



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 Early Stage 1 to Stage 1B.

#### Early Stage 1 Syllabus Match

#### Moths Trek K



#### 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 and investigations.

#### 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



Outcomes	Content	Topics and investigations	
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  demonstrates an understanding of how whole numbers indicate quantity MAE-RWN-01  reads numerals and represents whole numbers to at least 20 MAE-RWN-02	Instantly name the number of objects within small collections  Instantly recognise (subitise) the number of items in small groups of up to four items without counting  Identify the number of items in different arrangements  Use the counting sequence of ones flexibly  Count forwards to at least 30 and state the number after or before a given number, without needing to count from one  Identify and distinguish the 'teen' numbers from multiples of ten with the same initial sounds  Count backwards from a given number 20 or less  Identify the number before as 'one less' and the number after as 'one more' than a given number  Recognise number patterns  Recognise dice and domino dot patterns	<ul> <li>1.1 One</li> <li>1.2 Two</li> <li>2.1 Three</li> <li>2.2 Count to three</li> <li>3.2 Four</li> <li>10.1 Count to 10</li> <li>14.1 Numbers before, after, in between</li> <li>29.2 Count to 30</li> <li>13.2 Count backwards from 10</li> <li>12.1 One more than</li> <li>13.1 One less than</li> <li>9.1 Dot patterns</li> </ul>	2.2 Count to three 3.2 Four INV Oz-animal Olympics 3.3 Five 9.1 Dot patterns  29.2 Count to 30 31.2 Missing numbers to 30  28.2 Count forwards and backwards  14.1 Numbers before, after, in between
	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  • demonstrates an understanding of how whole numbers indicate quantity MAE-RWN-01  • reads numerals and represents whole numbers to at least 20	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-VMM-01  • demonstrates an understanding of how whole numbers indicate quantity MAE-RWN-01  • reads numerals and represents whole numbers to at least 20 MAE-RWN-02  Instantly name the number of objects within small collections  • Instantly name the number of objects within small collections  • Instantly name the number of objects within small collections  • Instantly name the number of objects within small collections  • Instantly name the number of objects within small collections  • Instantly name the number of objects within small collections  • Instantly name the number of objects within small collections  • Instantly name the number of objects within small collections	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-VMM-01  • demonstrates an understanding of how whole numbers indicate quantity MAE-RWN-01  • reads numerals and represents whole numbers to at least 20 MAE-RWN-02    Mae-RWN-02



#### Maths Trek K

Number and algebra	T			
Mathematical concept	Outcomes	Content	Topics and investigations	
Representing		Connect counting and numerals to quantities		
whole numbers cont.	Count with one-to-one correspondence, recognising that the last number name represents the total number in the collection	<b>4.1</b> Count and match one-to-one	<ul><li>16.3 Count collections</li><li>17.3 Count collections</li></ul>	
	Count out a specified number of objects (from 5 to 20) from a larger collection, keeping track of the count	<b>16.2</b> Numbers 11 to 15	17.2 Numbers 16 to 20	
	Make correspondences between collections (Reasons about quantity)	<b>8.2</b> Compare collections to 10	<b>22.2</b> Compare collections to 20	
		Read numerals to at least 20, including zero	<ul><li>1.1 One</li><li>1.2 Two</li><li>2.1 Three</li><li>3.2 Four</li><li>3.3 Five</li><li>4.3 Six</li><li>4.4 Seven</li></ul>	<ul> <li>7.1 Eight</li> <li>7.2 Nine</li> <li>7.3 Ten</li> <li>8.1 Zero</li> <li>16.2 Numbers 11 to 15</li> <li>16.3 Count collections</li> <li>17.2 Numbers 16 to 20</li> </ul>
		Represent numbers as quantities to at least 20 using objects (such as fingers), number words and numerals	<ul> <li>1.1 One</li> <li>1.2 Two</li> <li>2.1 Three</li> <li>3.2 Four</li> <li>3.3 Five</li> <li>4.3 Six</li> <li>4.4 Seven</li> <li>7.1 Eight</li> <li>7.2 Nine</li> <li>7.3 Ten</li> </ul>	<ul> <li>8.1 Zero</li> <li>8.3 Represent numbers to 10</li> <li>16.2 Numbers 11 to 15</li> <li>16.3 Count collections</li> <li>17.2 Numbers 16 to 20</li> <li>17.3 Count collections</li> <li>19.2 Represent numbers 11 to 1</li> <li>20.2 Represent numbers 16 to 2</li> <li>30.2 Use ten frames to represen numbers to 20</li> </ul>
		Compare and order numbers to 20	<b>25.2</b> Order numbers to 20	<b>33.2</b> Order numbers to 30
		Use the term 'is the same as' to express equality of groups (Reasons about quantity)	<b>3.4</b> Equal groups	<b>8.2</b> Compare collections to 10

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Number and algebra				
Mathematical concept	Outcomes	Content	Topics and investigations	
Combining and separating quantities	A student:  • develops understanding	Model additive relations and compare quantities		No. 7
goparating quaritities	and fluency in mathematics	Identify situations in which addition and subtraction may be applied	<b>35.1</b> Addition and subtraction	INV Zoo escape
	through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and	Combine two or more groups of objects to model addition, identifying the relationship between the parts and the whole	<ul><li>16.1 Combine two groups</li><li>17.1 Combine two groups</li><li>19.1 Model addition</li></ul>	<ul><li>20.1 Addition: How many altogether?</li><li>22.1 Addition stories</li></ul>
	communicating their thinking and reasoning coherently and clearly	Separate and take away part of a group of objects to model subtraction	<ul><li>23.1 Model subtraction</li><li>23.2 Subtraction stories</li></ul>	<b>29.1</b> Take away
	<ul> <li>MAO-WM-01</li> <li>reasons about number relations to model addition and subtraction by combining and separating, and comparing collections MAE-CSQ-01</li> <li>represents the relations between the parts that form the whole, with numbers up to 10 MAE-CSQ-02</li> </ul>	Use concrete materials or fingers to model and solve addition and subtraction questions, counting forwards or backwards by ones as necessary	<ul><li>19.1 Model addition</li><li>21.1 Use beads to show addition</li></ul>	21.2 Make 10 33.4 Find the missing group
		Compare two groups of objects to determine how many more (Reasons about quantity)	<b>25.1</b> Find the difference	<b>34.4</b> Compare two groups to find the difference
		Identify part-whole relationships in numbers up to 10		
		Use visual representations of numbers to assist with combining and separating quantities, identifying the relationship between the quantities	<b>22.4</b> Use ten frames to show addition	29.3 Add more to make 10
		Describe the action of combining, separating and comparing	<b>21.2</b> Make 10	
		Use five as a reference in forming numbers from six to ten	<ul><li>4.3 Six</li><li>4.4 Seven</li><li>7.1 Eight</li></ul>	<b>7.2</b> Nine <b>7.3</b> Ten
		Create, model and recognise combinations for numbers up to ten (Reasons about relations)	<ul><li>10.3 Partition 6 and 7</li><li>11.1 Use ten frames to represent numbers to 10</li><li>12.3 Partition 8 and 9</li></ul>	<ul><li>13.3 Partition 10</li><li>21.2 Make 10</li><li>29.3 Add more to make 10</li></ul>
		Count by ones to find the total or difference	<ul><li>28.1 Count on 1 and 2</li><li>29.3 Add more to make 10</li><li>33.3 Money</li></ul>	<b>33.4</b> Find the missing group <b>34.3</b> Shopping
		Use drawings, words and numerals to record addition and subtraction, and explain their thinking (Reasons about relations)	<ul><li>19.1 Model addition</li><li>20.1 Addition: How many altogether?</li><li>21.2 Make 10</li><li>27.1 Draw pictures to show subtraction</li></ul>	<ul><li>33.4 Find the missing group</li><li>34.3 Shopping</li><li>INV Zoo escape</li></ul>



