

## Scope and Sequence booklet

### The complete maths program for VELS

The information in this document has been compiled to assist teachers in the essential gathering of evidence for the purpose of making judgements about their students learning in relation to the Victorian government's VELS progression points.

Finding good quality activities to use for assessment and demonstration of student progression can be an arduous task for the busy teacher. This document provides explicit links to Student Workbook pages containing activities in which the required progression point is covered.

### How will this document help you?

This document has been designed to be used directly with the published series, *Maths Plus for Victoria VELS Edition* that comprises a Student Workbook and Teacher Resource Book at each year level from Prep to 6. Mentals and Homework Activities are available for Years 2-6.

The authors have identified and listed a large number of activities from which to choose. All are readily accessible through cross referencing the specific requirements of the VELS progression points to the relevant pages in the Years Prep-6 Student Workbooks.

An example of how user-friendly this document is:

A teacher of Year 3 looking for ideas in 'Structure' to judge whether students have reached the progression point of 'construct number sentences' would have these references to choose from:

Student Workbook page 34, covered in Term 1

Student Workbook page 48, covered in Term 2

Student Workbook page 110, covered in Term 3

Student Workbook page 136, covered in Term 4

### Do you want more ideas?

More helpful ideas are to be found in other resources within the *Maths Plus for Victoria VELS Edition* series. For example a teacher of Year 5 will locate a variety of helpful activities in the Year 4 and Year 6 Student Workbooks, to consolidate or extend student learning.

## Number

		Prep			
		Terms			
		1	2	3	4
0.5	Association of number names with numerals and models of numbers (counting or subitising)	3, 10, 14, 18, 26	35, 50, 58	90	122, 126
	Use of drawn simple symbols in place of objects; for example, B for boy		43	86	
	Ordering of objects and sets; for example, largest to smallest	31	38, 63	95	
	Placement of a variety of objects in order from first to third	27			
	Use of one-to-one correspondence and numbers 1 to 10 when counting	22	46		
1.0 Standard	Count the size of small sets using the numbers 0 to 20	6, 30	42	66, 74	98, 110
	Use one-to-one correspondence to identify when two sets are equal in size and when one set is larger than another	23, 7	34	82	102, 106
	Form collections of sets of equal size	19, 2			
	Use ordinal numbers to describe the position of elements in a set from first to tenth		54		
	Use materials to model addition and subtraction by the aggregation (grouping together) and disaggregation (moving apart) of objects		47, 51, 59, 62	67, 78, 79, 91, 94	103, 115
	Add and subtract by counting forward and backward using the numbers from 0 to 20		55	70, 71, 75, 83, 87	107, 119, 127

## Space

		Prep			
		Terms			
		1	2	3	4
0.5	Sort objects according to shape	16, 20, 28	40, 60	68	
	Match shapes to solve puzzles; for example, jigsaw puzzles	12			
	Name common two-dimensional objects according to geometrical shape		44		
	Use the terms next to, beside or in front of to describe their own location relative to other students			97	
	Sequence movements following simple directions				112, 124
1.0 Standard	Recognise, copy and draw points, lines and simple free-hand curves.	4, 24	44	88	100, 116
	Identify basic two-dimensional shapes such as triangles, circles and squares and three-dimensional solids and objects such as boxes and balls	8, 32	36, 40	80	120
	Recognise the interior and exterior of shapes and objects		48		108
	Sort geometric objects according to simple descriptions	28	52		
	Place and orientate shapes according to simple descriptions such as next to, beside, in front of, behind, over and under		64	73, 84	
	Develop and follow simple instructions to move and place shapes and objects in familiar situations in relation to what they can see, and to move themselves from one place to another				104

## Measurement, Chance and Data

		Prep			
		Terms			
		1	2	3	4
0.5	Use descriptive terms such as <i>longer</i> , <i>taller</i> and <i>heavier</i> to compare length and mass of pairs of familiar objects	9, 21, 33	37, 57		
	Use <i>yesterday</i> , <i>today</i> and <i>tomorrow</i> to name the corresponding days			81	
	Aware that a clock changes in response to time in a daily cycle				109, 125
	Use a die or similar device to determine the range of outcomes in a game				123, 128
	Interpret pictographs, and can collect and sort items or data in preparation for the creation of a pictograph			72, 76	
1.0 Standard	Compare length, area, capacity and mass of familiar objects using descriptive terms such as longer, taller, larger, holds more and heavier	5, 13, 29	45, 49, 53	85	105
	Make measurements using informal units such as paces for length, handprints for area, glasses for capacity, and bricks for weight		65	77, 89	113, 117, 121
	Recognise the continuity of time and the natural cycles such as day/night and the seasons	17	41	93	101
	Correctly sequence days of the week			69	
	Use informal units such as heartbeats and hand claps at regular intervals to measure and describe the passage of time	25	61		
	Recognise and respond to unpredictability and variability in events, such as getting or not getting a certain number on the roll of a die in a game or the outcome of a coin toss	11	39, 56		
	Collect and display data related to their own activities using simple pictographs			91, 96	

