describe angles in comparison to quarter-turns as acute, right, obtuse, straight, reflex or a revolution	**21.2** Angles
		• Identify the arms and vertex of an angle where one arm is visible and the other arm is invisible	**21.2** Angles
Two-dimensional spatial structure B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • compares two-dimensional shapes and describes their features MA2-2DS-01 • performs transformations by combining and splitting two-dimensional shapes MA2-2DS-02 • estimates, measures and compares areas using square centimetres and square metres MA2-2DS-03	**2D shapes: Create two-dimensional shapes that result from combining and splitting common shapes**	
		• Combine common two-dimensional shapes, including quadrilaterals, to form other common shapes or designs	**30.2** Combining shapes
		• Split a given shape into 2 or more common shapes and describe the result	**30.2** Combining shapes
		• Record the arrangements of common shapes used to create other shapes	**30.2** Combining shapes
		2D shapes: Create symmetrical patterns and shapes	
		• Create and record tessellating designs by reflecting, translating and rotating triangles or quadrilaterals	**21.3** Tessellation
		• Apply and describe amounts of rotation, including half-turns, quarter-turns and three-quarter-turns, when creating designs	**10.3** Symmetrical patterns; **21.3** Tessellation
		Area: Measure the areas of shapes using the grid structure	
		• Measure the areas of rectangles and right-angled triangles using a square-centimetre grid overlay	**12.2** Area; **12.3** Area of irregular shapes
		• Estimate the areas of shapes found in the environment using efficient strategies (non-count-by-one) with a grid overlay	**12.3** Area of irregular shapes
		• Recognise that rectangles with different side lengths can have the same area	**12.2** Area
		Area: Compare surfaces using familiar metric units of area	
		• Estimate before measuring to determine the larger of 2 rectangular areas in square centimetres	**12.2** Area
		• Estimate before measuring to determine the larger of 2 rectangular areas in square metres	**12.2** Area

ISBN 978 1 74135 328 0

Stage 2B Syllabus Match — Maths Trek 4

Measurement and space

Mathematical concept	Outcomes	Content	Topics
Three-dimensional spatial structure B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • makes and sketches models and nets of three-dimensional objects including prisms and pyramids MA2-3DS-01 • estimates, measures and compares capacities (internal volumes) using litres, millilitres and volumes using cubic centimetres MA2-3DS-02	**3D objects: Connect three-dimensional objects and two-dimensional representations**	
		• Identify features of prisms and pyramids (faces, vertices and edges) and cylinders (curved/flat surfaces and boundaries) from images	**4.1** Drawing pyramids and prisms **14.3** Views of 3D objects
		• Create sketches of rectangular prisms and pyramids, showing depth	**4.1** Drawing pyramids and prisms
		• Create sketches of three-dimensional objects from different views, including top, front and side views (Reasons about spatial relations)	**14.3** Views of 3D objects
		• Draw different views on isometric grids of an object constructed from connecting cubes	**14.3** Views of 3D objects
		• Interpret given drawings to make models of three-dimensional objects using connecting cubes (Reasons about spatial visualisation)	**14.3** Views of 3D objects
		Volume: Use scaled instruments to measure and compare capacities (internal volumes)	
		• Recognise the need for a formal unit smaller than the litre to measure capacity (internal volume)	**7.1** Measuring with litres and millilitres
		• Use a scaled instrument to relate 1000 millilitres to one litre	**7.1** Measuring with litres and millilitres **7.2** Reading graduated scales **7.3** Converting litres and millilitres
		• Relate benchmark values to familiar everyday containers	**7.1** Measuring with litres and millilitres
		• Calibrate a container by marking 100 mL increments to measure capacity (internal volume) to the nearest 100 mL	**7.1** Measuring with litres and millilitres
		• Record capacity (internal volume) using the abbreviation for millilitres (mL) and litres (L)	**7.1** Measuring with litres and millilitres
		• Compare and order the capacities (internal volumes) of 2 or more containers measured in millilitres	**7.1** Measuring with litres and millilitres
		• Estimate the capacity (internal volume) of a container to common benchmark values, such as 250 mL, and check by measuring	**7.1** Measuring with litres and millilitres

ISBN 978 1 74135 328 0

Stage 2B Syllabus Match — Maths Trek 4

Measurement and space

Mathematical concept	Outcomes	Content	Topics
Non-spatial measure B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • estimates, measures and compares the masses of objects using kilograms and grams MA2-NSM-01 • represents and interprets analog and digital time in hours, minutes and seconds MA2-NSM-02	**Mass: Use scaled instruments to measure and compare masses**	
		• Recognise the need for a formal unit smaller than the kilogram	**8.1** Measuring with grams
		• Use a scaled instrument to relate 1000 grams to one kilogram	**7.2** Reading graduated scales **8.1** Measuring with grams **8.3** Measuring with kilograms and grams
		• Identify familiar objects that could be measured in grams	**8.1** Measuring with grams
		• Measure and record mass in grams (g) using a scaled instrument	**8.1** Measuring with grams
		• Compare 2 or more objects by mass measured in kilograms and grams using a set of scales	**8.3** Measuring with kilograms and grams
		• Interpret commonly used fractions of a kilogram, including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, and relate these to the number of grams	**8.3** Measuring with kilograms and grams
		• Record masses greater than a kilogram using kilograms and grams	**8.3** Measuring with kilograms and grams
		Time: Represent and interpret digital time displays	
		• Identify situations where duration is measured in seconds	**30.3** Converting units of time
		• Read or set the time on digital devices to the minute or second, recognising there are 60 seconds in one minute	**32.3** Time to the nearest minute
		• Recognise that the hour is read first in a digital display	**32.3** Time to the nearest minute
		• Determine the time remaining until the next hour on a digital clock	**32.2** Reading and interpreting timetables **32.3** Time to the nearest minute
		Time: Use am and pm notation	
		• Record times using the colon notation with am and pm to distinguish between morning and evening	**32.1** Time (am and pm)
		• Relate the terms *midday* or *noon* and *midnight* to am and pm	**32.1** Time (am and pm)
		• Relate analog notation to digital notation for time	**32.1** Time (am and pm) **32.3** Time to the nearest minute