## Moths Trek K

	Number and algebra				
	Mathematical concept	Outcomes	Content	Topics and investigations	
0	Forming groups	A student:  • develops understanding and fluency in mathematics through	Copy, continue and create patterns  Copy and continue repeating patterns using sounds and/or actions	19.3 Copy a pattern	
		exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking	Copy, continue and create repeating patterns using shapes, objects, images or pictures (Reasons about patterns)	<ul><li>21.3 Identify the next item in a pattern</li><li>22.3 Describe and continue patterns</li></ul>	<b>23.3</b> Continue and create patterns
		and reasoning coherently and clearly MAO-WM-01 • recognises, describes and	Investigate and form equal groups by sharing  • Distribute a group of familiar objects into smaller groups and recognise whether the number in each group is equal or not	<b>30.1</b> Share equally	<b>31.1</b> Share equally
		continues repeating patterns MAE-FG-01	Group and share concrete materials by distributing objects one by one or using another method	<b>30.1</b> Share equally	
		forms equal groups by sharing and counting collections of objects MAE-FG-02	Record grouping and sharing  • Label the number of objects in a group	30.1 Share equally 31.1 Share equally	<b>34.1</b> Make equal groups
<u> </u>			Record grouping and sharing using drawings, words and numerals, and explain their thinking (Reasons about relations)	30.1 Share equally 31.1 Share equally	<b>34.1</b> Make equal groups INV Hungry billy goats

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#### Maths Trek K

Measurement and sp	oace			
Mathematical concept	Outcomes	Content	Topics and investigations	
Geometric measure	A student:	Position: Describe position and movement of oneself		
	develops understanding and fluency in mathematics through	Give and follow simple directions to position themselves or objects	9.3 Position	
	exploring and connecting mathematical concepts, choosing and applying mathematical	Describe the position of an object in relation to another object, such as in, on, under as well as the directions up and down	<b>5.3</b> High and low, near and far	9.3 Position
	techniques to solve problems, and communicating their thinking	Describe the position of an object using proximity terms and referring to frames of reference	3.1 In front of, behind, between, next to	
	and reasoning coherently and clearly MAO-WM-01	Use the ordinal names to at least third to describe order of position	<ul><li>5.1 Ordinal numbers to 5th</li><li>28.3 Ordinal numbers to 10th</li></ul>	INV Oz-animal Olympics
	describes position and gives and follows simple directions MAF-GM-01	Begin to describe the positions of objects in relation to themselves using the terms 'left' and 'right'	<b>26.3</b> Left and right	
	describes and compares lengths MAE-GM-02     identifies half the length and the halfway point MAE-GM-03	Length: Use direct and indirect comparisons to decide which is longer		
		Identify the attribute of 'length' as the measure of an object from end to end	2.3 Short and long	
		Use comparative language to describe length	<ul><li>1.3 Short and tall</li><li>1.4 Long/short, wide/narrow, thick/thin</li></ul>	<ul><li>2.3 Short and long</li><li>16.4 Compare length</li><li>17.4 Longer than, shorter than</li></ul>
		Compare lengths directly by placing objects side by side and aligning the ends	<b>16.4</b> Compare length	17.4 Longer than, shorter than
		Explain why the length of a piece of string remains unchanged whether placed in a straight line or a curve	2.3 Short and long	
		Compare lengths indirectly by copying a length (Reasons about relations)	17.4 Longer than, shorter than	
		Length: Create half a length		
		Divide a length into two equal parts (Reasons about relations)	18.3 Half a length	
		Distinguish between the halfway point and half a length	18.3 Half a length	
		Describe positions as 'about halfway', 'more than halfway' or 'less than halfway'	18.3 Half a length	

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Mathematical concept	Outcomes	Content	Topics and investigations	
Two-dimensional	A student:	2D shapes: Sort, describe and name familiar shapes		
spatial structure	develops understanding and	Identify familiar shapes in a range of contexts	14.2 Name and sort shapes	
	fluency in mathematics through exploring and connecting	Sort shapes according to features such as size and shape	13.4 Sort shapes	
	mathematical concepts, choosing and applying mathematical	Recognise and explain how a group of shapes has been sorted (Reasons about spatial relations)	13.4 Sort shapes	<b>14.2</b> Name and sort shapes
	techniques to solve problems, and communicating their thinking  • Describe	Describe shapes, including circles, squares, triangles and rectangles	<ul><li>10.4 Circles</li><li>11.2 Triangles</li><li>11.3 Squares</li></ul>	<ul><li>12.4 Rectangles</li><li>14.2 Name and sort shapes</li></ul>
	sorts, describes, names and makes two-dimensional	Ask and respond to questions that help identify and name a particular shape	10.4 Circles 11.2 Triangles	<ul><li>11.3 Squares</li><li>12.4 Rectangles</li></ul>
	shapes, including triangles, circles, squares and rectangles MAE-2DS-01  describes and compares areas of similar shapes MAE-2DS-02	Distinguish examples of triangles from non-examples	11.2 Triangles	
		2D shapes: Represent shapes		
		Manipulate circles, squares, triangles and rectangles, and describe their features	INV Hopscotch	
		Turn shapes to fit into or match a given space (Reasons about spatial relations)	INV Hopscotch	
		Make representations of shapes in a variety of ways, using paint, paper, movements or technology	10.4 Circles 11.2 Triangles	11.3 Squares 12.4 Rectangles
		Make pictures and designs using a selection of shapes	INV Hopscotch	
		Make two-dimensional shapes by tracing around the faces of three-dimensional objects	14.2 Name and sort shapes	
		Identify and draw lines and curves	10.2 Lines and shapes	
		Area: Identify and compare area		
		Make closed shapes and identify the attribute of area as the measure of the amount of surface	<b>9.2</b> Area	<b>10.2</b> Lines and shapes
		Use comparative language to describe areas	<b>9.2</b> Area	<b>35.2</b> Compare area
		Predict which of two surfaces will have the larger area and justify the answer (Reasons about spatial relations)	<b>35.2</b> Compare area	
		Compare areas of two similar shapes directly by drawing, tracing, or cutting and pasting	<b>9.2</b> Area	



#### Maths Trek K

Measurement and sp	pace		
Mathematical concept	Outcomes	Content	Topics and investigations
Three-dimensional	A student:	3D objects: Explore familiar three-dimensional objects	
spatial structure	develops understanding and	Describe the features of familiar objects	<b>18.2</b> Sort and describe 3D objects
	fluency in mathematics through exploring and connecting	Sort objects and identify the attribute used to sort them	<b>18.2</b> Sort and describe 3D objects
	mathematical concepts, choosing	Make and describe a variety of three-dimensional models	<b>25.3</b> 3D models
	and applying mathematical techniques to solve problems, and communicating their thinking	Predict the stacking capabilities of various three-dimensional objects (Reasons about spatial relations)	<b>26.2</b> Predict movement of 3D objects
	and reasoning coherently and clearly MAO-WM-01	Volume: Compare internal volume by filling and packing	
	manipulates, describes and sorts three-dimensional	Fill and empty containers using materials such as water or sand	<b>26.4</b> Holds more, holds less <b>27.3</b> Compare capacity
	objects MAE-3DS-01	Use the terms 'full', 'empty' and 'about half full'	25.4 Full and empty
	describes and compares volumes MAE-3DS-02	Compare the internal volumes (capacities) of two containers directly by filling one and pouring into the other	27.3 Compare capacity
		Compare the internal volumes of two containers indirectly by pouring their contents into two other identical containers and observing the level reached in each	27.3 Compare capacity
		Establish that containers of different shapes may hold the same amount	26.4 Holds more, holds less
		Stack and pack blocks into defined spaces	26.4 Holds more, holds less
		Volume: Compare volume by building	
		Identify the attribute of <i>volume</i> as the amount of space an object or substance occupies	<b>30.3</b> Compare volume
		Compare the volumes of two objects made from blocks or connecting cubes directly by deconstructing one object and using its parts to construct a copy of the other object	30.3 Compare volume
		Use comparative language to describe volume	30.3 Compare volume