## Working Mathematically

		Prep			
		Terms			
		1	2	3	4
0.5	Select appropriate materials for illustrating a mathematical problem or its solutions	21		89, 96	99
	Use drawing to represent problems and solutions	3, 13, 33	47, 51	88, 94	
	Give verbal description of simple patterns and extension of these patterns			76	120
	Recognise and use of numbers on a calculator				114, 119
	Recognise that addition is relevant to a task		55	79	103
1.0 Standard	Use diagrams and materials to investigate mathematical and real life situations	15, 25, 32		85	104
	Explore patterns in number and space by manipulating objects according to simple rules (for example, turning letters to make patterns like bqbqbq, or flipping to make bdbdbdbd)	22, 23, 27	35, 38, 43, 59, 63	66, 82, 86, 90, 95	98, 122
	Test simple conjectures such as 'nine is four more than five'	5, 9, 11, 16, 17, 24, 31	36, 37, 39, 46, 49, 56, 57, 60	70, 71, 75, 77, 79, 91	121, 128
	Make rough estimates and check their work with respect to computations and constructions in <i>Number, Space, and Measurement, chance and data</i>	29			100, 105, 111, 117
	Devise and follow ways of recording computations using the digit keys and +, – and = keys on a four function calculator				114, 118, 127
	Use drawing tools such as simple shape templates and geometry software to draw points, lines, shapes and simple patterns		40, 44, 60		
	Copy a picture of a simple composite shape such as a child's sketch of a house	4			108

## Number

		Year 1				Year 2			
		Terms				Terms			
		1	2	3	4	1	2	3	4
1.25	Order lists of small sets of numbers up to 20	15							
	Count forwards and backwards by 1 from starting points between 1 and 100	3 31				23			
	Calculate the next number when asked to add 1 or 2 to any natural number from 0 to 10	2							
	Draw diagrams to show sharing of up to 20 items			91 99					
	Draw diagrams to show subtraction activities		44			26			
1.5	Order money amounts in cents		41	82 95				90	129
	count by 2s, 5s and 10s from 0 to a given target and recognize the associated number patterns: for example, 7,9,11...		49 53	70		23		83	
	Use half and quarter as a descriptor; for example a quarter of a cake	7		83			45		
	Calculate addition and subtraction of two-digit multiples of ten by counting on and counting back	22	56	86	108	14		82 94	108 109 112 124 132
	Count on from the larger of two collections to find their total	6 18							
Use of the number properties (commutative and associative) of addition in mental computation, and recognition of complements to ten; for example, $3 + 4 + 7 + 6 = 3 + 7 + 4 + 6 = 10 + 10 = 20$				129	31	60			
1.75	Count by 1s, 10s and 100s from 0 to 1000			78		7 27	37		
	Group coins of the same denomination in sets of \$1								
	Develop and use a 'fact family' linking $25 + 5 = 30$ to $5 + 25 = 30$ , $30 - 5 = 25$ and $30 - 25 = 5$				116			86	133
	Calculate addition and subtraction of numbers less than 10 through recall and use of number facts	26							
	Identify half of a set of objects, including recognition of the need for $1/2$ when sharing an odd number of objects	19				11			

## Number continued

		Year 1				Year 2			
		Terms				Terms			
		1	2	3	4	1	2	3	4
<b>2.0 Standard</b>	Model the place value of the natural numbers from 0 to 1000				117	3 18 30	64		
	Order numbers and count to 1000 by 1s, 10s and 100s	11, 23, 27		90	105				
	Skip count by 2s, 4s and 5s from 0 to 100 starting from any natural number, form patterns and sets of numbers based on simple criteria such as odd and even numbers		37 64 65		109	15	49	71	
	Order money amounts in dollars and cents and carry out simple money calculations		61					98	
	Describe simple fractions such as one half, one third and one quarter in terms of equal sized parts of a whole object, such as a quarter of a pizza, and subsets such as half of a set of 20 coloured pencils			79	125			95	121
	Add and subtract one- and two-digit numbers by counting on and counting back	10, 30	36 40 44	98	104 112 120 128 133	2 19	36 48 56	75 78	117
	Mentally compute simple addition and subtraction calculations involving one- or two-digit natural numbers, using number facts such as complement to 10, doubles and near doubles	14	52 60	71		6 10	40 41 44 52		116
	Describe and calculate simple multiplication as repeated addition, such as $3 \times 5 = 5 + 5 + 5$ ; and division as sharing, such as 8 shared between 4		45 48 57	74	124 121 132		57 61 65	70 74 79 87	105 113 120 125
	Use commutative and associative properties of addition and multiplication in mental computation (for example, $3 + 4 = 4 + 3$ and $3 + 4 + 5$ can be done as $7 + 5$ or $3 + 9$ )			94		14 22			