ISBN 978 1 74135 328 0

Stage 2B Syllabus Match — Maths Trek 4

Statistics and probability

Mathematical concept	Outcomes	Content	Topics
Data B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • collects discrete data and constructs graphs using a given scale MA2-DATA-01 • interprets data in tables, dot plots and column graphs MA2-DATA-02	**Select and trial methods for data collection** • Create a survey and related recording sheet, considering the appropriate organisation of categories for data collection	**4.2** Collecting and organising data
		• Refine survey questions as necessary after a small trial	**4.2** Collecting and organising data
		• Conduct a survey or make observations to collect categorical or numerical data	**4.2** Collecting and organising data
		• Compare the effectiveness of different methods of collecting and recording data	**4.2** Collecting and organising data
		Construct and interpret data displays with many-to-one scales • Use a given many-to-one scale to represent discrete data in column graphs	**20.1** Column graphs
		• Use data in a spreadsheet to create column graphs with units on vertical axes that are in multiples	**20.1** Column graphs
		• Interpret and evaluate the effectiveness of various data displays found in media and in factual texts where displays represent data using a scale of many-to-one	**16.1** Dot plots **20.2** Comparing graphs
Chance B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • records and compares the results of chance experiments MA2-CHAN-01	**Describe the likelihood of outcomes of chance events** • Use the terms *equally likely*, *likely* and *unlikely* to describe the chance of everyday events occurring	**14.1** Describing possible outcomes **24.1** Predicting possible outcomes
		• Compare the likelihood of obtaining particular outcomes in a simple chance experiment by predicting, conducting the experiment and comparing the results with the prediction	**24.1** Predicting possible outcomes
		Identify when events are affected by previous events • Identify and discuss events where the chance of one event occurring will not be affected by the occurrence of the other	**14.2** Dependent and independent events
		• Compare events where the chance of one event occurring is affected by the occurrence of the other (Reasons about relations)	**14.2** Dependent and independent events

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match

Maths Trek 5

Working mathematically

Outcome MAO-WM-01 is comprehensively covered in the Maths Trek program. Students develop mathematical understanding, fluency, reasoning and problem-solving skills as they work through the sequence of topics, revision, investigations, problem-solving strategies and practice problems.

A student:

- develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01

Number and algebra

Mathematical concept	Outcomes	Content	Topics and investigations
Represents numbers A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • applies an understanding of place value and the role of zero to represent the properties of numbers MA3-RN-01 • compares and orders decimals up to 3 decimal places MA3-RN-02 • determines percentages of quantities, and finds equivalent fractions and decimals for benchmark percentage values MA3-RN-03	**Whole numbers: Recognise, represent and order numbers in the millions**	
		• Name millions using the place value grouping of ones, tens and hundreds	**2.1** Place value to millions **10.1** Place value beyond millions
		• Arrange numbers in the millions in ascending and descending order using place value	**2.1** Place value to millions **10.1** Place value beyond millions
		• Round numbers to a specified place value	**3.1** Rounding to ten thousands **28.2** Rounding using a target digit strategy
		Whole numbers: Apply place value to partition, regroup and rename numbers to 1 billion	
		• Recognise 1000 thousands is 1 million and 1000 millions is 1 billion	**29.2** Place value to billions
		• Regroup numbers in different forms (Reasons about quantity)	**29.1** Place value and expanded notation
		• Partition numbers to 1 billion in non-standard forms	**29.1** Place value and expanded notation
		Decimals and percentages: Recognise that the place value system can be extended beyond hundredths	
		• Express thousandths as decimals	**7.2** Place value to thousandths
		• Interpret decimal notation for thousandths	**25.3** Measuring with litres and millilitres
		• Indicate the place value of digits in decimal numbers of up to 3 decimal places	**7.2** Place value to thousandths **7.3** Rounding decimals
		• Use place value to partition decimals	**7.2** Place value to thousandths

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Number and algebra

Mathematical concept	Outcomes	Content	Topics and investigations
Represents numbers A cont.		**Decimals and percentages: Compare, order and represent decimals**	
		• Compare and order decimal numbers of up to 3 decimal places	**21.3** Comparing decimals
		• Interpret zero digit(s) at the end of a decimal	**21.3** Comparing decimals
		• Compare the place value of digits by determining numbers that are 10 or 100 times the original decimal number as well as $\frac{1}{10}$ or $\frac{1}{100}$ times the original decimal numbers	**19.3** Multiply decimals by 10 or 100
		• Approximate the size of decimals	**7.3** Rounding decimals
		• Place decimal numbers of up to 3 decimal places on a number line	**7.2** Place value to thousandths
Additive relations A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • selects and applies appropriate strategies to solve addition and subtraction problems MA3-AR-01	**Apply efficient mental and written strategies to solve addition and subtraction problems**	
		• Solve word problems, including multistep problems	**14.3** Multi-step problems – add and subtract
		• Apply known strategies such as levelling, addition for subtraction, using constant difference, and bridging (Reasons about relations)	**14.2** Subtraction with zeros
		• Use place value to add or subtract 3 or more numbers with different numbers of digits	**2.2** Addition **2.3** Subtraction **14.1** Addition **14.2** Subtraction with zeros
		• Determine when it would be more efficient to use a calculator to add numbers	**14.1** Addition
		• Identify efficient and inefficient multidigit subtraction strategies	**14.2** Subtraction with zeros
		Use estimation and place value understanding to determine the reasonableness of solutions	
		• Round numbers appropriately when obtaining estimates to numerical calculations	**3.1** Rounding to ten thousands **28.2** Rounding using a target digit strategy
		• Use place value understanding to check for errors in calculations	**3.2** Estimation strategies **28.3** Estimation strategies
		• Use estimation to check the reasonableness of solutions to addition and subtraction calculations	**3.2** Estimation strategies **28.3** Estimation strategies