#### Maths Trek K

Mathematical concept	Outcomes	Content	Topics and investigations	
Non-spatial measure	A student:	Mass: Identify and compare mass using weight		
·	develops understanding and	Identify that objects can be heavy or light	19.4 Heavy and light	
fluency in mathematics through exploring and connecting	Compare two masses directly by hefting	20.3 Compare mass by hefting		
	mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and	Predict which object would be heavier than, lighter than, or have about the same weight as another object and explain reasons for this prediction (Reasons about relations)	<b>21.4</b> Heavier, lighter, the same as	
	reasoning coherently and clearly MAO-WM-01	Time: Compare and order the duration of events using the language of time		
	describes and compares the masses of objects MAE-NSM-01	Use terms such as 'daytime', 'night-time', 'morning', 'afternoon', 'today', 'tomorrow', 'yesterday', 'before', 'after' and 'next'	<ul><li>7.4 Events in my day</li><li>12.2 Yesterday, today, tomorrow</li></ul>	<ul><li>28.4 Before and after</li><li>30.4 Sequence events</li></ul>
	sequences events and reads hour time on clocks MAE-NSM-02	Sequence events in time	<b>30.4</b> Sequence events	
	diffe of clocks with a result of	Compare the duration of two events	18.1 Duration of events	
		Time: Connect days of the week to familiar events and actions		
		Recall that there are seven days in a week	<b>8.4</b> Days of the week: The Hungry Caterpillar	
		Name and order the days of the week	<b>8.4</b> Days of the week: The Hungry Caterpillar	
		Identify events that occur daily and relate events to a particular day or time of day	<b>7.4</b> Events in my day	<b>8.4</b> Days of the week: The Hungry Caterpillar
		Time: Tell time on the hour on analog and digital clocks		
		Create the layout of an analog clock	<b>4.2</b> O'clock	
		Read analog and digital clocks to the hour using the term 'o'clock'	4.2 O'clock	<b>33.1</b> Analog and digital time
		Describe the position of the hour and minute hands on an analog clock when reading hour time	4.2 O'clock	



	Statistics and probab	ility			
	Mathematical concept	Outcomes	Content	Topics and investigations	
	Data	A student:  • develops understanding and fluency in mathematics through	Respond to questions, collect information and discuss possible outcomes of activities  • Predict possible responses to a question	<b>26.1</b> Collect data	31.3 Collect data
		exploring and connecting mathematical concepts, choosing and applying mathematical	Collect information from their peers and about their environment	<ul><li>14.3 Ask questions to collect data</li><li>26.1 Collect data</li></ul>	31.3 Collect data 34.2 Use tally marks to show data
		techniques to solve problems, and communicating their thinking and	Pose and respond to questions about the information collected	<ul><li>14.3 Ask questions to collect data</li><li>26.1 Collect data</li></ul>	31.3 Collect data 34.2 Use tally marks to show data
)		reasoning coherently and clearly MAO-WM-01  • contributes to collecting data and	Organise objects into simple data displays and interpret the displays		
		interprets data displays made	Group objects according to characteristics	<b>5.2</b> Sort data	<b>27.2</b> Data displays
		from objects MAE-DATA-01	Compare the sizes of groups of objects by counting (Reasons about relations)	<b>5.2</b> Sort data	
			Arrange objects according to a characteristic to form a data display	<b>5.2</b> Sort data	<b>27.2</b> Data displays
			Interpret information presented in a data display to answer questions (Reasons about quantity)	<ul><li>5.2 Sort data</li><li>26.1 Collect data</li><li>27.2 Data displays</li></ul>	31.3 Collect data 35.3 Interpret data displays



#### Moths Trek 1



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, investigations and problem-solving
Representing whole 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 read, write and order two- and three-digit numbers	Use counting sequences of ones with two-digit numbers and beyond  Identify the number before and after a given two-digit number  Count forwards and backwards by ones from a given number to at least 120	<ul> <li>1.2 Counting in ones</li> <li>1.3 Reading and writing numbers to 20</li> <li>1.4 Counting in ones to 100</li> <li>17.3 One more, one less, ten more, ten less</li> <li>1.2 Counting in ones</li> <li>2.1 Counting in ones to 100</li> </ul>
		Continue and create number patterns  Model and describe 'odd' and 'even' numbers using items paired in two rows  Count forwards and backwards by twos from any starting point	<ul><li>2.2 Odd and even number patterns</li><li>2.3 Skip counting by twos to 20</li><li>14.2 Skip counting by twos to 10</li></ul>
	<ul> <li>MA1-RWN-01</li> <li>reasons about representations of whole numbers to 1000, partitioning numbers to use and record quantity values</li> </ul>	Represent numbers on a line  Sequence numbers and arrange them on a line by considering the order and size of those numbers	<ul> <li>2.1 Counting in ones to 100</li> <li>2.3 Skip counting by twos to 20</li> <li>9.1 Ordering numbers to 100</li> <li>19.1 Count and order numbers to 150</li> </ul>
	MA1-RWN-02	Locate the approximate position of multiples of 10 on a model of a number line from 0 to 100	9.1 Ordering numbers to 100
		Represent the structure of groups of ten in whole numbers	
		Recognise that ten ones is the same as one ten	<b>30.1</b> Regrouping two-digit numbers
		Use 10 as a reference in forming numbers from 11 to 20	1.3 Reading and writing numbers to 20



#### Maths Trek 1

Mathematical concept	Outcomes	Content	Topics, investigations and problem-	-solving
Representing whole numbers A cont.		Count large sets of objects by systematically grouping in tens		<ul><li>9.2 Counting collections to 100</li><li>10.1 Counting groups of 10</li></ul>
		Partition two-digit numbers to show quantity values		
		Use number lines and number charts to assist with locating the nearest ten to a number	9.2 Counting collections to 100	
		Estimate, to the nearest ten, the number of objects in a collection and check by counting in groups of ten (Reasons about quantity)	<b>9.2</b> Counting collections to 100	
Combining and separating	A student:  • develops understanding and	Use advanced count-by-one strategies to solve addition and subtraction problems		
quantities A	fluency in mathematics through exploring and connecting mathematical concepts, choosing	Apply the terms 'add', 'plus', 'equals', 'is equal to', 'is the same as', 'take away', 'minus' and 'the difference between' to describe combining and separating quantities	<b>15.1</b> Subtraction	<ul><li>23.1 Partitioning tens and ones</li><li>30.1 Regrouping two-digit</li></ul>
	and applying mathematical techniques to solve problems, and communicating their thinking	Recognise and use the symbols for plus (+), minus (-) and equals (=)	7.1 Addition number sentences	
	<ul> <li>and reasoning coherently and clearly MAO-WM-01</li> <li>uses number bonds and the relationship between addition and subtraction to solve problems involving partitioning MA1-CSQ-01</li> </ul>	Record number sentences in a variety of ways using drawings, words, numerals and symbols	<ul><li>12.1 Addition using think boards</li><li>14.1 Partitioning to 20</li></ul>	difference 23.2 Subtraction facts 28.2 Addition and subtraction
		Fluently use advanced count-by-one strategies including counting on and counting back to solve addition and subtraction problems involving one- and two-digit numbers (Reasons about relations)	<ul><li>9.3 Counting on 1 or 2</li><li>15.1 Subtraction</li></ul>	