## Space

		Year 1				Year 2			
		Terms				Terms			
		1	2	3	4	1	2	3	4
1.25	Recognise lines, corners and boundaries in two-dimensional shapes	4				8 16	62		
	Classify of shapes according to number of sides	4				4	62		
	Representation of squares, rectangles, circles and triangles using freehand drawing, templates and technology		54 66	84		8			
	Recognise and name spheres and cubes	20			134	12			
	Identify main features on local maps				122				106
1.5	Recognise congruence of two shapes		46					84	
	Identify shapes with symmetry				106				122
	Label and use of points on diagrams to specify lines, corners and boundaries		54				50	72	
	Sort objects onto a Venn diagram labelled with shape information								
	Produce similar figures by enlargement								
1.75	Recognise whether a single transformation produces a congruent or similar shape								
	Identify the important features of two-dimensional shapes and use of these distinguishing features to compare and contrast various shapes	12			134	16			
	Produce simple patterns with transformations (flips, slides, turns)			72					
	Specify instructions for movement, including relative position and quarter turns left and right				110			88 100	
	Decompose three-dimensional shapes into their respective nets; for example, by cutting up boxes							96	
	Construct informal local maps			80					
2.0 Standard	Recognise lines, surfaces and planes, corners and boundaries; familiar two-dimensional shapes including rectangles, rhombuses and hexagons, and three-dimensional shapes and objects including pyramids, cones, and cylinders	8 28		92		12		72	114
	Arrange a collection of geometric shapes, such as a set of attribute blocks, into subsets according to simple criteria, and recognise when one set of shapes is a subset of another set of shapes					28		76 96	114
	Recognise and describe symmetry, asymmetry, and congruence in these shapes and objects				130				110 122
	Accurately draw simple two-dimensional shapes by hand and construct, copy and combine these shapes using drawing tools and geometry software		42						130
	Apply simple transformations to shapes ( <i>flips</i> , turns, slides and enlargements) and depict both the original and transformed shape together				126		38 46 66		
	They specify location as a relative position, including left and right, and interpret simple networks, diagrams and maps involving a small number of points, objects or locations	16 32	58	96	122	24 32	54		106 126

## Measurement, Chance and Data

		Year 1				Year 2			
		Terms				Terms			
		1	2	3	4	1	2	3	4
1.25	Apply informal measurement of length by making, describing and comparing personal units	5	47	93		17			
	Use of a clock to determine the hour	33	51			5, 13			
	Order days, weeks, months and years			101					134
	Understand distinction between cold, cool, warm, hot and boiling		59						
	Have an awareness that some events are equally likely to occur; for example, a head or a tail showing when a coin is tossed			100	115	9, 33			
1.5	Use uniform units for length; for example, cm as a unit for measuring length				107			73	115
	Apply informal measurement of area and mass by making, describing and comparing personal units	9, 25	39	73	127	21, 29	39, 59		
	Have knowledge of the relationship between analogue and digital clocks			97			47, 63		
	Have knowledge of the outcomes of chance events such as rolling a die							80	
	Can interpret pictographs, bar and column graphs	13	38, 62	81			42, 58, 67		
1.75	Apply informal measurement of capacity by making, describing and comparing personal units				131			85	
	Construct a time line for daily activity and use of a diary for recording daily events	17	51					97	
	Draw an analogue clock to match a given digital time and of reading an analogue clock to the nearest half hour					13	63		
	Order familiar events in terms of their probability between <i>impossible</i> and <i>certain</i>	29	50			9			
	Can collect and record categorical and numerical data	24		76	115		51		

## Measurement, Chance and Data continued

		Year 1				Year 2			
		Terms				Terms			
		1	2	3	4	1	2	3	4
<b>2.0 Standard</b>	Make, describe and compare measurements of length, area, volume, mass and time using informal units	21	55	77 85 89	118 119 123			77, 89	123
	Recognise the differences between non-uniform measures, such as hand-spans, to measure length, and uniform measures, such as icy-pole sticks, and simple bar graphs		67			25			
	Judge relative capacity of familiar objects and containers by eye and make informal comparisons of weight by hefting		43		114		39, 55	85	119
	Describe temperature using qualitative terms (for example, cold, warm, hot)		59						
	Use formal units such as hour and minute for time, litre for capacity and the standard units of metres, kilograms and seconds		63					73, 93, 101	
	Recognise the key elements of the calendar and place in sequence days, weeks and months			101					
	Describe common and familiar time patterns and such as the time, duration and day of regular sport training and tell the time at hours and half-hours using an analogue clock, and to hours and minutes using a digital clock	17						81	111
	Predict the outcome of chance events, such as the rolling of a die, using qualitative terms such as certain, likely, unlikely and impossible					20 33		80	
	Collect simple categorical and numerical data (count of frequency) and present this data using pictographs			88	111			92	107 118 127 131

