

NATURAL MATHS

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The Australian Curriculum (Years Foundation — 6)

Note: This document that shows how Natural Maths materials relate to the key topics of the Australian Curriculum for Mathematics. The links describe the publication and page number of the activities, using the following codes:

NMS – [Natural Maths Strategies](#) series (published by Blake Education)

SM-N – [Strategic Maths – Number](#) series (published by Blake Education)

LM – [Linear Measurement](#) series (published by Natural Maths)

PS – [Problem Solving by Level](#) series (published by Natural Maths)

CAL – the [Calendar](#) Software (published by Natural Maths)

PV100 – activities from [Place Value to 100 and Beyond](#) (published by Natural Maths)

These codes are then followed by the number or letters of the book in the series and the page number. Thus, the reference:

SM-N LP1:22

refers to page 22 of the Lower Primary 1 book in the Strategic Maths – Number series.

Foundation Year

At this year level:

Understanding includes connecting names, numerals and quantities

Fluency includes counting numbers in sequences readily, continuing patterns, and comparing the lengths of objects directly

Problem Solving includes using materials to model authentic problems, sorting objects, using familiar counting sequences to solve unfamiliar problems, and discussing the reasonableness of the answer

Reasoning includes explaining comparisons of quantities, creating patterns, and explaining processes for indirect comparison of length

Number and Algebra

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Number and place value					
Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point (ACMNA001)	NMS B:35 NMS 1:16	NMS B:36, B:39 SM-N B33, B:37, B:38, B:39, B:65, B:66, B:81	NMS 1:32, 1:33	NMS 1:12, 1:36, 1:37 NMS 1:48, 1:49 SM-N B:42	NMS B:40, B:54 NMS 1:47
Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002)	NMS B:62, B:63	NMS B:64 SM-N B:18 SM-N LP1:18	NMS B:65, B66, B67	NMS B:42	NMS B68 NMS 1:11
Subitise small collections of objects (ACMNA003)	NMS B:34	NMS B:38 NMS 1:9 SM-N B:20, B:23, B:24	NMS B:41	NMS B43 SM-N B:25	NMS B:40 NMS 1:11

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)		NMS 1:7, 1:8, 1:10 SM-N B:48, B49, B52, B:54, B:56	NMS B:69 NMS 1:45	NMS B:70, B:71 NMS 1:13, 1:24, 1:23 SM-N B:58	NMS 1:35
Represent practical situations to model addition and sharing (ACMNA004)	NMS 1:17, 1:28, 1:29	NMS 1:18, 1:19, 1:21, 1:22 1:30, 1:31, 1:32, 1:46 SM-N B:32, B:68, B:70, B:77, B:83, B:85, B:87, B:89	NMS 1:20	SM-N B:75, B:91	NMS 1:23
Patterns and algebra					
Sort and classify familiar objects and explain the basis for these classifications. Copy, continue and create patterns with objects and drawings (ACMNA005)	NMS B:6, B:7, B:48, B:49 NMS 1:40, 1:41	NMS B:8, B:10, B:11, B:13, B:50 NMS 1:42, 1:43, 1:44	NMS B:9, B:51, B:52, B:55	NMS B:14, B:15, B:56, B:57	NMS B:12

Measurement and Geometry

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Using units of measurement					
Use direct and indirect comparisons to decide which is longer, heavier or holds more, and explain reasoning in everyday language (ACMMG006)	NMS B:20, B:90, B:91 LM 1:9, 1:10	NMS B:37, B:92, B:93, B:94, B:95, B:96 LM 1:15, 1:17, 1:18, 1:19, 1:24, 1:25	LM 1:13, 1:23, 1:26	NMS B:98, B:99 LM 1:30	NMS B:96 LM 1:32

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Compare and order the duration of events using the everyday language of time (ACMMG007)		NMA B:53 NMS 1:6, 1:55, 1:56			
Connect days of the week to familiar events and actions (ACMMG008)					
Shape					
Sort, describe and name familiar two-dimensional shapes and three-dimensional objects in the environment (ACMMG009)	NMS B:21, B:76, B:77	NMS B:22, B:23, B:24, B:78, B:79, B:81, B:83	NS B:80	NMS B:84, B:852	NMS B:82
Location and transformation					
Describe position and movement (ACMMG010)		NMS B:25, B:27		NMS B:28, B:229	NMS B:26