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	Number and algebra					
	Mathematical concept	Outcomes	Content	Topics, investigations and problen	n-solving	
	Combining		Recognise and recall number bonds up to ten			
	and separating quantities A cont.	ties A cont.  • Recognise, recall and record combinations of two numbers 7.1	<ul><li>7.1 Addition number sentences</li><li>10.2 Friends of 10</li></ul>	<ul><li>28.2 Addition and subtraction money problems</li><li>INV Numbers up</li></ul>		
			Model and record patterns for individual numbers up to ten by making all possible whole-number combinations (Reasons about patterns)	<ul><li>4.1 Partitioning to 10</li><li>10.2 Friends of 10</li></ul>	23.4 Problem-solving practice	
			Create, recall and recognise combinations of two numbers that add up to numbers less than 10	<ul><li>4.1 Partitioning to 10</li><li>10.4 Guessing and checking</li></ul>	<ul><li>25.4 Finding smaller parts of a larger problem</li><li>26.4 Problem-solving practice</li></ul>	
1			Describe combinations for numbers using words such as more than, less than and double (Reasons about relations)	<b>22.1</b> Addition facts	<b>23.2</b> Subtraction facts	
			Use flexible strategies to solve addition and subtraction problems			
			Use non-count-by-one strategies such as using doubles for near doubles and combining numbers that add to ten	<ul><li>12.2 Doubles and near doubles</li><li>19.2 Think addition to subtract</li><li>22.1 Addition facts</li><li>23.2 Subtraction facts</li></ul>	28.2 Addition and subtraction money problems  INV Let's roll  INV Breakfast cafe	
			Represent addition and subtraction using structured materials such as a bead string or similar model	<ul><li>8.1 Addition using number lines</li><li>16.1 Subtraction number sentences</li></ul>	<ul><li>18.3 Addition using ten frames and number lines</li><li>28.1 Working with coins and notes</li></ul>	
			Select and apply strategies using number bonds to solve addition and subtraction problems with one- and two-digit numbers by partitioning numbers using quantity value and bridging to 10 (Reasons about relations)	<ul><li>22.1 Addition facts</li><li>25.3 Addition – split and add</li></ul>	<ul><li>27.1 Bridging to tens</li><li>28.1 Working with coins and notes</li></ul>	
			Represent equality			
O			Use the equals sign to record equivalent number sentences involving addition, and to mean 'is the same as', rather than as an indication to perform an operation (Reasons about relations)	11.2 Turnarounds	<b>24.1</b> Equivalent number sentences	
			Model the commutative property for addition and apply it to aid the recall of addition facts (Reasons about relations)	11.2 Turnarounds	<b>24.1</b> Equivalent number sentences	
-			Recall related addition and subtraction facts for numbers to at least 10 (Reasons about relations)	19.2 Think addition to subtract	<b>20.1</b> Addition and subtraction are related	



Number and algebra				
Mathematical concept	Outcomes	Content	Topics, investigations and proble	m-solving
	Outcomes  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 the structure of equal groups to solve multiplication problems, and shares or groups to solve division problems MA1-FG-01	Count in multiples using rhythmic and skip counting  Count by twos, threes, fives and tens using rhythmic counting and skip counting  Use skip counting patterns  Identify and describe patterns when skip counting forwards or backwards by twos, fives and tens  Determine a missing number in a number pattern with a constant difference  Describe how the missing number in a number pattern was determined (Reasons about relations)  Model and use equal groups of objects to represent multiplication  Model and describe collections of objects as groups of  Determine and distinguish between the number of groups and the number in each group when describing collections	Topics, investigations and proble  2.3 Skip counting by twos to 20 7.2 Skip counting by fives 8.2 Skip counting by tens  3.4 Making a table or chart 19.4 Working backwards  2.3 Skip counting by twos to 20 7.2 Skip counting by fives  20.3 Describing number patterns  25.1 Equal groups  25.1 Equal groups	m-solving  14.2 Skip counting by twos to 100 20.3 Describing number patterns  20.3 Describing number patterns 23.4 Problem-solving practice 8.2 Skip counting by tens 14.2 Skip counting by twos to 100 22.2 Keeping the pattern going
		of objects (Reasons about relations)  • Find the total number of objects using skip counting of equal groups of a known size  Recognise and represent division	<b>26.2</b> Equal groups	
		Use concrete materials to model a half of a collection and show the relation between the half and the whole	<b>26.3</b> Sharing equally	
		Model sharing division by distributing a collection of objects equally into a given number of groups to determine how many in each group	<b>26.3</b> Sharing equally	27.3 Sharing and grouping
		Model grouping division by determining the number of groups of a given size that can be formed	27.2 How many groups?	27.3 Sharing and grouping
7		Describe the part left over when a collection cannot be distributed equally using the given group size	26.3 Sharing equally	



Measurement and sp	rement and space					
Mathematical concept	Outcomes	Content	Topics, investigations and probl	em-solving		
Geometric measure A	A student:  • develops understanding and fluency in mathematics through exploring and connecting	Position: Follow directions to familiar locations  Give and follow directions, including directions involving turns to the left and right, to move between familiar locations	12.3 Following directions	<b>26.1</b> Following and writing directions		
	mathematical concepts, choosing and applying mathematical	Give and follow instructions to position objects in models and drawings	11.3 Describing position			
	techniques to solve problems, and communicating their thinking	Describe the path from one location to another on drawings and diagrams	<b>26.1</b> Following and writing directions			
	and reasoning coherently and clearly MAO-WM-01 • represents and describes the	Length: Measure the lengths of objects using uniform informal units				
	<ul> <li>represents and describes the positions of objects in familiar locations MA1-GM-01</li> <li>measures, records, compares and estimates lengths and distances using uniform informal units, as well as metres and</li> </ul>	Use uniform informal units to measure lengths and distances by placing the units end to end without gaps or overlaps	<ul><li>5.3 Measuring length using informal units</li><li>19.3 Informal units to measure length</li></ul>	INV Ramp champ		
		Select appropriate uniform informal units to measure lengths and distances	19.3 Informal units to measure length			
	centimetres MA1-GM-02  creates and recognises halves, quarters and eighths as part	Recognise and explain the relationship between the size of a unit and the number of units needed (Reasons about relations)	5.3 Measuring length using informal units	<b>19.3</b> Informal units to measure length		
	measures of a whole length MA1-GM-03	Count informal units to measure lengths or distances and describe the part left over	19.3 Informal units to measure length			
		Record lengths and distances by referring to the number and type of unit used	<ul><li>5.3 Measuring length using informal units</li><li>19.3 Informal units to measure length</li></ul>	INV Ramp champ		
		Use a single informal unit repeatedly (iteratively) to measure length	19.3 Informal units to measure length			
		Length: Compare lengths using uniform informal units				
		Compare the lengths of two or more objects using appropriate uniform informal units and check by placing the objects side by side and aligning the ends	19.3 Informal units to measure length			
		Explain why the length of an object remains constant when rearranged (Reasons about relations)	5.3 Measuring length using informal units			
		Estimate lengths, indicating the number and type of unit used and check by measuring	5.3 Measuring length using informal units			