## Working Mathematically

		Year 1				Year 2			
		Terms				Terms			
		1	2	3	4	1	2	3	4
1.25	Develop descriptive rules for patterns	14	40 49 60	78	109	15 27	40 49	71	109
	Use and justify approximations		43 47	89	113	7	39	82	
	Use of elementary mathematical symbols to describe their own thought processes	26			108 128	22	48	75	112 132
	Read and rewrite numbers from a calculator			87			53		128
	Check calculations using technology							78	
1.5	Formulate and test conjectures using models that involve, for example, objects, patterns, shapes and numbers	5	36 39 66	73 77 85	114 127 130	25 26	59	81	130
	Verify estimations of a solution to a number sentence				112		56		115
	understand how to follow a sequence of steps in a procedure	16			110		54	100	126
	Add numbers on a calculator and recognize the function of calculator keys			75	133			91	
	Understand appropriate action for responding to an incorrect calculator result							99	
1.75	Continue patterns and recognize inconsistencies	9	53		126		38	83	
	Search for alternative methods in order to verify answers			93	107			86	122
	Assess the context at hand, and an explain the assessment	25		94	118	20	66	72	117
	Represent data using pictographs that are either hand-drawn or assisted by technology			76	111				107 118
2.0 Standard	Make and test simple conjectures by finding examples, counter-examples and special cases and informally decide whether a conjecture is likely to be true	21	55 63 67		115 123 131	17	43, 55	77 80 93 101	123
	Use place value to enter and read displayed numbers on a calculator					30		91	
	Use a four-function calculator, including use of the constant addition function and $\times$ key, to check the accuracy of mental and written estimations and approximations and solutions to simple number sentences and equations			75 87			53	99	104 128

## Number

		Year 3				Year 4			
		Terms				Terms			
		1	2	3	4	1	2	3	4
2.25	Use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to hundreds	7 31		78					
	Use money as a model for grouping and unpacking lots of 10s			82					
	Rounding of amounts of money up and down to the nearest dollar								145
	Use of written number sentences such as $20 \div 4 = 5$ to summarise sharing (partition) and 'how many?' (quotition) processes		65	87	132	23			
	Use of fractions with numerators other than one; for example, $\frac{3}{4}$ of a block of chocolate	15				31		79	
2.5	Addition and subtraction of amounts of money including calculation of change from \$10			86					141
	Automatic recall of number facts from 2, 5 and 10 multiplication tables	23	49						
	Use of strategies such as 'near doubles', 'adding 9' and 'build to next 10' to solve addition and subtraction problems	3 19							
	Use of written methods for whole number problems of addition and subtraction involving numbers up to 99	2 6 10 18 30	40 56 60						
	Development and use of fraction notation and recognition of equivalent fractions such as $\frac{1}{2} = \frac{4}{8}$ , including the ordering of fractions using physical models		41	90	137	35	45 69		
2.75	Use of place value (as the idea that 'ten of these is one of those') to determine the size and order of decimals to hundredths					73			121
	Use of algorithms for the addition and subtraction of numbers to two decimal places				145				144
	Representation of multiplication as a rectangular array and as the area of a rectangle		49			7			
	Use of fact families ( $5 \times 7 = 35$ , $35 \div 7 = 5$ ) to solve division problems			91					

## Number continued

		Year 3				Year 4			
		Terms				Terms			
		1	2	3	4	1	2	3	4
<b>3.0 Standard</b>	Use of place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths		52		125	2 22	61 65		
	Round numbers up and down to the nearest unit, ten, hundred, or thousand	35	68				68		140
	Develop fraction notation and compare simple common fractions such as $\frac{3}{4} > \frac{2}{3}$ using physical models			95 103 107					
	Skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100	11				19		83	
	Estimate the results of computations and recognise whether these are likely to be over-estimates or under-estimates		44, 64						
	Compute with numbers up to 30 using all four operations	34			140	6 10	56		
	Provide automatic recall of multiplication facts up to $10 \times 10$	27	57	79, 102	120, 133	15	49		
	Devise and use written methods for: whole number problems of addition and subtraction involving numbers up to 999	14 22 26	48 53	96 110	116 124 128	3 14 18 30	48 52	78 91	
	Multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, $5 \times 100$ , $5 \times 70$ )				117 144	11 26 27	41 60 64	82 86 106 110	120 124 128
	Division by a single-digit divisor (based on inverse relations in multiplication tables)			106	136	34	53 72	94 98	116 132 136
	Devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money							87 90	
Add and subtract simple common fractions with the assistance of physical models						57			