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Number and algebra

Mathematical concept	Outcomes	Content	Topics and investigations
Multiplicative relations A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • selects and applies appropriate strategies to solve multiplication and division problems MA3-MR-01 • constructs and completes number sentences involving multiplicative relations, applying the order of operations to calculations MA3-MR-02	**Determine products and factors**	
		• Use the term product to describe the result of multiplying 2 or more numbers	**1.2** Fact families for multiplication and division
		• Model different ways to show a whole number as a product (Reasons about structure)	**17.1** Factors
		• Determine factors for a given whole number	**17.1** Factors
		• Determine whether a number is prime, composite or neither (0 or 1)	**17.2** Prime and composite numbers
		Use partitioning and place value to multiply 2-, 3- and 4-digit numbers by one-digit numbers	
		• Use mental strategies to multiply one-digit numbers by 10, 100, 1000 and their multiples	**1.2** Fact families for multiplication and division
		• Estimate the product of 2 numbers (one-digit by 2- or 3-digit numbers) using multiples of 10 or 100	**3.2** Estimation strategies; **28.3** Estimation strategies
		• Use informal written strategies such as the area model to solve multiplication and division problems	**6.3** Multiplication using the area model; **8.2** Multiplication using split and multiply
		• Use the distributive property with the area model to partition numbers in representing multiplication problems	**6.3** Multiplication using the area model; **8.2** Multiplication using split and multiply
		• Use the distributive property with partial products to solve problems by multiplying the hundreds, then the tens and then the ones	**7.1** Multiplication using the area model
		• Record the product of multiplying by a one-digit number using a formal algorithm	**10.2** Multiplication – 3 digits × 1 digit; **24.2** Multiplication by tens and hundreds
		Select and apply mental and written strategies to multiply 2- and 3-digit numbers by 2-digit numbers	
		• Factorise numbers to aid mental multiplication	**17.1** Factors
		• Extend the area model to represent 2-digit by 2-digit multiplication	**24.3** Multiplication using the area model
		• Use a multiplication algorithm with understanding (Reasons about relations)	**24.2** Multiplication by tens and hundreds; **25.1** Multiplication – 3 digits × 2 digits
		• Solve multiplication word problems	**24.1** Multiplication; **25.1** Multiplication – 3 digits × 2 digits

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Number and algebra

Mathematical concept	Outcomes	Content	Topics and investigations	
Multiplicative relations A cont.		**Represent and solve division problems with whole number remainders**		
		• Model division, including where the answer involves a remainder, using materials or diagrams	**19.2** Division with remainders	
		• Record remainders in words to division problems	**19.2** Division with remainders	
		• Use known multiplication fact families to solve division problems for which answers may include a remainder	**15.2** Division	**19.2** Division with remainders
		• Use the term *quotient* to describe the result of a division calculation	**1.2** Fact families for multiplication and division	
		• Show the connection between division and multiplication involving the divisor and quotient	**19.2** Division with remainders	
		Select and apply strategies to divide a number with 3 or more digits by a one-digit divisor		
		• Estimate the result of dividing by a one-digit divisor	**3.2** Estimation strategies	**28.3** Estimation strategies
		• Use knowledge of multiples to partition as appropriate and divide	**15.2** Division **15.3** Division	**17.3** Division **23.3** Division with remainders
		• Apply and record appropriate strategies to solve division word problems	**1.3** Modelling division **17.3** Division	**23.3** Division with remainders
		• Use and interpret remainders in solutions to division problems	**19.2** Division with remainders	**23.3** Division with remainders
		• Use digital technologies to divide whole numbers by one- and 2-digit divisors	**20.1** Comparing and ordering fractions	
		Use estimation and rounding to check the reasonableness of answers to calculations		
		• Use estimation to check the reasonableness of answers to multiplication and division calculations	**3.2** Estimation strategies	**28.3** Estimation strategies

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Number and algebra

Mathematical concept	Outcomes	Content	Topics and investigations
Representing quantity fractions A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • compares and orders fractions with denominators of 2, 3, 4, 5, 6, 8 and 10 MA3-RQF-01 • determines $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$ of measures and quantities MA3-RQF-02	**Recognise the role of the number 1 as representing the whole**	
		• Compare halves and quarters of different sized wholes	**21.2** Subtracting fractions from one whole
		• Justify the need for fractions to refer to the number 1 as the common whole (Reasons about quantity)	**21.2** Subtracting fractions from one whole
		Compare and order common unit fractions	
		• Compare unit fractions as numbers to the benchmark value $\frac{1}{2}$	**20.1** Comparing and ordering fractions
		• Compare and order unit fractions with denominators of 2, 3, 4, 5, 6, 8 and 10 by placing them on a number line	**20.1** Comparing and ordering fractions
		Solve problems involving addition and subtraction of fractions with the same denominator	
		• Represent the sum of fractions with the same denominator, recreating the whole, where the result may exceed one	**20.3** Adding and subtracting fractions **21.1** Adding fractions
		• Find the difference between fractions with the same denominator and interpret the answer	**20.3** Adding and subtracting fractions
		• Solve word problems that involve fractions with the same denominator	**21.1** Adding fractions
		• Use diagrams, objects and mental strategies to subtract a unit fraction from any whole number including 1 (the complement principle)	**21.2** Subtracting fractions from one whole

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Measurement and space

Mathematical concept	Outcomes	Content	Topics and investigations
Geometric measure A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • locates and describes points on a coordinate plane MA3-GM-01 • selects and uses the appropriate unit and device to measure lengths and distances including perimeters MA3-GM-02 • measures and constructs angles, and identifies the relationships between angles on a straight line and angles at a point MA3-GM-03	**Position: Explore the Cartesian coordinate system**	
		• Recognise that the grid-map reference system gives the area of a location and the number plane identifies a specific point	**4.3** Coordinates and directions **19.1** Coordinates to locate position
		• Identify that in the coordinate system the lines are numbered, not the spaces	**4.3** Coordinates and directions **19.1** Coordinates to locate position
		• Identify the point of intersection of the 2 axes as the origin, having coordinates (0, 0)	**19.1** Coordinates to locate position
		• Plot and label points, given coordinates, on the number plane in the first quadrant, describing the horizontal position first, followed by the vertical position	**4.3** Coordinates and directions **19.1** Coordinates to locate position
		• Identify and record the coordinates of given points on the number plane in the first quadrant	**4.3** Coordinates and directions **19.1** Coordinates to locate position
		Length: Use metres and kilometres for length and distances	
		• Recognise the need for a formal unit longer than the metre for measuring distance	**15.1** Measuring with kilometres
		• Measure 100 metres and recognise that 10 times 100 metres is one kilometre, ie 1000 metres = 1 kilometre	**15.1** Measuring with kilometres **25.2** Choosing units of measurement
		• Estimate lengths and distances using an appropriate unit	**15.1** Measuring with kilometres
		• Record distances using the abbreviation for kilometres (km)	**15.1** Measuring with kilometres
		• Use a variety of measuring devices to measure lengths and distances in different contexts	**INV** Radical renovation
		Length: Measure lengths to find perimeters	
		• Use efficient strategies to calculate the perimeter of a large rectangular area in metres	**11.1** Perimeter of rectangles
		• Calculate perimeters of common two-dimensional shapes, including squares, rectangles and triangles	**10.3** Calculating perimeter **11.1** Perimeter of rectangles
		• Determine which side lengths are needed to find the perimeter of a shape (Reasons about relations)	**10.3** Calculating perimeter **11.1** Perimeter of rectangles
		• Recognise that rectangles with the same perimeter may have different dimensions (Spatial reasoning)	**11.3** Perimeter and dimensions