Measurement and sp	ace	Measurement and space					
Mathematical concept	Outcomes	Content	Topics, investigations and problem-solving				
Geometric measure A cont.		Length: Subdivide lengths to find halves and quarters  Use concrete materials to model both half and quarters of a whole length, highlighting the length  Identify two equal parts and the relationship of the parts to the whole length, linking words and images  Recognise when lengths have or have not been divided into halves and quarters	<ul> <li>25.2 Halves and quarters of a length</li> <li>25.2 Halves and quarters of a length</li> <li>25.2 Halves and quarters of a length</li> </ul>				
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  recognises, describes and represents shapes including quadrilaterals and other common polygons MA1-2DS-01  measures and compares areas using uniform informal units in rows and columns MA1-2DS-02	<ul> <li>2D shapes: Recognise and classify shapes using obvious features</li> <li>Explore, manipulate and describe features of polygons</li> <li>Use the terms 'side', 'vertex' and 'two-dimensional' to describe plane (flat) shapes</li> <li>Create repeating linear patterns with shapes, including two-shape and three-shape patterns</li> <li>Compare, sort and classify polygons according to the number of sides or vertices</li> <li>Select and name a shape from a description of its features, identifying triangles, quadrilaterals, pentagons, hexagons and octagons (Reasons about spatial relations)</li> <li>Recognise that shapes with the same name may have sides of equal or different lengths (Reasons about spatial relations)</li> <li>Identify shapes presented in different orientations</li> <li>Precognise that sliding or reflecting a shape does not change its size or features (Reasons about spatial relations)</li> <li>Identify and create a slide (translation) or reflection of a single shape and use the terms 'slide' (translation) and 'reflection' to describe the movement of the shape</li> <li>Make designs with symmetry from reflection using</li> </ul>	<ul> <li>7.3 Which 2D shape is that?</li> <li>8.3 Classifying 2D shapes</li> <li>15.2 Repeating shape patterns</li> <li>8.3 Classifying 2D shapes</li> <li>28.3 Triangles and quadrilaterals</li> <li>28.3 Triangles and quadrilaterals</li> <li>28.3 Triangles and quadrilaterals</li> <li>7.3 Which 2D shape is that?</li> <li>31.3 Reflect, slide, turn</li> <li>31.3 Reflect, slide, turn</li> <li>31.3 Reflect, slide, turn</li> </ul>				



#### Maths Trek 1

Measurement and sp	ace		
Mathematical concept	Outcomes	Content	Topics, investigations and problem-solving
Two-dimensional		Area: Indirectly compare area	
spatial structure A cont.		Indirectly compare the areas of two surfaces that cannot be moved or superimposed	30.2 Compare area
		Predict which of two similar shapes has the larger area and check by covering	<b>30.2</b> Compare area
		Area: Measure areas using uniform informal units	
		Explore area using uniform informal units to cover the surface in rows or columns without gaps or overlaps	31.1 Measure area
		Measure area by selecting and using appropriate uniform informal units (Reasons about relations)	31.1 Measure area
		Explain the relationship between the size of a unit and the number of units needed to measure an area (Reasons about relations)	31.1 Measure area
		Explain why the area remains constant when units are rearranged (Reasons about relations)	31.1 Measure area
		Record areas by referring to the number and type of uniform informal unit used	31.1 Measure area
		Identify any parts of units left over when counting uniform informal units to measure area	31.1 Measure area
		Estimate areas by referring to the number and type of uniform informal unit used and check by measuring	31.1 Measure area

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#### Maths Trek 1

Measurement and sp	ace		
Mathematical concept	Outcomes	Content	Topics, investigations and problem-solving
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  • recognises, describes and represents familiar three-dimensional objects MA1-3DS-01	<ul> <li>3D objects: Recognise familiar three-dimensional objects</li> <li>Use the term 'three-dimensional' to describe a range of objects</li> <li>Distinguish between objects, which are three-dimensional (3D) and shapes which are two-dimensional (2D)</li> <li>Identify and name familiar three-dimensional objects, including cubes, cylinders, spheres and rectangular prisms</li> <li>3D objects: Sort and describe three-dimensional objects</li> <li>Manipulate and describe familiar three-dimensional objects</li> <li>Use the term 'surface' in describing familiar three-dimensional objects</li> <li>Sort familiar three-dimensional objects according to</li> </ul>	15.3 Identify 3D objects 15.3 Identify 3D objects
	(capacities) and volumes using uniform informal units MA1-3DS-02	<ul> <li>Obvious features</li> <li>Use the term 'face' to describe the flat surfaces of three-dimensional objects with straight edges</li> <li>Select and name a familiar three-dimensional object from a description of its features</li> <li>Volume: Measure and compare the internal volumes (capacities) of containers by filling</li> </ul>	<ul><li>16.3 Sort and describe 3D objects</li><li>16.3 Sort and describe 3D objects</li></ul>
		<ul> <li>Use uniform informal units to measure how much a container will hold by counting the number of times a smaller container can be filled and emptied into the container being measured</li> <li>Select appropriate informal units to measure the capacities of containers</li> <li>Recognise and explain the relationship between the size of a unit and the number of units needed (Reasons about relations)</li> <li>Compare the internal volumes of two or more containers using appropriate uniform informal units</li> <li>Recognise and explain why containers of different shapes may have the same internal volume (Reasons about relations)</li> </ul>	<ul><li>23.3 Measuring capacity</li><li>23.3 Measuring capacity</li><li>23.3 Measuring capacity</li><li>23.3 Measuring capacity</li><li>23.3 Measuring capacity</li></ul>
		Estimate how much a container holds by referring to the number and type of uniform informal units used and check by measuring	23.3 Measuring capacity

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#### Maths Trek 1

Measurement and sp	ace		
Mathematical concept	Outcomes	Content	Topics, investigations and problem-solving
Three-dimensional spatial structure A cont.		Volume: Measure the internal volume (capacity) of containers by packing	
		Pack cubic units (eg blocks) into rectangular containers so that there are no gaps	20.2 Measure volume by packing
		Recognise that cubes pack better than other objects in rectangular containers (Reasons about spatial structure)	20.2 Measure volume by packing
		Estimate and measure the internal volume of a container by filling the container with uniform informal units and counting the number of units used	20.2 Measure volume by packing
		Explain that if there are gaps when packing and stacking, this will affect the accuracy of measuring the internal volume	20.2 Measure volume by packing
		Volume: Construct volumes using cubes	
		Explore different rectangular prisms that can be made from a given number of cubes	24.2 Building prisms with cubes
		Devise and explain strategies for stacking and counting units to form a rectangular prism (Reasons about spatial structure)	24.2 Building prisms with cubes
7		Record volumes, referring to the number and type of uniform informal unit used	24.2 Building prisms with cubes

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#### Maths Trek 1

Measurement and sp	pace		
Mathematical concept	Outcomes	Content	Topics, investigations and problem-solving
Non-spatial measure A	A student:  • develops understanding and fluency in mathematics through exploring and connecting	Mass: Investigate mass using an equal-arm balance     Place objects on either side of an equal-arm balance to obtain a level balance	4.2 Comparing mass – heavier, lighter
	mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking	Use an equal-arm balance to compare the masses of two objects and record, which is heavier or lighter      Predict the action of an equal-arm balance before placing particular objects in each pan (Reasons about relations)	<ul> <li>4.2 Comparing mass – heavier, lighter</li> <li>4.2 Comparing mass – heavier, lighter</li> </ul>
and reasoning cohere clearly MAO-WM-01		Use a balance to find two collections of objects that have the same mass	<b>4.2</b> Comparing mass – heavier, lighter
	and estimates the masses of objects using uniform informal units MA1-NSM-01  • describes, compares and orders	Compare and order the masses of two or more objects by hefting, and check using an equal-arm balance	<b>4.2</b> Comparing mass – heavier, lighter
		Time: Name and order the cycle of months	
	durations of events, and reads	Name and order the months of the year	3.1 Days, weeks, months, years 10.3 Calendars and months
	half- and quarter-hour time MA1-NSM-02	Recall the number of days in each month	10.3 Calendars and months
	IVIA1-INSIVI-UZ	Identify a day and date using a Gregorian calendar	<b>3.1</b> Days, weeks, months, years <b>10.3</b> Calendars and months
		Recognise monthly and annual cycles	<b>10.3</b> Calendars and months <b>31.2</b> Months and seasons
		Time: Tell time to the half-hour	
		Read analog clocks to the half-hour using the terms 'o'clock' and 'half past'	<b>4.3</b> Time – o'clock, half past
		Describe the position of the hands on a clock for the half-hour	<b>4.3</b> Time – o'clock, half past
		Connect the use of half turns to the turn of the minute hand for the passing of the half-hour	4.3 Time – o'clock, half past
		Explain why the hour hand on a clock is halfway between successive hour-markers when the minute hand shows the half-hour (Reasons about relations)	4.3 Time – o'clock, half past
		Describe everyday events with particular hour and half-hour times	4.3 Time – o'clock, half past
		Record hour and half-hour time, making connections between analog and digital clocks	4.3 Time – o'clock, half past