## Space

		Year 3				Year 4			
		Terms				Terms			
		1	2	3	4	1	2	3	4
2.25	Use instructions to create tessellations such as in paving and brickwork patterns				126			80 112	
	Recognise and name familiar three-dimensional shapes	16				24			
	Use 'vertical' and 'horizontal' to describe orientation					4			
	Determine approximate north by considering the position of the sun			100					134
	Use a grid to refer to objects on a map	36				54			
2.5	Identify shapes in terms of faces, edges and vertices		46			32			
	Represent angles formed dynamically; for example, between the hands of a clock or between their own limbs, and explanations of these angles in terms of simple fractions of a complete revolution					13			
	Construct prisms and pyramids from their two-dimensional nets			80				104	
	Orient north, south, east and west from their own current position		54			28			
2.75	Know the names of polygons using Greek prefixes; for example, <i>hexagon</i>	20	42						
	Construct balls (for example, tennis balls, footballs, soccer balls and beach balls) from flexible, two-dimensional pieces of material, and a template								
	Represent an object by drawing its plan			112	118 138			96	122 130
	Construct a model for an angle using rotation of lines								139
3.0 Standard	Recognise and describe the directions of lines as vertical, horizontal or diagonal	4				4			
	Recognise angles are the result of rotation of lines with a common end-point		62						
	Recognise and describe polygons	12 20 24	42 50			12 36	70		
	Recognise and name common three-dimensional shapes such as spheres, prisms and pyramids	16		108					
	Identify edges, vertices and faces		66		130		42		
	Use two-dimensional nets, cross-sections and simple projections to represent simple three-dimensional shapes	28		92	142		62		
	Locate and identify places on maps and diagrams. They give travel directions and describe positions using simple compass directions (for example N for North) and grid references on a street directory		54	100					134
	Locate and identify places on maps and diagrams	9	70			20			
Give travel directions and describe positions using simple compass directions (for example, N for North) and grid references on a street directory		74						138	

## Measurement, Chance and Data

		Year 3				Year 4			
		Terms				Terms			
		1	2	3	4	1	2	3	4
2.25	Use formal units of measurement; for example, metres to measure length, and hour, minute and second for time	17	63	101		5	75	93 85	123 147
	Apply estimations using personal units, such as pace length and arm span, and comparison with measures using formal units, such as metres and centimetres	5	55				47		
	Use a ruler and tape measure (linear scale) and trundle wheel (circular scale) to validate estimates of length			93		9	67		
	Set temperature in Celsius on a circular scale; for example, on an oven, and estimation of temperature in degrees Celsius		43		147				119
	Display data as a column or bar graph	8 21				8			
2.5	Estimate and measure mass, volume and capacity of common objects; for example, kilogram of flour, litre of soft drink			113	127		43 51		
	Read analogue clocks to the nearest quarter of an hour		51			29			
	Construct and interpret a daily timetable						63		
	Identify events which are equally likely			89					
	Construct an appropriately labelled bar graph			84			59	92	
2.75	Calculate area through multiplication of the length of a rectangle by its width					21		89 113	
	Estimate an angle in terms of quarter turns and half turns	25	59	97					
	Investigate the fairness of events such as gambling and games through experimentation		58						
	Compare the likelihood of everyday events and link events with statements about how likely they are to occur					25	50		
	Understand the distinction between discrete and continuous scales							105	

## Measurement, Chance and Data

continued

		Year 3				Year 4			
		Terms				Terms			
		1	2	3	4	1	2	3	4
<b>3.0 Standard</b>	Estimate and measure length, area, volume, capacity, mass and time using appropriate instruments	29 33 37	67 75	85 105	139		71 55	109	135 127
	Recognise and use different units of measurement including informal (for example, paces), formal (for example, centimetres) and standard metric measures (for example, metre) in appropriate contexts					17		97	
	Read linear scales (for example, tape measures) and circular scales (for example, bathroom scales) in measurement contexts				123				
	Read digital time displays and analogue clock times at five-minute intervals	13		81		37			
	Interpret timetables and calendars in relation to familiar events				119 131			101	143
	Compare the likelihood of everyday events (for example, the chances of rain and snow)	32							
	Describe the fairness of events in qualitative terms						50		
	Plan and conduct chance experiments (for example, using colours on a spinner) and display the results of these experiments		47		143	33			
	Recognise different types of data: non-numerical (categories), separate numbers (discrete), or points on an unbroken number line (continuous)			96 109		16	74 84	100	
	Use a column or bar graph to display the results of an experiment (for example, the frequencies of possible categories)		71				66		126 142 146