Statistics and Probability

Data representation and interpretation					
Answer yes/no questions to collect information (ACMSP011)	NMS 1:52	NMS 1:54, 1:57, 1:58		NMS 1:60, 1:61	NMS 1:59

Foundation Year achievement standard

By the end of the Foundation Year, students make the connections between number names, numerals and quantities up to 10. Students are able to compare and sort shapes and objects. They make connections between events and the days of the week

Year 1

At this year level:

Understanding includes connecting names, numerals and quantities, and partitioning numbers in various way

Fluency includes counting number in sequences readily forward and backwards, locating numbers on a line, and naming the days of the week

Problem Solving includes using materials to model authentic problems, giving and receiving directions to unfamiliar places, and using familiar counting sequences to solve unfamiliar problems and discussing the reasonableness of the answer

Reasoning includes explaining direct and indirect comparisons of length using uniform informal units, justifying representations of data, and explaining patterns that have been created

Number and Algebra

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Number and place value					
Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero (ACMNA012)	NMS 1:89, 1:125 NMS 2:4 PS 1:10 PV100:18	PV100:20	SM-N LP1:46 LP1:64 PV100: 22 PV100:36	NMS 1:84 NS 2:48	NMS 2:11 PV100:31
Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line (ACMNA013)	NMS 1:88 NS 2:5 PV100:34	NS 1:127 NMS 2:42, 2:45 PV100:20	SM-N LP1:68, LP1:75 PV100:44	NMS 1:132, 1:145	NMS 1:71 NMS 2:11
Count collections to 100 by partitioning numbers using place value (ACMNA014)		NMS 1:126, 1:129, 1:21 NMS 2:29, 2:30, 2:31 PV100:24 PV100:38	PV100:26	PV100:28	PV100:32 PV100:46 PV100:47

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts (ACMNA015)	PS 1:8	NMS 1:67, 1:68, 1:70, 1:90, 1:91, 1:92, 1:94, 1:138, 1:140 NMS 2:10, 2:28, 2:P34, 2:58 SM-N LP1:32, LP1:34, LP1:36 PS 1:16, PS 1:20, PS 1:24, PS 1:26, PS 1:28 PV100:42	SM-N LP1:32 – 38, LP1:48 – 56, LP1:80 – 88, LP1:96 – 104 PV100:40	NMS 1:142 NMS 2:20, 2:49 SM-N LP1:42, LP1:56, LP1:90, LP1:105 PV100:28	NMS 1:35, 1:95 NMS 2:20, 2:49 PS 1:56, 1:57, 1:58 PV100:32
Fractions and Decimals					
Recognise and describe one-half as one of two equal parts of a whole. (ACMNA016)					
Money and financial mathematics					
Recognise, describe and order Australian coins according to their value (ACMNA017)	NMS 1:64, 1:136, 1:141	NMS 1:66, 1:69 NMS 2:57 PS 1:18, 1:22	SM-N LP1:70, LP1:73	NS 1:133 NMS 2:37	
Patterns and algebra					
Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)	NMS 2:4, 2:5, 2:40, 2:41 LM 2:9, 2:10	NMS 2:44 PS 1:18, 1:22	SM-N LP1:70, LP1:73	NMS 1:133 NMS 2:37	

Measurement and Geometry

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Using units of measurement					
Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMMG019)	NMS 1:100, 1:101 NMS 2:16, 2:17 LM 2:9, 2:10	NMS 1:102, 1:103, 1:106 NMS 2:20 LM 2:15, 2:19,	NS 1:104, 1:105 LM 2:13, 2:17, 2:21, 2:26, 2:28, 2:30	NMS 1:108, 1:109, 1:120, 1:121, NMS 2:23 LM 2:31	NMS 1:107 NMS 2:23
Tell time to the half-hour (ACMMG020)		NMS 2:18, 2:19 PS 1:48		NMS 2:25	
Shape					
Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features (ACMMG022)	NMS 1:76, 1:77, 1:112, 1:113, 1:124	NMS 1:79, 1:114, 1:116, 1:118, 1:130 NMS 2:22, 2:43 PS 1:36, 1:38, 1:40, 1:46	NMS 2:45		NMS 1:83, 1:119 PS 1:59
Location and transformation					
Give and follow directions to familiar locations (ACMMG023)		NMS 1:78, 1:80, 1:81, 1:82, 1:128 NMS 2:46 PS 1:42, 1:44, 1:54		NMS 1:85	