#### Maths Trek 1

Mathematical concept	Outcomes	Content	Topics, investigations and pro	blem-solving
Data A	A student:  • develops understanding and	Ask questions and gather data  • Investigate a topic of interest by choosing suitable questions	20.2 Collecting data	
	fluency in mathematics through	to obtain appropriate data	<b>30.3</b> Collecting data	
	exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems,	Gather data and track what has been counted by using concrete materials, tally marks, lists or symbols	<ul><li>5.2 Collecting data using tally marks</li><li>14.3 Object graphs</li></ul>	22.3 Collecting data 30.3 Collecting data
	and communicating their thinking and reasoning coherently and	Represent data with objects and drawings and describe the displays		
	clearly MAO-WM-01 • gathers and organises data, displays data in lists, tables and	Use concrete materials or pictures of objects as symbols to create data displays where one object or picture represents one data value	14.3 Object graphs	24.3 Picture graphs
	picture graphs MA1-DATA-01  • reasons about representations of data to describe and interpret	Describe information presented in one-to-one data displays (Reasons about relations)	14.3 Object graphs	<b>24.3</b> Picture graphs
	the results MA1-DATA-02	Use comparative language to describe information presented in a display, such as 'more than' and 'less than'	<ul><li>14.3 Object graphs</li><li>22.3 Collecting data</li></ul>	<b>24.3</b> Picture graphs <b>30.3</b> Collecting data
		Interpret a data display and identify the biggest or smallest values	<ul><li>5.2 Collecting data using tally marks</li><li>14.3 Object graphs</li></ul>	<ul><li>22.3 Collecting data</li><li>24.3 Picture graphs</li><li>30.3 Collecting data</li></ul>
Chance A	A student:	Identify and describe possible outcomes		
	develops understanding and fluency in mathematics through	Identify possible outcomes of familiar activities and events	<b>5.1</b> Possible outcomes	
	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	Describe the chance of possible outcomes for familiar activities and events	<b>5.1</b> Possible outcomes	
	recognises and describes the element of chance in everyday events MA1-CHAN-01			



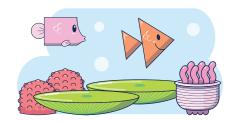
#### Moths Trek 2

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, investigations and problem-solving	
Representing whole numbers B	A student:  • develops understanding and fluency in mathematics through exploring and connecting	Use counting sequences of ones and tens flexibly  Identify the number before and after a given three-digit number	1.3 Read, write and represent numbers to 150	9.1 Read, write and represen numbers to 500
	mathematical concepts, choosing and applying mathematical	Count forwards and backwards by tens, on and off the decade, with two- and three-digit numbers	2.1 Number patterns beyond 100	<ul><li>5.1 Number lines to 500</li><li>20.2 Number lines to 1000</li></ul>
	techniques to solve problems, and communicating their thinking	Identify how many more to the next multiple of ten within two- and three-digit numbers	<b>5.1</b> Number lines to 500	20.2 Number lines to 1000
<ul> <li>and reasoning coherently and clearly MAO-WM-01</li> <li>applies an understanding of place value and the role of zero to read, write and order two- and three-digit numbers</li> </ul>	Form, regroup and rename three-digit numbers			
	applies an understanding of place value and the role of zero to read, write and order two- and three-digit numbers MA1-RWN-01     reasons about representations of whole numbers to 1000, partitioning numbers to use	Count and represent large sets of objects by systematically grouping in tens and hundreds	<ul><li>1.2 Tens and ones with blocks</li><li>1.3 Read, write and represent numbers to 150</li><li>2.3 Grouping to count collections</li></ul>	<ul><li>9.1 Read, write and represer numbers to 500</li><li>18.4 Solving a simpler problem</li></ul>
		Use models such as base 10 material and interlocking cubes to represent and explain grouping	<ul><li>1.2 Tens and ones with blocks</li><li>1.3 Read, write and represent numbers to 150</li><li>3.2 Place value to hundreds</li></ul>	<ul><li>11.1 Place value to hundreds</li><li>14.1 Number expanders</li><li>23.1 Place value to 999</li></ul>
and record quantity value.  MA1-RWN-02	and record quantity values MA1-RWN-02	State the quantity value of digits in numbers of up to three digits (Reasons about quantity)	<ul><li>3.2 Place value to hundreds</li><li>11.1 Place value to hundreds</li><li>12.1 The role of a zero</li></ul>	<ul><li>14.2 Expanded notation</li><li>17.1 Place value problems</li><li>18.1 Expanded notation</li></ul>
		Identify the nearest hundred to a number	5.1 Number lines to 500	20.2 Number lines to 1000
		Recognise units of 100	11.1 Place value to hundreds	23.1 Place value to 999



#### Maths Trek 2

Number and algebro				
Mathematical concept	Outcomes	Content	Topics, investigations and problem	n-solving
Representing whole numbers B cont.		Use place value to partition and rename three-digit numbers in different ways (Reasons about relations)	<ul> <li>3.2 Place value to hundreds</li> <li>11.1 Place value to hundreds</li> <li>12.1 The role of a zero</li> <li>14.1 Number expanders</li> <li>14.2 Expanded notation</li> </ul>	<ul><li>18.1 Expanded notation</li><li>22.2 Regrouping and renaming numbers</li><li>30.1 Regrouping and renaming numbers</li></ul>
		Estimate, to the nearest hundred, the number of objects in a collection and check by grouping and counting	<b>3.2</b> Place value to hundreds	
Combining	A student:	Represent and reason about additive relations		
and separating quantities B	develops understanding and fluency in mathematics through	Create, record and recognise combinations of two numbers that add to numbers from 11 up to and including 20	<ul><li>2.2 Addition using ten frames</li><li>4.1 Partitioning to 20</li></ul>	<ul><li>4.2 Addition facts</li><li>7.2 Addition using friendly pairs</li></ul>
	exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and	Create, model and solve word problems, using number sentences	<ul> <li>7.2 Addition using friendly pairs</li> <li>11.2 Addition with bar models</li> <li>15.1 Subtraction with bar models</li> <li>20.3 Problem-solving with money</li> </ul>	<ul><li>24.3 Addition and subtraction with bar models</li><li>26.1 Addition and subtraction problems</li><li>INV Showtime</li></ul>
	clearly MAO-WM-01  uses number bonds and the	Represent the difference between two numbers using concrete materials and diagrams	<b>8.1</b> Subtraction facts	
	relationship between addition and subtraction to solve	Represent a constant difference between pairs of numbers	8.1 Subtraction facts	
	problems involving partitioning MA1-CSQ-01	Model how addition and subtraction are inverse operations using concrete materials, drawings and diagrams	10.3 Addition and subtraction facts are related	
		Recall and use related addition and subtraction number facts to at least 20	10.3 Addition and subtraction facts are related	
		Form multiples of ten when adding and subtracting two-digit numbers		
		Add two-digit numbers by building to multiples of ten	<b>5.2</b> Addition using friendly jumps	<b>7.2</b> Addition using friendly pairs
		Add and subtract from a two-digit number and record on an empty number line	<ul><li>5.2 Addition using friendly jumps</li><li>8.2 Subtraction using friendly jumps</li></ul>	<ul><li>16.1 Addition using jump strateg</li><li>17.2 Subtraction using jump strategy</li></ul>
		Use quantity values to separate tens and ones for addition (only)	10.2 Addition using split strategy	11.2 Addition with bar models
7		Use an inverse strategy to turn a subtraction into an addition (Reasons about relations)	19.1 Inverse strategy of subtraction	