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Measurement and space

Mathematical concept	Outcomes	Content	Topics and investigations	
Geometric measure A cont.		**Angles: Estimate, measure and compare angles using degrees**		
		• Identify the arms and vertex of an angle where both arms are invisible, such as for rotations	**23.1** Classifying angles	
		• Explain how a protractor is formed and used to measure an angle	**23.2** Measuring angles 0° to 180°	**28.1** Measuring angles 0° to 360°
		• Estimate and describe the size of angles using known angles as benchmarks (Reasons about mental rotation)	**23.1** Classifying angles	
		• Record angle measurements using the symbol for degrees (°)	**23.2** Measuring angles 0° to 180°	**28.1** Measuring angles 0° to 360°
		• Measure angles of up to 360° using a protractor	**23.2** Measuring angles 0° to 180°	**28.1** Measuring angles 0° to 360°
		Angles: Use a protractor to measure and identify types of angles		
		• Create angles of up to 360° using a protractor	**23.2** Measuring angles 0° to 180°	**28.1** Measuring angles 0° to 360°
		• Recognise that a right angle is 90°, a straight angle is 180° and an angle of revolution is 360°	**23.1** Classifying angles	
		• Identify and describe angle size in degrees for the classifications acute, obtuse and reflex	**23.1** Classifying angles	**28.1** Measuring angles 0° to 360°
Two-dimensional spatial structure A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • investigates and classifies two-dimensional shapes, including triangles and quadrilaterals based on their properties MA3-2DS-01	**2D shapes: Classify two-dimensional shapes and describe their properties**		
		• Identify and classify triangles as equilateral, isosceles or scalene triangles	**12.2** Classifying triangles	
		• Recognise that triangles and quadrilaterals can be classified in more than one way (Reasons about spatial relations)	**12.2** Classifying triangles	**12.3** Quadrilaterals
		• Compare side and angle properties of triangles and quadrilaterals using measurement and symmetry	**12.2** Classifying triangles	**12.3** Quadrilaterals
		• Investigate the symmetry properties (line and rotational) of quadrilaterals	**12.3** Quadrilaterals	
		• Identify regular and irregular polygons	**29.3** Regular and irregular 2D shapes	

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Measurement and space

Mathematical concept	Outcomes	Content	Topics and investigations
Two-dimensional spatial structure A cont.	• selects and uses the appropriate unit to calculate areas, including areas of rectangles MA3-2DS-02 • combines, splits and rearranges shapes to determine the area of parallelograms and triangles MA3-2DS-03	**Area: Use hectares and square kilometres as units of measurement for area**	
		• Recognise the need for formal units larger than the square metre	**12.1** Hectares and square kilometres
		• Identify situations where square kilometres and hectares are used for measuring area	**12.1** Hectares and square kilometres
		• Equate one hectare to the area of a square with side lengths of 100 m, ie 10 000 square metres = 1 hectare (ha)	**12.1** Hectares and square kilometres
		• Record areas using square kilometres and hectares	**12.1** Hectares and square kilometres
		Area: Calculate the areas of rectangles using familiar metric units	
		• Recognise the importance of using the same units of length on the sides of rectangles to create 'square units'	**11.2** Area of rectangles
		• Establish the relationship between the lengths, widths and areas of rectangles	**11.2** Area of rectangles
		• Record, using words, the method for finding the area of any rectangle	**11.2** Area of rectangles
		• Calculate areas of rectangles in square centimetres (cm^2), square metres (m^2) and square kilometres (km^2)	**11.2** Area of rectangles; **12.1** Hectares and square kilometres
		• Recognise that rectangles with the same area may have different dimensions	**11.3** Perimeter and dimensions
		• Investigate and compare the areas of rectangles that have the same perimeter	**11.3** Perimeter and dimensions

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Measurement and space

Mathematical concept	Outcomes	Content	Topics and investigations
Three-dimensional spatial structure A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • visualises, sketches and constructs three-dimensional objects, including prisms and pyramids, making connections to two-dimensional representations MA3-3DS-01 • selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities MA3-3DS-02	**3D objects: Compare, describe and name prisms and pyramids**	
		• Compare properties of prisms and pyramids	**32.1** Pyramids and prisms **32.2** Cross-sections
		• Name prisms and pyramids according to the shape of their base	**32.1** Pyramids and prisms
		3D objects: Connect three-dimensional objects with two-dimensional representations	
		• Visualise and sketch three-dimensional objects from different views, including top, front and side views (Reasons about spatial orientation)	**32.2** Cross-sections
		• Examine a diagram to determine whether it is or is not the net of a closed 3-dimensional object	**32.3** Nets of objects
		• Visualise and sketch nets for given three-dimensional objects	**32.3** Nets of objects
		• Visualise and name prisms and pyramids, given representations of their nets (Reasons about spatial visualisation)	**32.3** Nets of objects
		Volume: Choose appropriate units of measurement for capacity	
		• Select and use appropriate units to measure the capacities of a variety of containers	**25.2** Choosing units of measurement **26.1** Displacement with litres and millilitres
		Volume: Use displacement to investigate volumes of irregular solids	
		• Recognise that an object's volume takes up space by observing the change in water level when an object is placed in a container of water	**25.3** Measuring with litres and millilitres **26.1** Displacement with litres and millilitres
		• Compare the volumes of 2 or more objects by marking the change in water level when each is submerged in a container	**25.3** Measuring with litres and millilitres **26.1** Displacement with litres and millilitres
		Volume: Connect decimal representations to the metric system	
		• Recognise the equivalence of whole-number and decimal representations of measurements of capacities	**25.3** Measuring with litres and millilitres
		• Interpret decimal notation for capacities	**25.3** Measuring with litres and millilitres
		• Record measurements to 3 decimal places	**25.3** Measuring with litres and millilitres