Statistics and Probability

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Chance					
Identify outcomes of familiar events involving chance and describe them using everyday language such as 'will happen', 'won't happen' or 'might happen' (ACMSP024)		PS 1:34		NMS 2:61	NMS 2:59
Data representation and interpretation					
Choose simple questions and gather responses (ACMSP262)	NMS 2:52	NMS 1:93, 1:137 NMS 2:55 2:56			
Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays (ACMSP263)	NMS 2:53	NMS 1:117 NMS 2:6, 2:7, 2:54 PS 1:30, 1:32		NS 2:60	

Year 1 achievement standard

By the end of Year 1, students recognise and communicate number sequences. They solve simple addition and subtraction problems, and are familiar with Australian coins. They describe a representation of a half. Students collect data from questions to draw and describe simple data displays. Students compare lengths and describe two-dimensional shapes and three-dimensional objects. They communicate time duration and can follow simple directions.

Year 2

At this year level:

Understanding includes connecting number calculations with counting sequences, partitioning and combining numbers flexibly, identifying and describing the relationship between addition and subtraction and between multiplication and division

Fluency includes counting numbers in sequences readily, using units iteratively to compare measurements, listing possible outcomes of chance events, and describing and comparing time durations

Problem Solving includes formulating problems from authentic situations, making models and using number sentences that represent problem situations, planning routes on maps, and matching transformations with their original shape

Reasoning includes using known facts to derive strategies for unfamiliar calculations, comparing and contrasting related models of operations, describing connections between 2-D and 3-D representations, and creating and interpreting simple representations of data

Number and Algebra

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Number and place value					
Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and ten from any starting point, then moving to other sequences. (ACMNA026)	NMS 2:64	NMS 2:66, 2:68	SM-N LP2:17 PV100:54 PV100:56		NMS 2:143
Recognise, model, represent and order numbers to at least 1000 (ACMNA027)	NMS 2:65, 2:101	NMS 2:67, 2:70, 2:126 SM-N LP2:19 PV100:52	SM-N LP2:21, LP2:23, LP2:35	NMS 2:72 SM-N LP2:27	PV100:62
Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)	PV100:50	NMS 2:69, 2:127, 2:142	PV100:56	NMS 2:73 PV100:60	NMS 2:107

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Explore the connection between addition and subtraction (ACMNA029)		NMS 2:105			
Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030)	NMS 2:136, 2:137 PS 2:8	NS 2:104 SM-N LP2:54 PS 2:22, 2:24	SM-N LP2:48, LP2:50, LP2:52, LP2:56	SM-N LP2:58, LP2:75	NMS 2:71 PS 2:56
Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031)		NMS 2:106 PS 2:28, 2:30	SM-N LP2:80 - 88	NS 2:108 LP2:90	NMS 2:107 PS 2:58
Recognise and represent division as grouping into equal sets and solve simple problems using these representations (ACMNA032)	NS 2:101	NMS 2:102, 2:103, 2:128	SM-N LP2:96 - 104	SM-N LP2:106	
Fractions and Decimals					
Recognise and interpret common uses of halves, quarters and eighths of shapes and collections (ACMNA033)	NMS 2:113	NMS 2:102 PS 2:20	SM-N LP2:37, LP2:43	NMS 2:121	NS 2:131
Money and financial mathematics					
Count and order small collections of Australian coins and notes according to their value (ACMNA034)		NS 2:126, 2:127, 2:128 PS 2:48, 2:50	SM-N LP2:25, LP2:41	NMS 2:132	NMS 2:131 PS 2:60
Patterns and algebra					
Describe patterns with numbers and identify missing	PSD 2:10	PS 2:16	SM-N LP@:39	NMS 2:109	

elements (ACMNA035)					
	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Solve problems by using number sentences for addition or subtraction (ACMNA036)		NMS 2:138, 2:139, 2:140, 2:141 PS 2:26		NMSA 2:144, 2:145	