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#### Maths Trek 2

	Number and algebra				
	Mathematical concept	Outcomes	Content	Topics, investigations and problem-solving	
	Combining		Use knowledge of equality to solve related problems		
	and separating quantities B cont.		Use number bonds to determine a missing number	<b>25.1</b> Solve problems using number bonds	
			Use number knowledge to solve related problems (Reasons about relations)	<b>25.1</b> Solve problems using number bonds	
			Use a variety of ways of writing number sentences	<b>25.1</b> Solve problems using number bonds	
			Use number bonds to solve equality problems	<b>25.1</b> Solve problems using number bonds	
	Forming groups B	develops understanding and fluency in mathematics through exploring and connecting	Represent and explain multiplication as the combining of equal groups		
			Use objects, diagrams, images or actions to model multiplication as accumulating equal <i>groups</i>	20.1 Multiplication as repeated addition	
		mathematical concepts, choosing and applying mathematical techniques to solve problems,	Solve multiplication problems using repeated addition	<b>20.1</b> Multiplication as repeated addition	
		and communicating their thinking	Form arrays of equal rows and equal columns	22.1 Groups and arrays	
		<ul> <li>and reasoning coherently and clearly MAO-WM-01</li> <li>uses the structure of equal groups to solve multiplication problems,</li> </ul>	Determine and distinguish between the <i>number of rows/columns</i> and the <i>number in each row/column</i> when describing collections of objects	20.1 Multiplication as repeated addition	arrays
		and shares or groups to solve division problems MA1-FG-01	Model the commutative property of multiplication, using an array (Reasons about relations)	25.2 Multiplication using arrays	
			Model division by deconstructing an array equally into a given number of rows or columns	<ul><li>26.2 Division – How many in each group?</li><li>27.3 Division – H</li></ul>	low many groups
			Model doubling and halving with fractions		
T			Model doubling and halving groups and the relation between the processes	27.2 Doubling and halving	
			Re-create the whole given half	27.1 Fractions as part of a group	
_			Use concrete materials to model a half, a quarter or an eighth of a collection, and explain their thinking	27.1 Fractions as part of a group	

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#### Maths Trek 2

Number and algebra				
Mathematical concept	Outcomes	Content	Topics, investigations and proble	m-solving
Forming groups B cont.		Represent multiplication and division problems		
		Solve multiplication and division problems using objects, diagrams, images and actions	<ul><li>26.2 Division – How many in each group?</li><li>27.3 Division – How many groups?</li></ul>	<b>30.2</b> Multiplication and division problems
		<ul> <li>Record answers to multiplication and division problems (including those with remainders) using drawings, words and numerals</li> </ul>	<ul><li>26.2 Division – How many in each group?</li><li>27.3 Division – How many groups?</li></ul>	<b>30.2</b> Multiplication and division problems

Mathematical concept	Outcomes	Content	Topics, investigations and proble	em-solving
Geometric measure B	A student:	Position: Explore simple maps of familiar locations		
	develops understanding and fluency in mathematics through	Make simple models from memory, photographs, drawings or descriptions	9.3 Simple maps	
and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and	Interpret simple maps by identifying objects in different locations	9.3 Simple maps	<b>15.2</b> Maps, pathways, directions	
	Create a path from one location to another	<b>15.2</b> Maps, pathways, directions		
	Length: Compare and order lengths, using appropriate uniform informal units			
	positions of objects in familiar locations MA1-GM-01  • measures, records, compares	Make and use a tape measure calibrated in uniform informal units	INV Marble ramp	
		Compare and order two or more shapes according to their lengths using an appropriate uniform informal unit	12.2 Measuring length	23.3 Measuring length
and estimates lengths and distances using uniform informal units, as well as metres and	Compare the lengths of two or more objects that cannot be moved or aligned (Reasons about relations)	12.2 Measuring length	23.3 Measuring length	
	centimetres MA1-GM-02 • creates and recognises halves, quarters and eighths as part measures of a whole length MA1-GM-03	Record length comparisons using drawings, numerals and words, and by referring to the uniform informal unit used	<ul><li>12.2 Measuring length</li><li>23.3 Measuring length</li></ul>	INV Marble ramp

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#### Maths Trek 2

Measurement and sp	ace		
Mathematical concept	Outcomes	Content	Topics, investigations and problem-solving
Geometric measure B cont.		Length: Recognise and use formal units to measure the lengths of objects	
		Recognise the need for formal units to measure lengths and distances	25.3 Measuring with metres
		Use the metre as a unit to measure lengths and distances to the nearest metre or half-metre	25.3 Measuring with metres
		Record lengths and distances using the abbreviation for metres (m)	25.3 Measuring with metres
		Estimate lengths and distances to the nearest metre and check by measuring	25.3 Measuring with metres
		Recognise the need for a formal unit smaller than the metre	26.3 Measuring with centimetres
		Recognise that there are 100 centimetres in one metre	26.3 Measuring with centimetres
		Measure lengths to the nearest centimetre, using a device with 1-cm markings	26.3 Measuring with centimetres
		Record lengths and distances using the abbreviation for centimetres (cm)	26.3 Measuring with centimetres
		Estimate lengths and distances to the nearest centimetre and check by measuring	26.3 Measuring with centimetres
)		Length: Repeatedly halve lengths to form eighths	
		Use materials to model an eighth of a whole length, highlighting the length	<b>30.3</b> Representing halves, quarters, eighths
,		Recognise when a length is divided into eight equal parts	<b>30.3</b> Representing halves, quarters, eighths

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#### Maths Trek 2

Measurement and space				
Mathematical concept	Outcomes	Content	Topics, investigations 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	2D shapes: Represent, combine and separate two-dimensional shapes		
		Make representations of two-dimensional shapes and combinations of shapes in different orientations	8.3 Classifying 2D shapes 11.3 Features of 2D shapes	
		Combine and split single shapes and arrangements of shapes to form new shapes (Reasons about spatial relations)	8.3 Classifying 2D shapes	
		2D shapes: Identify and describe the orientation of shapes using quarter turns		
	recognises, describes and represents shapes including quadrilaterals and other common	Identify full, half and quarter turns of a single shape and describe the movement of the shape	<b>31.3</b> Turns	
	<ul> <li>polygons MA1-2DS-01</li> <li>measures and compares areas using uniform informal units in rows and columns MA1-2DS-02</li> </ul>	Identify and describe directions of turns as 'left turn', 'right turn', 'clockwise' or 'anti-clockwise'	<b>31.3</b> Turns	
		Connect the use of quarter and half turns to the turn of the minute hand on a clock for the passing of quarter and half-hours (Reasons about relations)	<b>31.3</b> Turns	
		Perform full, half and quarter turns with a single shape	<b>31.3</b> Turns	
		Describe the result of a turn of a shape	<b>31.3</b> Turns	
		Determine the repeating pattern formed by quarter turns	<b>31.3</b> Turns	
		Area: Compare rectangular areas using uniform square units of an appropriate size in rows and columns		
		Cover rectangular surfaces by creating repeated rows of square tiles	7.3 Measuring area	
		Use a single square to create the array structure of area in rows and columns	7.3 Measuring area	
		Use the structure of repeated units to find the area of a rectangle	7.3 Measuring area	
		Explain how the grid structure of rows and columns helps to find the area (Reasons about spatial structure)	28.2 Measuring and comparing area of rectangles	