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Measurement and space

Mathematical concept	Outcomes	Content	Topics and investigations
Non-spatial measure A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • selects and uses the appropriate unit and device to measure the masses of objects MA3-NSM-01 • measures and compares duration, using 12- and 24-hour time and am and pm notation MA3-NSM-02	**Mass: Choose appropriate units of measurement for mass**	
		• Identify the appropriate unit and device to measure mass	6.1 Measuring mass
		• Recognise situations where mass would be measured in thousands of kilograms or tonnes (t)	6.2 Measuring with tonnes and kilograms
		Mass: Connect decimal representations to the metric system	
		• Recognise the equivalence of whole-number and decimal representations of measurements of mass	6.1 Measuring mass; 6.2 Measuring with tonnes and kilograms
		• Interpret decimal notation for masses	6.1 Measuring mass; 6.2 Measuring with tonnes and kilograms
		• Measure mass using scales and record using decimal notation of up to 3 decimal places	6.1 Measuring mass
		Time: Compare 12- and 24-hour time systems and convert between them	
		• Recognise that 24-hour time is used to avoid confusion between am and pm	3.3 24-hour time
		• Read time using appropriate 24-hour time language	3.3 24-hour time
		• Convert between 24-hour time and 12-hour time using am or pm notation	3.3 24-hour time; 4.2 Australian time zones
		• Read, interpret and use timetables from real-life situations, involving 12- and 24-hour time	3.3 24-hour time; 4.1 Reading timetables; 4.2 Australian time zones

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Statistics and probability

Mathematical concept	Outcomes	Content	Topics and investigations	
Data A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • constructs graphs using many-to-one scales MA3-DATA-01 • interprets data displays, including timelines and line graphs MA3-DATA-02	**Collect categorical and discrete numerical data by observation or survey**		
		• Pose and refine questions to construct a survey to obtain categorical or discrete numerical data about a matter of interest	**8.3** Column graphs	**26.2** Categorical and numerical data
		• Collect ordinal or nominal categorical data, and discrete numerical data through observation or by conducting surveys	**8.3** Column graphs **26.2** Categorical and numerical data	**26.3** Ordinal data
		Choose and use appropriate tables and graphs		
		• Tabulate collected data with and without the use of digital technologies such as spreadsheets	**8.3** Column graphs	**26.3** Ordinal data
		• Recognise which types of data display are appropriate to represent data (Statistical reasoning)	**16.3** Comparing graphs	
		• Determine an appropriate scale (horizontal and vertical) to represent the data	**8.3** Column graphs **16.1** Line graphs	**16.2** Column graphs
		• Construct column graphs using a many-to-one scale, with and without the use of digital technologies	**8.3** Column graphs	**16.2** Column graphs
		• Draw an accurate timeline using an appropriate scale	**8.1** Timelines	
		Describe and interpret different datasets in context		
		• Interpret line graphs using the scales on the axes	**16.1** Line graphs	
		• Describe and interpret data presented in tables, column graphs and line graphs	**8.3** Column graphs **16.1** Line graphs	**16.2** Column graphs
		• Determine the total number of data values represented in column graphs	**8.3** Column graphs	

ISBN 978 1 74135 328 0

Stage 3A Syllabus Match — Maths Trek 5

Statistics and probability

Mathematical concept	Outcomes	Content	Topics and investigations	
Chance A	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • conducts chance experiments and quantifies the probability MA3-CHAN-01	List outcomes of chance experiments involving equally likely outcomes and represent probabilities		
		• Use the term *probability* to describe the numerical value that represents the likelihood of an outcome of a chance experiment	**30.1** Measures of probability	**30.2** Comparing probability
		• Recognise that outcomes are described as *equally likely* when any one outcome has the same chance of occurring as any other outcome	**30.2** Comparing probability	
		• Record all outcomes in chance experiments where each outcome is equally likely to occur	**30.3** Fair and unfair outcomes	
		• Represent probabilities of outcomes of chance experiments using fractions	**30.1** Measures of probability **30.2** Comparing probability	**30.3** Fair and unfair outcomes
		• Establish that the total of the probabilities of the outcomes of a chance experiment equals one	**30.1** Measures of probability	**30.2** Comparing probability
		• Discuss the imprecise meaning of commonly used chance words including *possible*, *likely* and *unlikely*	**30.1** Measures of probability	

ISBN 978 1 74135 328 0

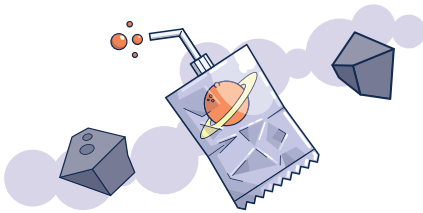
Stage 3B Syllabus Match — Maths Trek 6

Working mathematically

Outcome MAO-WM-01 is comprehensively covered in the Maths Trek program. Students develop mathematical understanding, fluency, reasoning and problem-solving skills as they work through the sequence of topics, revision, investigations, problem-solving strategies and practice problems.

A student:

- develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01



Number and algebra

Mathematical concept	Outcomes	Content	Topics and problem-solving	
Represents numbers B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • applies an understanding of place value and the role of zero to represent the properties of numbers MA3-RN-01 • compares and orders decimals up to 3 decimal places MA3-RN-02 • determines percentages of quantities, and finds equivalent fractions and decimals for benchmark percentage values MA3-RN-03	**Whole numbers: Locate and represent integers on a number line**		
		• Recognise the location of negative whole numbers in relation to zero and place them on a number line	**1.2** Positive and negative numbers	**32.1** Positive and negative numbers
		• Use the term *integers* to describe positive and negative whole numbers and zero	**1.2** Positive and negative numbers	
		• Interpret integers in everyday contexts	**1.2** Positive and negative numbers	**32.1** Positive and negative numbers
		• Recognise that negative whole numbers can result from subtraction (Reasons about quantity)	**1.2** Positive and negative numbers	**32.1** Positive and negative numbers
		Decimals and percentages: Make connections between benchmark fractions, decimals and percentages		
		• Recognise that the symbol % means percent and 100% is the whole amount	**6.1** Percentages **6.2** Renaming fractions as percentages	**20.1** Percentages **20.2** Renaming fractions as percentages
		• Recall commonly used equivalent percentages, decimals and fractions including $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{3}{4}$	**6.1** Percentages **6.2** Renaming fractions as percentages	**20.1** Percentages **20.2** Renaming fractions as percentages
		• Represent common percentages of quantities and lengths as fractions and decimals	**6.1** Percentages	
		• Recognise that 10% is one-tenth of 100% and use this to find 10% of a quantity (Reasons about relations)	**6.1** Percentages **6.2** Renaming fractions as percentages	**20.3** Discount