## Working Mathematically

		Year 3				Year 4			
		Terms				Terms			
		1	2	3	4	1	2	3	4
2.25	Identify patterns and similarity in data sets and shapes, and use of pattern, often by observing a set of simpler situations, as a problem solving strategy	16	47 69 73	83	126 146	6 19	64	80 83 95 111 112	
	Use materials and models to solve problems and explain answers	5	55 53	105 112		23 32	73	79	127 130
	Check accuracy of calculations with a calculator							107	128 141 145
	Use technology to create and manipulate shapes and simple maps							88	
2.5	Select appropriate situations for the use of a guess–check–improve strategy		44			30		97	140
	Explain and compare alternative computation methods			94			40		125
2.75	Use materials and models to illustrate and test generalisations	29	61		121 147	35 17	45 57	109 113	
	Rephrase a problem or represent it using a physical model, diagram, list or table as a problem solving strategy			92			68		129
	Select multiplication and division as more efficient processes than repeated addition and subtraction						44		
	Apply number skills to solve routine problems from everyday contexts		40 45			7 10	82	99	
	Partition a task into smaller sub-tasks							103	124
3.0 Standard	Apply number skills to everyday contexts such as shopping, with appropriate rounding to the nearest five cents							99	129
	Recognise the mathematical structure of problems and use appropriate strategies (for example, recognition of sameness, difference and repetition) to find solutions	3							133
	Test the truth of mathematical statements and generalisations. For example, in: number (which shapes can be easily used to show fractions)		41			31 35			
	Computations (whether products will be odd or even, the patterns of remainders from division)					27			
	Number patterns (the patterns of ones digits of multiples, terminating or repeating decimals resulting from division)		73	111				95	
	Shape properties (which shapes have symmetry, which solids can be stacked)			92 104	134				118
	Transformations (the effects of slides, reflections and turns on a shape) measurement (the relationship between size and capacity of a container)			88 113			46 58		147

## Structure

		Year 3				Year 4			
		Terms				Terms			
		1	2	3	4	1	2	3	4
2.25	Know the effect of multiplying by ten on the location of the decimal point in a number								137
	Use of lists, Venn diagrams and grids to record items that have a certain attribute				122			84	126
	Can select a sample from a population		47				66		
	Can recognise that one set is or is not a subset of another	28		109			44	94	
	Can use '=' to indicate equivalence or the result of a computation				121			107	
2.5	Can vary order and grouping of addition (commutative and associative property) to facilitate computations; for example, $3 + 5 + 7 + 5 = 3 + 7 + 5 + 5 = 10 + 10 = 20$	22		99	129	14	40	99	117
	Specify all possible outcomes of a simple chance event		58				33		
	Construct number sentences	34	48	110	136	18	52	82	132
	Undertake calculations using notation such as ' $3 + 5 - 2 =$ '					3		103	
2.75	Use distributive property in calculations; for example, $6 \times 37 = 6 \times 30 + 6 \times 7$						41		
	Construct lists, Venn diagrams and grids to be used for recording combinations of two attributes			96				100	
3.0	Recognise that the sharing of a collection into equal-sized parts (division) frequently leaves a remainder		61		132		72	98	116 132
	Investigate sequences of decimal numbers generated using multiplication or division by 10								137
	Understand the meaning of the '=' in mathematical statements and technology displays (for example, to indicate either the result of a computation or equivalence)								117
	Use number properties in combination to facilitate computations (for example, $7 + 10 + 13 = 10 + 7 + 13 = 10 + 20$ )	14							
	Multiply using the distributive property of multiplication over addition (for example, $13 \times 5 = (10 + 3) \times 5 = 10 \times 5 + 3 \times 5$ )					11			141
	List all possible outcomes of a simple chance event	32				25	50		
	Use lists, Venn diagrams and grids to show the possible combinations of two attributes			109				108	131
	Recognise samples as subsets of the population under consideration (for example, pets owned by class members as a subset of pets owned by all children)					16			142
Construct number sentences with missing numbers and solve them	11	52 69 72	98	141				133	

## Number

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
3.25	Use of large number multiples of ten to approximate common quantities; for example, 100 000 people in a major sports venue		52						
	Representation of square numbers using a power of 2; for example, $9 = 3^2$					26			
	Use ratios to describe relative sizes								141
	Appropriate selection and use of mental and written algorithms to add, subtract, multiply and divide (by single digits) natural numbers	27 34	40 49 72	94	140		86		
	Multiplication of fractions by fractions through use of the rectangle area model (grid)					7		110	
	Use of brackets to determine order of operations	26 31							124 134
3.5	List objects and their size, where size varies from thousandths to thousands of a unit				117	14			
	Use addition, subtraction and multiplication of fractions and decimals (to one decimal place) using approximations such as whole number estimates and technology to confirm accuracy		68	86 91 106		31		91	
	Represent simple ratios as percentages, fractions and decimals	3						103	
	Identify calculation errors resulting in unreasonable results					6			
	Order of integers (for example, positive and negative temperatures), positive fractions and decimals		53	103 137		15 23	53		128
3.75	Multiply by increasing and decreasing by a factor of two; for example, $24 \times 16 = 48 \times 8$ $= 96 \times 4 = 192 \times 2$ $= 384 \times 1 = 384$					3 34	72		125
	Recognise equivalent rates expressed as percentages, fractions and decimals		56				61		
	Recognise that multiplication can either enlarge or reduce the magnitude of a number (multiplication by fractions or decimals)						49 69		
	Use of inverse relationship between multiplication and division to validate calculations	14							136
	Create sets of multiples of numbers and their representation in index form; for example, 3, 9, 27 written as $3^1$ , $3^2$ , $3^3$ respectively								137