Measurement and Geometry

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Using units of measurement					
Compare and order several shapes and objects based on length, area, volume and capacity using appropriate uniform informal units (ACMMG037)	NMS 2:112, 2:113	NMS 2:114 – 118 LM 3:13, 3:15, 3:17, 3:19, 3:27 PS 2:44	LM 3:21, 3:23, 3:25, 3:29	NMS 2:120 LM 3:31	NMS 2:119
Compare masses of objects using balance scales (ACMMG038)	NMS 2:100	PS 2:44			
Tell time to the quarter-hour, using the language of 'past' and 'to' (ACMMG039)		NMS @:90 PS 2:46		NMS 2:97	
Name and order months and seasons (ACMMG040)	NMS 2:89				
Use a calendar to identify the date and determine the number of days in each month (ACMMG041)	CAL 15	CAL 19	SM-N LP2:33		
Shape					
Describe and draw two-dimensional shapes, with and without digital technologies (ACMMG042)		NMS 2:78, 2:79, 2:81, 2:94 PS 2:52			NMS 2:83

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Describe the features of three-dimensional objects (ACMMG043)	NMS 2:76	NMS 2:80			
Location and transformation					
Interpret simple maps of familiar locations and identify the relative positions of key features (ACMMG044)	NMS 2:88	NMS 2:91, 2:92, 2:93 PS 2:54		NMS 2:96	NMS 2:95
Investigate the effect of one-step slides and flips with and without digital technologies (ACMMG045)	NMS 2:77	NMS 2:81 PS 2:40, 2:42		NMS 2:84, 2:85	
Identify and describe half and quarter turns (ACMMG046)					

Statistics and Probability

Chance					
Identify outcomes of familiar events involving chance and describe them using everyday language such as 'will happen', 'won't happen' or 'might happen' (ACMSP024)	NMS 2:125	PS 2:36, 2:38		NMS 2:132	
Data representation and interpretation					
Identify a question of interest based on one categorical variable. Gather data relevant to the question (ACMSP048)	NMS 2:124	PS 2:32, 2:36, 2:38			
Collect, check and classify data		NMS 2:129			

(ACMSP049)		PS 2:32			
	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Create displays of data using lists, table and picture graphs and interpret them (ACMSP050)	NMS 2:124	NMS 2:130 PS 2:32, 2:34			

Year 2 achievement standard

By the end of Year 2, students recognise and communicate number sequences involving twos threes and fives. They are familiar with collections up to 1000 and recognise the connection between addition and subtraction. Students describe patterns with numbers and represent problems involving addition and subtraction by number sentences. They understand the value of collections of Australian coins. Students collect information and create data displays and interpret the information. They describe outcomes for everyday events. Students compare and order different shapes and objects using informal units. They use calendars to identify dates and seasons. They draw two-dimensional shapes and describe one-step transformations.

Year 3

At this year level:

Understanding includes connecting number representations with number sequences, partitioning and combining numbers flexibly, representing unit fractions, using appropriate language to communicate times, and identifying environmental symmetry

Fluency includes recalling multiplication facts, using familiar metric units to order and compare objects, identifying and describing outcomes of chance experiments, interpreting maps and communicating positions

Problem Solving includes formulating and modelling authentic situations involving planning methods of data collection and representation, making models of three-dimensional objects and using number properties to continue number patterns

Reasoning includes using generalising from number properties and results of calculations, comparing angles, creating and interpreting variations in the results of data collections and data displays

Number and Algebra

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Number and place value					
Investigate the conditions required for a number to be odd or even and identify odd and even numbers (ACMNA051)					
Recognise, model, represent and order numbers to at least 10 000 (ACMNA052)	SM-N MP1:5	NMS 3:168 SM-N MP1:21 PS 3:28	SM-N MP1:23	NMS 3:12, 3:13, 3:48 SM-N MP1:25, MP1:31	
Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)	SM-N MP1:4	SM-N MP1:27 PS 3:20. 3:22:		NMS 3:12 SM-N MP1:29	NMS 3:11 PS 3:57