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Number and algebra

Mathematical concept	Outcomes	Content	Topics and problem-solving
Represents numbers B cont.		**Decimals and percentages: Determine percentage discounts of 10%, 25% and 50%**	
		• Equate 10% to dividing by 10, 25% to finding a quarter by dividing by 4, and 50% to finding half	**20.3** Discount
		• Use mental strategies to estimate discounts of 10%, 25% and 50%	**20.3** Discount
		• Calculate the sale price of an item after a discount of 10%, 25% and 50%	**20.3** Discount
Additive relations B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • selects and applies appropriate strategies to solve addition and subtraction problems MA3-AR-01	**Choose and use efficient strategies to solve addition and subtraction problems**	
		• Solve multistep word problems, including problems that require more than one operation	**6.3** Multi-step problems – add and subtract **21.1** Multi-step problems
		• Compare, evaluate and communicate strategies used to solve addition and subtraction problems	**6.3** Multi-step problems – add and subtract **7.1** Estimation strategies
		Applies known strategies to add and subtract decimals	
		• Model the addition and subtraction of decimals up to 3 decimal places using appropriate representations	**16.1** Decimal addition to tenths **16.2** Decimal subtraction to tenths **16.3** Decimal addition to hundredths **17.1** Decimal subtraction to hundredths **25.1** Decimal addition to thousandths **25.2** Decimal subtraction to thousandths
		• Solve word problems involving the addition and subtraction of decimals up to 3 decimal places	**16.1** Decimal addition to tenths **16.2** Decimal subtraction to tenths **16.3** Decimal addition to hundredths **17.1** Decimal subtraction to hundredths **25.1** Decimal addition to thousandths **25.2** Decimal subtraction to thousandths
		• Justify why the strategy used to solve addition and subtraction word problems is appropriate (Reasons about quantity)	**25.4** Problem-solving practice

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Number and algebra

Mathematical concept	Outcomes	Content	Topics and problem-solving
Multiplicative relations B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • selects and applies appropriate strategies to solve multiplication and division problems MA3-MR-01 • constructs and completes number sentences involving multiplicative relations, applying the order of operations to calculations MA3-MR-02	**Select and apply strategies to solve problems involving multiplication and division with whole numbers**	
		• Select and use efficient strategies to multiply whole numbers of up to 4 digits by one- and 2-digit numbers	**3.2** Multiplication **4.1** Investigating patterns **7.1** Estimation strategies
		• Solve word problems involving rates using multiplication and division (Reasons about relations)	**10.2** Modelling to solve problems
		• Determine why different division questions have the same answer (Reasons about relations)	
		Multiply and divide decimals by powers of 10	
		• Use mental strategies to multiply benchmark decimals by single-digit numbers	**25.3** Multiply decimals by 10, 100, 1000
		• Compare the relative place value of digits to multiply and divide a decimal by powers of 10	**25.3** Multiply decimals by 10, 100, 1000
		• Estimate the product of a decimal and a whole number to determine the magnitude of a calculator answer	
		Use equivalent number sentences involving multiplication and division to find unknown quantities	
		• Complete number sentences that involve more than one operation by calculating missing numbers	**14.3** Balancing equations
		• Identify and use inverse operations to assist with the solution of number sentences	**4.3** Inverse operations to check calculations **23.3** Inverse operations to solve problems
		• Recognise that division can be recorded using fractions	**2.1** Fractions as division **2.2** Fractions as division
		Represent and describe number patterns formed by multiples	
		• Use a given geometric pattern involving multiples to create a table of values	**4.2** Patterns in a table of values **28.2** Patterns and rules
		• Describe a pattern formed by multiples in words, in terms of multiplication rather than addition	**4.2** Patterns in a table of values **28.2** Patterns and rules
		• Determine a rule describing the relationship between the bottom number and the top number in a table (Algebraic reasoning)	**4.1** Investigating patterns **4.2** Patterns in a table of values **14.1** Function machines **28.2** Patterns and rules

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Number and algebra

Mathematical concept	Outcomes	Content	Topics and problem-solving	
Multiplicative relations B cont.		**Explore the use of brackets and the order of operations to write number sentences**		
		• Recognise the need to agree on the order in which to perform operations	**14.2** Order of operations	**14.3** Balancing equations
		• Use grouping symbols () in number sentences to indicate operations that must be performed first	**14.2** Order of operations	**14.3** Balancing equations
		• Investigate the order of operations using real-life contexts	**14.2** Order of operations	
		• Solve problems involving grouping symbols	**14.2** Order of operations	**14.3** Balancing equations
Representing quantity fractions B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • compares and orders fractions with denominators of 2, 3, 4, 5, 6, 8 and 10 MA3-RQF-01 • determines $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$ of measures and quantities MA3-RQF-02	**Recognise that a fraction can represent a division**		
		• Identify how the relationship between the number being divided and the divisor is represented in a fraction	**2.1** Fractions as division	**2.2** Fractions as division
		Compare common fractions with related denominators		
		• Order common fractions with related denominators using diagrams and number lines	**1.3** Comparing and ordering fractions	
		• Subdivide the area of a rectangle by both length and width to represent the multiplicative relationship between common fractions	**11.1** Equivalent fractions	
		• Compare and represent fractions with denominators of 2, 4 and 8; 3 and 6; 5 and 10 of a whole shape (area model) and a collection of objects (discrete model)	**1.3** Comparing and ordering fractions	
		• Create equivalent fractions for half in quarters, eighths, sixths and tenths by re-dividing the whole, using diagrams and number lines	**11.1** Equivalent fractions	**15.1** Equivalent fractions
		• Record equivalent fractions using diagrams, words and fraction notation	**11.1** Equivalent fractions	**15.1** Equivalent fractions
		Build up to the whole from a given fractional part		
		• Generate the whole quantity from non-unit fractional parts such as quarters, eighths, thirds, sixths, fifths and tenths (Reversible reasoning)	**15.3** Fractional parts build to the whole	
		Use equivalence to add and subtract fractional quantities		
		• Solve word problems involving adding or subtracting fractional quantities with related denominators	**15.2** Adding and subtracting fractions	**24.1** Adding and subtracting fractions
		• Represent fractional quantities with the same or related denominators to add and subtract fractions (Reasons about relations)	**15.2** Adding and subtracting fractions	**24.1** Adding and subtracting fractions