#### Maths Trek 2

Mathematical concept	Outcomes	Content	Topics, investigations and proble	em-solving
Two-dimensional spatial structure B cont.		Compare the areas of two or more surfaces that cannot be moved, or superimposed, by measuring in uniform informal units	28.2 Measuring and comparing area of rectangles	
		Record comparisons of area using drawings, numerals and words, and by referring to the uniform informal unit used	<b>28.2</b> Measuring and comparing area of rectangles	
Three-dimensional	A student:	3D objects: Describe the features of three-dimensional objects		
spatial structure B	develops understanding and fluency in mathematics through	Describe three-dimensional objects (prisms) using the terms 'face', 'edge' and 'vertex'	<ul><li>12.3 Classifying 3D objects</li><li>16.2 Faces, edges, vertices</li></ul>	17.3 3D objects and their face
	exploring and connecting mathematical concepts, choosing	Represent three-dimensional objects by making simple models	16.2 Faces, edges, vertices	17.3 3D objects and their face
	and applying mathematical techniques to solve problems,	Recognise and name flat surfaces of three-dimensional objects as two-dimensional shapes	17.3 3D objects and their faces	
and communicating their thinking and reasoning coherently and clearly MAO-WM-01  • recognises, describes and represents familiar three-dimensional objects MA1-3DS-01  • measures, records, compares	Volume: Compare containers based on internal volume (capacity) by filling and packing			
	9	Make and use a device for measuring internal volume (capacity) calibrated in uniform informal units	<b>24.2</b> Measuring capacity	
	MA1-3DS-01 • measures, records, compares	Compare, order and record the internal volumes (capacities) of two or more containers by measuring each container in uniform informal units	24.2 Measuring capacity	
	and estimates internal volumes (capacities) and volumes using uniform informal units MA1-3DS-02	Estimate internal volume (capacity) by referring to the number and type of uniform informal unit used	<b>24.2</b> Measuring capacity	
		Volume: Compare volumes using uniform informal units		
		Estimate the volumes of two or more models and check by counting the number of blocks used in each model	23.2 Packing and stacking	
	Compare models with different appearances, recognising when they have the same volume (Reasons about spatial structure)	23.2 Packing and stacking		
	Record the results of volume comparisons using drawings, numerals and words, referring to the units used	23.2 Packing and stacking		
		Explain that models made of the same number of units may have different volumes depending on the size of the units used (Reasons about spatial relations)	23.2 Packing and stacking	



#### Maths Trek 2

Measurement and space				
Mathematical concept	Outcomes	Content	Topics, investigations 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	Mass: Compare the masses of objects using an equal-arm balance  Use uniform informal units to measure the mass of an object by counting the number of units needed to obtain a level balance on an equal-arm balance	<b>15.3</b> Measuring and comparing mass	<b>16.3</b> Measuring and comparing mass
		Select an appropriate uniform informal unit to measure the mass of an object and justify the choice (Reasons about relations)	<b>15.3</b> Measuring and comparing mass	
	clearly MAO-WM-01  • measures, records, compares	Explain the relationship between the mass of a unit and the number of units needed (Reasons about relations)	<b>15.3</b> Measuring and comparing mass	<b>16.3</b> Measuring and comparing mass
	and estimates the masses of objects using uniform informal units MA1-NSM-01  • describes, compares and orders durations of events, and reads half- and quarter-hour time MA1-NSM-02	Compare the masses of two or more objects using the same informal units	<b>15.3</b> Measuring and comparing mass	<b>16.3</b> Measuring and comparing mass
		Estimate mass by referring to the number and type of uniform informal unit used and check by measuring	<b>15.3</b> Measuring and comparing mass	<b>16.3</b> Measuring and comparing mass
		Recognise that mass is conserved	<b>15.3</b> Measuring and comparing mass	
		Time: Describe duration using units of time		
		Use a calendar to calculate the number of months, weeks or days until an upcoming event	<ul><li>3.1 Months of the year</li><li>5.3 Calendars</li></ul>	<b>31.2</b> Reading calendars INV All about birthdays
		Estimate and measure the duration of an event using a repeated informal unit	28.1 Hours, minutes, seconds	
		Compare and order the duration of events measured using a repeated informal unit	28.1 Hours, minutes, seconds	
		Use the terms 'hour', 'minute' and 'second'	28.1 Hours, minutes, seconds	
		Compare the duration of standard time units	28.1 Hours, minutes, seconds	
		Make predictions about the time remaining until a particular event starts or finishes (Reasons about relations)		

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	Mathematical concept	Outcomes	Content	Topics, investigations and probler	m-solving	
	Non-spatial measure B cont.		Time: Tell time to the quarter-hour using the language of 'past' and 'to'			
			Read analog clocks to the quarter-hour using the terms 'past' and 'to'	<ul><li>18.3 Time – o'clock, half past</li><li>19.3 Time – quarter past, half past</li></ul>	<b>22.3</b> Time – quarter past, quarter to	
			Describe the position of the hands on a clock for quarter past and quarter to and relate this to quarter turns	19.3 Time – quarter past, half past	<b>22.3</b> Time – quarter past, quarter to	
			Identify which hour has just passed when the hour hand is not pointing to a numeral	<ul><li>18.3 Time – o'clock, half past</li><li>19.3 Time – quarter past, half past</li></ul>	<b>22.3</b> Time – quarter past, quarter to	
			Record quarter-past and quarter-to time on analog and digital clocks	19.3 Time – quarter past, half past	<b>22.3</b> Time – quarter past, quarter to	
<u></u>			Associate the numerals 3, 6 and 9 with 15, 30 and 45 minutes and with the terms 'quarter past', 'half past' and 'quarter to', respectively	19.3 Time – quarter past, half past	22.3 Time – quarter past, quarter to	



#### Maths Trek 2

Mathematical concept	Outcomes	Content	Topics, investigations and proble	em-solving
Data B	A student:	Identify a question of interest and gather relevant data		
	develops understanding and fluency in mathematics through	Pose suitable questions where the answers form categories, and predict the likely responses	<b>3.3</b> Picture graphs	
	exploring and connecting mathematical concepts, choosing and applying mathematical	Collect data on familiar topics	<b>3.3</b> Picture graphs	<b>4.3</b> Collecting data using tally marks
	techniques to solve problems, and communicating their thinking	Sort data into relevant categories	<b>3.3</b> Picture graphs	<b>4.3</b> Collecting data using tally marks
	and reasoning coherently and clearly MAO-WM-01	Create displays of data and interpret them		
	gathers and organises data, displays data in lists, tables and	Organise collected data into lists and tables to display information	<b>4.3</b> Collecting data using tally marks	
	picture graphs MA1-DATA-01  • reasons about representations	Represent data in a picture graph using a baseline, equal spacing and same-sized symbols	<b>3.3</b> Picture graphs	INV All about birthdays
	of data to describe and interpret the results MA1-DATA-02	Give reasons why some representations of data are misleading (Reasons about relations)	<b>3.3</b> Picture graphs	
		Interpret information presented in tables and picture graphs (Reasons about relations)	<ul><li>3.3 Picture graphs</li><li>4.3 Collecting data using tally marks</li></ul>	31.1 Interpreting graphs INV All about birthdays
		Record answers to questions using the information in tables and picture graphs	<ul><li>3.3 Picture graphs</li><li>4.3 Collecting data using tally marks</li></ul>	31.1 Interpreting graphs INV All about birthdays
Chance B	A student:	Identify and describe activities that involve chance		
develops understanding and fluency in mathematics through	Describe possible outcomes in everyday activities and events as being <i>likely</i> or <i>unlikely</i> to happen	<b>24.1</b> Chance – How likely?		
	exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems,	Compare familiar activities and events and describe them as being <i>more</i> or <i>less</i> likely to happen (Reasoning about relations)	<b>24.1</b> Chance – How likely?	
	and communicating their thinking and reasoning coherently and clearly MAO-WM-01	Describe familiar events as being <i>possible</i>	28.3 Certain, possible, impossible	
	recognises and describes the element of chance in everyday events MA1-CHAN-01			