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Recognise and explain the connection between addition and subtraction (ACMNA054)		NMS 3:42	SM-N MP1:113		
Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation (ACMNA055)	PS 3:8	NMS 3:10, 3:46	SM-N MP1:37 – 45, MP1:55 – 63, MP1:91 - 111	SM-N MP1:47, MP1:49, MP1:64, MP1:65, MP1:119	PS 3:58, 3:60
Recall multiplication facts of two, three, five and ten and related division facts (ACMNA056)		NMS 3:10, NMS 3:30	SM-N MP1:73, MP1:77, MP1:79, MP1:99	SM-N MP1:85, MP1:101, MP1:103	PS 3:59
Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)		NMS 3:8, 3:43 SM-N MP1:81	SM-N MP1:75	SM-N MP1:83	
Fractions and Decimals					
Model and represent unit fractions including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ and their multiples to a complete whole (ACMNA058)		PS 3:26	SM-N MP1:115	SM-N MP1:121	
Money and financial mathematics					
Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents (ACMNA059)	NMS 3:28, 3:52	NMS 3:7 PS 3:48	SM-N MP1:61, MP1:117		

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Patterns and algebra					
Describe, continue, and create number patterns resulting from performing addition or subtraction (ACMNA060)	NMS 3:40, 3:147 PS 3:10	PS 3:16, 3:18	NMS 3:19	NMS 3:49	

Measurement and Geometry

Using units of measurement					
Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061)	NMS 3:17	NMS 3:18 – 23 PS 3:40, 3:44		NMS 3:24, 3:25	
Tell time to the minute and investigate the relationship between units of time (ACMMG062)	NMS 3:16	NMS 3:9 PS 3:46			
Shape					
Make models of three-dimensional objects and describe key features (ACMMG063)		PS 3:52			
Location and transformation					
Create and interpret simple grid maps to show position and pathways (ACMMG065)		PS 3:54			
Identify symmetry in the environment (ACMMG066)		PS 3:38, 3:42			

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Geometric Reasoning					
Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)		PS 3:50			

Statistics and Probability

Chance					
Conduct chance experiments, identify and describe possible outcomes and recognise variation in results (ACMSP067)		PS 3:36			
Data representation and interpretation					
Identify questions or issues for categorical variables. Identify data sources and plan methods of data collection and recording (ACMSP068)		PS 3:32			
Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies (ACMSP069)	NMS 3:3, 3:5	PS 3:32, 3:34			
Interpret and compare data displays (ACMSP070)		PS 3:32			

Year 3 achievement standard

By the end of Year 3 students recall number facts for single digit numbers and are familiar with collections up to 10 000. They describe number patterns involving addition and subtraction and recognise the connection between multiplication and division. They model and represent unit fractions. They count the change required and represent money values in various ways. Students conduct chance experiments and describe the possible outcomes. They create, interpret and compare data displays. Students compare objects using familiar units. They compare angle sizes and identify symmetry. They tell the time and interpret positions and pathways on maps.

Year 4

At this year level:

Understanding includes making connections between representations of numbers, partitioning and combining numbers flexibly, extending place value to decimals, using appropriate language to communicate times, using informal units for comparing, and describing properties of symmetrical shapes

Fluency includes recalling multiplication tables, communicating sequences of simple fractions, using instruments to measure accurately, creating patterns with shapes and their transformations, and collecting and recording data

Problem Solving includes formulating, modelling and recording authentic situations involving operations, comparing large numbers and time durations, and using properties of numbers to continue patterns

Reasoning includes using generalising from number properties and results of calculations, deriving strategies for unfamiliar multiplication and division tasks, comparing angles, communicating information using graphical displays and evaluating the appropriateness of different displays

Number and Algebra

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Number and place value					
Investigate and use the properties of odd and even numbers (ACMNA071)		NMS 4:43			PS 4:58
Recognise, represent and order numbers to at least tens of thousands (ACMNA072)	NMS 3:100 MP2: 18	NMS 3:145 PS 4:17	MP 2:21, SM-UP 1:20	MP 2:33	NMS 3:36
Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073)	NMS 4:4	NMS 3:103, 3:105— 107 PS 4:21, 4:29	MP 2:23, 2:25 SM-N UP 1:33, 1:35	MP 2:31	NMS 3:107 SM-N UP 1:31, 1:33