## Number continued

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
<b>4.0 Standard</b>	Comprehend the size and order of small numbers (to thousandths) and large numbers (to millions)	2	44			2, 14			
	Model integers (positive and negative whole numbers and zero), common fractions and decimals				121			120	
	Place integers, decimals and common fractions on a number line			79	133	15			140
	Create sets of number multiples to find the lowest common multiple of the numbers		45				45		
	Interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions $1 \times 12$ , $2 \times 6$ , and $3 \times 4$ )								137
	Identify square, prime and composite numbers	15 23						82	
	Create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers		45				45		
	Recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$ )						56 73		
	Use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3 : 4 = 6 : 8$ )	11	73		129			83	
	Explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers)	6 10 18 22 30	48 60 64 69	90 110	116 120 128	6 10 11 18 22 27 30 35	41 48 64	94 106	144
Add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money		61	82 98 102 107	136		40 44 52 60 68	78 98	133 145	
Use estimates for computations and apply criteria to determine if estimates are reasonable or not			95	132				117	

## Space

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
3.25	Recognise angles between lines, particularly when lines are parallel or perpendicular	4				4			
	Use scaled grids to draw similar figures (enlarged or reduced)				118 134		54		122 138
	Use a graphical scale to determine actual size and distance from a map		46				62		
	Interpret maps of their own immediate environment using various scales; for example, school ground, suburb, state, country			96				80	130
	Describe a path by a set of coordinates			96			50		
3.5	Classify and sort two-dimensional shapes using the properties of lines (curvature, orientation and length) and angles (less than, equal to, or greater than 90°)	20				20			
	Construct or select possible objects given a plan (bird's eye view) or an elevation (side view)				122			96	
	Construct transformed shapes and patterns by stamping, folding and rotating			104				88 104	
	Represent relationships within a family (people or animals) through use of a tree diagram (network)					8			
3.75	Construct a copy of a shape, given details about side lengths and angles	20	70			36			
	Use two-dimensional isometric drawings of three-dimensional objects, noting how shapes are not always preserved; for example, squares become parallelograms			80		32		84	
	Know that the sum of angles at a point on a straight line is 180°	8	58			12			
	Use a compass and compass directions to describe orientation in the school ground								146

## Space

continued

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
<b>4.0 Standard</b>	Classify and sort shapes and solids (for example, prisms, pyramids, cylinders and cones) using the properties of lines (orientation and size), angles (less than, equal to, or greater than 90°), and surfaces	28 32				16	66 70		
	Create two-dimensional representations of three dimensional shapes and objects found in the surrounding environment			92					
	Develop and follow instructions to draw shapes and nets of solids using simple scale			108	130 146				118 142
	Describe the features of shapes and solids that remain the same (for example, angles) or change (for example, surface area) when a shape is enlarged or reduced		42						
	Apply a range of transformations to shapes and create tessellations using tools (for example, computer software)		54	84				112	134
	Use the ideas of size, scale, and direction to describe relative location and objects in maps				142			80	
	Use compass directions, coordinates, scale and distance, and conventional symbols to describe routes between places shown on maps	16 24				28		100	
	Use network diagrams to show relationships and connectedness such as a family tree and the shortest path between towns on a map						51		130

## Measurement, Chance and Data

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
3.25	Estimate and measure perimeter of polygons		43 55			21 37			127
	Can apply conversion between metric measurements for length; for example, 0.27m = 27cm	5							
	Can estimate and measure angles in degrees to the nearest 10°					12			
	Can use fractions to assign probability values between 0 and 1 to probabilities based on symmetry; for example, Pr(six on a die) = 1/6							108	
	Can identify mode and range for a set of data				135				126
3.5	Can estimate and measure surface area; for example, use of square metres, and area of land; for example, use of hectares	13	59	81 101		25	55 75	97	127
	Has an awareness of the accuracy of measurement required and the appropriate tools and units	29	51 75	85 93	131	13	43 47	109	139
	Can subdivide a circle into two sectors according to a given proportion for arc length					9			
	Can design questionnaires to obtain data from a sample of the population		62	112				89	119
	Can sort data using technology							101	
3.75	Can apply conversion between metric units; for example, L to mL, and understanding of the significance of thousands and thousandths in the metric system	5		113			59		
	Can simulate simple random events			88					
	Can calculate and analyse of the stability a sequence of long run frequencies where the number of trials increases, say from 5 to 10 to 20 to 100		71			24	74		
	Can interpret pie charts and histograms			109		33			
	Can identify the median for a set of data				138				126

## Measurement, Chance and Data

continued

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
<b>4.0 Standard</b>	Use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature	17 25 37	47 63 67	89	119 127		59 63 71	81 85 93 105	123 131
	Measure angles in degrees		58				46		
	Measure as accurately as needed for the purpose of the activity. data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range)			112					
	Can convert between metric units of length, capacity and time (for example, L–mL, sec–min)				143	5			123
	Describe and calculate probabilities using words, and fractions and decimals between 0 and 1	9 33					42		
	Calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes		50				58		
	Simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run			100		8	67		
	Recognise and give consideration to different data types in forming questionnaires and sampling			97	147			89	
	Distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement)	21			126	24 29			135
	Present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights)		74			17			147
Calculate and interpret measures of centrality (mean, median, and mode) and data spread (range)		65						143	