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Number and algebra

Mathematical concept	Outcomes	Content	Topics and problem-solving
Representing quantity fractions B cont.		**Find fractional quantities of whole numbers (halves, quarters, fifths and tenths)**	
		• Calculate quarters and fifths of whole numbers that are multiples of the denominator, using a tape diagram	**2.2** Fractions as division
		• Solve word problems involving a fraction of a quantity	**2.1** Fractions as division **2.2** Fractions as division
		• Find $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$ of collections, expressing remainders as decimals	**2.2** Fractions as division

Measurement and space

Mathematical concept	Outcomes	Content	Topics and problem-solving
Geometric measure B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • locates and describes points on a coordinate plane MA3-GM-01 • selects and uses the appropriate unit and device to measure lengths and distances including perimeters MA3-GM-02 • measures and constructs angles, and identifies the relationships between angles on a straight line and angles at a point MA3-GM-03	**Position: Use the 4 quadrants of the coordinate plane**	
		• Plot and label points, given coordinates, in all 4 quadrants of the number plane	**19.1** Coordinates in one quadrant **32.2** Coordinates in four quadrants
		• Identify and record the coordinates of given points on the number plane in all 4 quadrants	**19.1** Coordinates in one quadrant **32.2** Coordinates in four quadrants
		• Describe changes to coordinates when a point is translated or reflected across an axis	**32.3** Transformations with coordinates
		Length: Connect decimal representations to the metric system	
		• Recognise the equivalence of whole-number and decimal representations of measurements of length	**7.2** Metric system of measurement
		• Interpret decimal notation for lengths and distances	**7.2** Metric system of measurement **16.1** Decimal addition to tenths **16.2** Decimal subtraction to tenths
		• Record lengths and distances using decimal notation	**7.2** Metric system of measurement **16.1** Decimal addition to tenths **16.2** Decimal subtraction to tenths
		Length: Convert between common metric units of length	
		• Use decimal place value system to convert between metres and kilometres	**7.2** Metric system of measurement
		• Convert measurements to the same unit to compare lengths and distances	**7.2** Metric system of measurement
		• Explain and use the relationship between the size of a unit and the number of units needed	**7.2** Metric system of measurement

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Measurement and space

Mathematical concept	Outcomes	Content	Topics and problem-solving
Geometric measure B cont.		**Length: Solve problems involving the comparison of lengths using appropriate units**	
		• Investigate and compare perimeters of rectangles with the same area	**8.3** Area and perimeter
		• Determine the number of different rectangles that can be formed using whole-number dimensions for a given area (Reasons about spatial structure)	**8.3** Area and perimeter
		• Solve a variety of problems involving length and perimeter, including problems involving different units of length	**7.3** Perimeter of rectangles
		Angles: Investigate angles on a straight line and angles at a point	
		• Recognise right angles, angles on a straight line and angles at a point embedded in diagrams (Reasons about spatial orientation)	**3.1** Properties of angles; **24.2** Properties of shapes
		• Identify the vertex and arms of angles formed by intersecting lines	**3.1** Properties of angles
		Angles: Investigate the relationships formed by the intersection of straight lines	
		• Identify angle types formed by the intersection of straight lines, including right angles (90°), angles on a straight line (add to 180°) and angles at a point that form an angle of revolution (add to 360°)	**24.2** Properties of shapes
		• Recognise that perpendicular lines intersect at right angles (90°)	**3.1** Properties of angles
		• Investigate adjacent angles that form a right angle and establish that they add to 90°	**3.1** Properties of angles
		• Investigate adjacent angles on a straight line and establish that they add to 180°	**3.1** Properties of angles; **24.2** Properties of shapes
		• Investigate angles at a point and establish that they form an angle of revolution and add to 360°	**24.2** Properties of shapes

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Measurement and space

Mathematical concept	Outcomes	Content	Topics and problem-solving
Two-dimensional spatial structure B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • investigates and classifies two-dimensional shapes, including triangles and quadrilaterals based on their properties MA3-2DS-01 • selects and uses the appropriate unit to calculate areas, including areas of rectangles MA3-2DS-02 • combines, splits and rearranges shapes to determine the area of parallelograms and triangles MA3-2DS-03	**2D shapes: Dissect two-dimensional shapes and rearrange them using translations, reflections and rotations**	
		• Use the terms *translate*, *reflect* and *rotate* to describe transformations of two-dimensional shapes	**2.3** Rotational symmetry **28.3** Translation, reflection, rotation **30.3** Transformations
		• Dissect and rearrange one shape to make another	**19.2** Area of parallelograms
		• Recognise that translations, reflections or rotations change the position and orientation but not the size of shapes (Reasons about spatial orientation)	**2.3** Rotational symmetry **24.3** Tessellations **28.3** Translation, reflection, rotation **30.3** Transformations
		Area: Find the area of composite figures	
		• Find different ways to calculate the area of a composite L-shape figure	**8.1** Area of rectangles **8.2** Area of composite rectangles
		Area: Calculate the area of a parallelogram using subdivision and rearrangement	
		• Show how to transform a parallelogram into a rectangle to find its area	**19.2** Area of parallelograms
		• Record, using words, a method for finding the area of any parallelogram	**19.2** Area of parallelograms
		Area: Determine the area of a triangle	
		• Investigate the area of a triangle by comparing it to the area of a parallelogram with the same base length and height	**19.3** Area of triangles
		• Establish the relationship between the area of a triangle and the area of a parallelogram formed by duplicating and rotating the triangle	**19.3** Area of triangles
		• Record, using words, a method for finding the area of any triangle	**19.3** Area of triangles