	Mental Routines	Problematised Sitns	Strategy Lessons	Assessment	Games
Investigate number sequences involving multiples of 3, 4, 6, 7, 8, and 9 (ACMNA074)					
Recall multiplication facts up to 10×10 and related division facts (ACMNA075)	SM-N MP 2:90, 2:108		SM-N MP 2:93, 2:95, 2:111		PS 4:49, 4:50
Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and for division where there is no remainder (ACMNA076)		NMS 3:73, 3:108, 3:145 PS 4:27	SM-N MP 2:97—119	SM-N MP 2:103, 2:105, 2:121, 2:123	
Fractions and Decimals					
Investigate equivalent fractions used in contexts (ACMNA077)	NMS 3:65				
Count by quarters halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line (ACMNA078)	NMS 3:136	PS 4:22			
Recognise that the place value system can be extended to tenths and hundredths. Make connections between fractions and decimal notation (ACMNA079)	NMS 3:29, 3:101, 3:137	NMS 3:32, 3:102		NMS 3:36 SM-N MP 2:27, 2:61, 2:81	
Money and financial maths					
Solve problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies (ACMNA080)					

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Patterns and algebra					
Explore and describe number patterns resulting from performing multiplication (ACMNA081)	PS 4:11	PS 4:35			NMS 3:47
Solve word problems by using number sentences involving multiplication or division where there is no remainder (ACMNA082)		NMS 3:141, 3:106		NMS 3:73	
Use equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)	NMS 3:64 SM-N MP2:37, 2:54 PS 4:9	NMS 3:45, 3:59, 3:65—69 PS 4:18, 4:31, 4:33	SM-N MP 2:29, 2:39— 47, 2:57—65, 2:75— 81	NMS 3:72, 3:108, 3:109 SM-N MP 2:49, 2:52, 2:67, 2:69, 2:83, 2:85	

Measurement and Geometry

Using units of measurement					
Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)	NMS 3:112, 3:113	PS 4:36		NMS 3:120, 3:121	
Compare objects using familiar metric units of area and volume (ACMMG290)		NMS 3:68, 3:83, 3:92			
Convert between units of time (ACMMG085)	NMS 3:124	NMS 3:69, 3:131 PS 4:49		NMS 3:132	
Use am and pm notation and solve simple time problems (ACMMG086)		NMS 4:42			

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Shape					
Compare the areas of regular and irregular shapes by informal means (ACMMG087)	NMS 3:88	NMS 3:95 PS 4:43, 4:45, 4:47			
Compare and describe two dimensional shapes that result from combining and splitting common shapes, with and without the use of digital technologies (ACMMG088)		NMS 3:44, 3:45, 3:94 PS 4:45			
Location and transformation					
Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)	NMS 3:76	NMS 3:78—81, 3:89, 3:116 PS 4:53		NMS 3:84, 3:85	
Create symmetrical patterns, pictures and shapes with and without digital technologies (ACMMG091)					
Geometric Reasoning					
Compare angles and classify them as equal to, greater than or less than a right angle (ACMMG089)	NMS 3:77	NMS 3:118			

Statistics and Probability

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Chance					
Describe possible everyday events and order their chances of occurring (ACMSP092)		NMS 3:54, 3:129			
Identify everyday events where one cannot happen if the other happens (ACMSP093)		NMS 3:58, 3:130 PS 4:41			
Identify events where the chance of one will not be affected by the occurrence of the other (ACMSP094)					
Data representation and interpretation					
Select and trial methods for data collection, including survey questions and recording sheets (ACMSP095)		NMS 3:55—58, 3:127 PS 4:37			
Construct suitable data displays, with and without the use of digital technologies, from given or collected data. Include tables, column graphs and picture graphs where one picture can represent many data values (ACMSP096)	NMS 3:124	NMS 3:56, 3:57, 3:58 PS 4:39		NMS 3:132	
Evaluate the effectiveness of different displays in illustrating data features including variability (ACMSP097)		NMS 3:56, 3:126, 3:128			

Year 4 achievement standard

By the end of Year 4 students recall multiplication facts up to 10×10 and the related division facts. They are familiar with collections up to 100 000. Students recognise and locate familiar fractions on a number line and make connections between fraction and decimal notations. They solve problems by using relevant number sentences involving the four operations. Students describe the probabilities of everyday events. They investigate different methods for data collection, construct data displays and evaluate their effectiveness. Students convert between units of time and solve problems involving time duration. They compare areas of regular and irregular shapes and classify angles. They create symmetrical patterns and interpret the information contained in maps.