## Working Mathematically

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
3.25	Consider problems with a similar mathematical structure as a problem solving strategy	21		78 99	128		65	106	
	Use familiar problems to focus on strategies to help in solving an unfamiliar problem		49	82	124				121
	Search for counter-examples in an attempt to disprove a conjecture			95	139			79	
	Locate data sources, including use of the world wide web							92	
	Collect mathematical data using technology; for example, using data logging							92	
3.5	Apply mathematics to model and solve simple practical problems; for example, the construction of a pair of stilts	4	59, 67	108		37		96 109	
	Efficiently communicate when using mathematical language, symbols and representations			86	141			99	
	Appreciate the history of mathematics in the development of geometry and number concepts		55		145				
	Develop and test conjectures with the aid of a calculator; for example, divisibility tests	19	57		140	19	49		
	Can incorporate text, data, images and graphs using technology, to report the results of an investigation		75					95	
3.75	Can interpret maps, graphs and models	12	64	109		27	63	113	146
	Understands patterns through the use of systematic strategies such as calculating first differences							86	
	Can apply of a set of questions linked to an area of investigation		51				52		119
	Has knowledge of appropriate historical information				137			87	

## Working Mathematically

continued

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
<b>4.0 Standard</b>	Recognise and investigate the use of mathematics in real (for example, determination of test results as a percentage) and historical situations (for example, the emergence of negative numbers)	29	47	83	121	29	75	107	120 128
	Develop and test conjectures	8	42 60		120		64, 67		144
	Understand that a few successful examples are not sufficient proof and recognise that a single counter-example is sufficient to invalidate a conjecture. For example, in: number (all numbers can be shown as a rectangular array) computations (multiplication leads to a larger number) number patterns ( the next number in the sequence 2, 4, 6 ... must be 8) shape properties (all parallelograms are rectangles) chance (a six is harder to roll on die than a one)	9 15 28	50	80	10 16	58	84		
	Use the mathematical structure of problems to choose strategies for solutions, explain their reasoning and procedures and interpret solutions, create new problems based on familiar problem structures			87 97	125				121 129
	Engage in investigations involving mathematical modelling		43 70	81	119 146	7		104	147
	Use calculators and computers to investigate and implement algorithms (for example, for finding the lowest common multiple of two numbers), explore number facts and puzzles, generate simulations (for example, the gender of children in a family of four children), and transform shapes and solids			84		19		112	

## Structure

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
3.25	Converse between Venn diagrams and Karnaugh maps as representations of relationships between two sets	36					51		
	Recognise and complete patterns formed by constant addition or subtraction				117			111	
	Use <i>add</i> and <i>subtract</i> as inverse operations to solve simple word equations such as 'I am thinking of a number. If I add 6 I get 18, what number did I start with?'			106					
	Use trial and error to find a missing number in a number sentence; for example, $4 \times ? + 6 = 22$		41				41		124
	Use language to describe change in everyday items or attributes whose value varies over time	25				24			
3.5	Incorporate tables of information relating pairs of everyday variables		62	105		18	74	101	
	Sort sequences into certain types (constant addition, constant multiplication, fibonacci, square, triangular)			103					116
	Use division and multiplication as inverses; for example, multiplication by 25 can be carried out as 'multiplication by 100 followed by division by 4'				144				136
	Apply consistent and correct use of conventions for order of operations	26 31							124 134
3.75	Construct diagrams illustrating the possible relationship between two sets and the truth of statements involving the words all, some or none					17			
	Construct number patterns and tables of values from an equation or a recurrence relation						57		
	Recognise that a given number pattern can be represented by an apparently unrelated equation and recurrence relation; for example, 5, 9, 13 ... represented by 'multiply position in the pattern (first, second, third ...) by 4 and add 1' and 'start with 5 then repeatedly add 4 to the previous term'	23							90
	Understand zero and its characteristic of not having a multiplicative inverse, and the consequences of attempting division by zero					34			

## Structure

		Year 5				Year 6			
		Terms				Terms			
		1	2	3	4	1	2	3	4
<b>4.0 Standard</b>	Form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three)	7	66	111		2 33		88	
	Use Venn diagrams and Karnaugh maps to test the validity of statements using the words none, some or all (for example, test the statement 'all the multiples of 3, less than 30, are even numbers')				123				
	Construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two)	35					66	102	116 140
	Establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, $3 \times 26 = 3 \times (20 + 6)$ )	18							125
	Identify relationships between variables and describe them with language and words (for example, how hunger varies with time of the day)		71	100			71		
	Recognise that addition and subtraction, and multiplication and division are inverse operations, use words and symbols to form simple equations, solve equations by trial and error	14							136

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