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Measurement and space

Mathematical concept	Outcomes	Content	Topics and problem-solving
Three-dimensional spatial structure B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • visualises, sketches and constructs three-dimensional objects, including prisms and pyramids, making connections to two-dimensional representations MA3-3DS-01 • selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities MA3-3DS-02	**3D objects: Construct prisms and pyramids**	
		• Create skeletal models of prisms and pyramids	**23.1** Skeletal models of pyramids
		• Construct three-dimensional models of prisms and pyramids, given drawings of different views	**23.1** Skeletal models of pyramids
		Volume: Use cubic metres for measurement of volume	
		• Recognise the need for a formal unit larger than the cubic centimetre	**28.1** Volume with cubic metres
		• Construct and use the cubic metre as a unit to measure larger volumes	**28.1** Volume with cubic metres
		• Estimate and measure volumes in cubic metres	**28.1** Volume with cubic metres
		Volume: Recognise the multiplicative structure for finding volume	
		• Describe the *length*, *width* and *height* of a rectangular prism as the *dimensions* of the prism	**26.3** Volume with cubic centimetres; **28.1** Volume with cubic metres
		• Describe arrangements of cubic-centimetre blocks in terms of layers	**26.3** Volume with cubic centimetres
		• Establish the relationship between the number of cubes in one layer and the number of layers to find the volume of a rectangular prism (Reasons about spatial structure)	**26.3** Volume with cubic centimetres
		Volume: Find the volumes of rectangular prisms in cubic centimetres and cubic metres	
		• Construct rectangular prisms using cubic-centimetre blocks and determine the volumes	**26.3** Volume with cubic centimetres
		• Explain that objects with the same volume may be different shapes (Reasons about spatial structure)	**26.3** Volume with cubic centimetres
		• Record, using words, the method for finding the volumes of rectangular prisms	**28.1** Volume with cubic metres
		• Recognise that rectangular prisms with the same volume may have different dimensions (Reasons about spatial structure)	**26.3** Volume with cubic centimetres
		• Calculate volumes of rectangular prisms in cubic centimetres (cm^3) and cubic metres (m^3)	**26.3** Volume with cubic centimetres; **28.1** Volume with cubic metres

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Measurement and space

Mathematical concept	Outcomes	Content	Topics and problem-solving	
Non-spatial measure B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • selects and uses the appropriate unit and device to measure the masses of objects MA3-NSM-01 • measures and compares duration, using 12- and 24-hour time and am and pm notation MA3-NSM-02	**Mass: Convert between common metric units of mass**		
		• Convert between kilograms and grams and between kilograms and tonnes	**7.2** Metric system of measurement	**23.2** Measuring with tonnes and kilograms
		• Solve problems involving different units of mass	**7.2** Metric system of measurement	**23.2** Measuring with tonnes and kilograms
		Time: Solve problems involving duration, using 12- and 24-hour time		
		• Use start and finish times to calculate the elapsed time of events	**10.1** Reading timetables **21.2** Reading and interpreting timetables	**21.3** Calculating duration
		• Add and subtract time mentally using bridging strategies	**21.3** Calculating duration	
		• Round answers to time calculations to the nearest minute or hour	**21.3** Calculating duration	
		• Represent commonly used time intervals as decimals	**10.1** Reading timetables	
		• Solve a variety of problems involving duration, including where times are expressed in 12-hour and 24-hour notation	**10.1** Reading timetables	**21.2** Reading and interpreting timetables

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Statistics and probability

Mathematical concept	Outcomes	Content	Topics and problem-solving
Data B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • constructs graphs using many-to-one scales MA3-DATA-01 • interprets data displays, including timelines and line graphs MA3-DATA-02	**Interpret and compare a range of data displays** • Interpret side-by-side column graphs for 2 categorical variables	**11.2** Side-by-side column graphs
		• Interpret data on a timeline using the given scale	**10.3** Timelines
		• Interpret and compare different displays in terms of the shape of the distribution, including the range and the most frequent value (mode)	**11.3** Line graphs **12.1** Stacked line graphs **12.2** Mode and range **12.3** Comparing graphs
		Interpret data presented in digital media and elsewhere • Interpret data representations found in digital media and in factual texts	**17.2** Misleading data and graphs **17.3** Causes of bias
		• Identify sources of possible bias in representations of data in the media (Statistical reasoning)	**17.3** Causes of bias
		• Identify misleading representations of data in the media	**17.2** Misleading data and graphs
Chance B	A student: • develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly MAO-WM-01 • conducts chance experiments and quantifies the probability MA3-CHAN-01	**Compare observed frequencies of outcomes with expected results** • Use the term *frequency* to describe the number of times a particular outcome occurs in a chance experiment	**29.1** Comparing probability
		• Distinguish between the frequency of an outcome (the number of times it occurs) and the probability of an outcome in a chance experiment	**29.1** Comparing probability **30.2** Fair and unfair outcomes
		• Compare the expected frequencies of outcomes of chance experiments with observed frequencies, including where the outcomes are not equally likely	**29.2** Expected probability **29.3** Observed probability
		• Discuss the fairness of simple games involving chance and the idea of randomness	**30.2** Fair and unfair outcomes
		• Explain why observed frequencies of outcomes in chance experiments may differ from expected frequencies, and how this relates to randomness	**29.2** Expected probability **29.3** Observed probability

ISBN 978 1 74135 328 0

Stage 3B Syllabus Match — Maths Trek 6

Statistics and probability

Mathematical concept	Outcomes	Content	Topics and problem-solving	
Chance B cont.		**Create random generators and describe probabilities using fractions**		
		• Create random generators to follow specified probabilities or proportions	**29.2** Expected probability **29.3** Observed probability	**30.1** Repeated probability experiments
		• Record the outcomes for chance experiments where the outcomes are not equally likely to occur and assign probabilities to the outcomes using fractions (denominators of 2, 3, 4, 5, 6, 8 and 10)	**29.1** Comparing probability **29.2** Expected probability **29.3** Observed probability	**30.1** Repeated probability experiments
		• Use knowledge of benchmark fractions, decimals and percentages to assign probabilities to the likelihood of outcomes	**29.1** Comparing probability **29.2** Expected probability	**29.3** Observed probability
		Conduct chance experiments with both small and large numbers of trials		
		• Assign expected probabilities to outcomes in chance experiments with random generators, including digital simulators, and compare the expected probabilities with the observed probabilities after both small and large numbers of trials	**29.1** Comparing probability **29.2** Expected probability	**30.1** Repeated probability experiments
		• Determine and discuss the differences between the expected probabilities and the observed probabilities after both small and large numbers of trials	**29.3** Observed probability	**30.1** Repeated probability experiments
		• Determine the likely make up of a large collection of objects, by sampling objects and returning them to the collection before the next sample (sampling with replacement)	**29.1** Comparing probability	

ISBN 978 1 74135 328 0