Year 5

At this year level:

Understanding includes making connections between representations of numbers, using fractions to represent probabilities, comparing and ordering fractions and decimals and representing them in various ways

Fluency includes choosing appropriate units of measurement for calculation of perimeter and area, using estimation to check the reasonableness of answers to calculations and using instruments to measure angles

Problem Solving includes formulating and solving authentic problems using numbers and measurements, creating transformations and identifying line and rotational symmetries

Reasoning includes investigating strategies to perform calculations efficiently, creating financial plans, interpreting results of chance experiments and interpreting data sets

Number and Algebra

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Number and place value					
Identify and describe factors and multiples of whole numbers and use them to solve problems (ACMNA098)		NMS 4:10 PS 5:16, 5:28, 5:30	SM-N UP1:113, UP1:115		
Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)	SM-N UP1:54	NMS 4:32, 4:45	SM-N UP1:55 – 64, UP1:77 – 82	NMS 4:37	
Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100)		NMS 4:66, 4:70 PS 5:20	SM-N UP1:93 – 97	SM-N UP1:85, UP1:87, UP1:103, UP1:105	

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Solve problems involving division by a one digit number, including those that result in a remainder (ACMNA101)		NMS 4:42, 4:46, 4:67, 4:P69 PS 5:22	SM-N UP1:111, UP1:117 – 120	SM-N UP1:121 – 124	
Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)	NMS 4:65	NMS 4:9, 4:71 PS 5:24	SM-N UP1:75	SM-N UP1:103	
Fractions and Decimals					
Compare and order common unit fractions and locate and represent them on a number line (ACMNA102)	NMS 4:64 SM-N UP1:36	PS 5:32	SM-N UP1:39 – 48	NMS 4:13 SM-N UP1:49 – 52	
Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator (ACMNA103)		NMS 4:72	SM-N UP1:43		
Recognise that the number system can be extended beyond hundredths (ACMNA104)	NMS 4:5	NMS 4:7, 4:11			
Compare, order and represent decimals (ACMNA105)				NS 4:12	
Money and financial mathematics					
Create simple financial plans (ACMNA106)	NMS 4:28, 4:29, 4:113	NMS 4:8, 4:20, 4:21, 4:30 – 35, 4:114 – 117 PS 5:18, 5:26		NMS 4:24	

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Patterns and algebra					
Describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction (ACMNA107)	NMS 4:40, 4:41, 4:47			NMS 4:48 – 49	
Use equivalent number sentences involving multiplication and division to find unknown quantities (ACMNA121)		NMS 4:44			

Measurement and Geometry

Using units of measurement					
Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108)	NMS 4:17, 4:101	NMS 4:6, 4:18, 4:19, 4:79, 4:105		NMS 4:25	
Calculate the perimeter and area of rectangles using familiar metric units (ACMMG109)	NMS 4:16	NMS 4:23 PS 5:36, 5:40			
Compare 12- and 24-hour time systems and convert between them (ACMMG110)					
Shape					
Connect three-dimensional objects with their nets and other two-dimensional representations (ACMMG111)	NMS 3:89, NMS 4:89	NMS 3:90 – 93 NMS 4:92 – 93, 4:96 – 97 PS 5:43		NMS 3:96 – 97	

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Location and transformation					
Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)	NMS 4:77	NMS 4:78, 4:85, 4:109			
Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG114)		NMS 4:83, 4:95 PS 5:34, 5:38		NMS 4:22	
Apply the enlargement transformation to familiar two dimensional shapes and explore the properties of the resulting image compared with the original (ACMMG115)	NMS 4:100	NMS 4:103, 4:104		NMS 4:108	
Geometric Reasoning					
Estimate, measure and compare angles using degrees. Construct angles using a protractor (ACMMG112)	NMS 4:88				

Statistics and Probability

Chance					
List outcomes of chance experiments involving equally likely outcomes and represent probabilities of those outcomes using fractions (ACMSP116)		NMS 4:57 PS 5:48		NMS 4:61	
Recognise that probabilities range from 0 to 1 (ACMSP117)					

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Data representation and interpretation					
Pose questions and collect categorical or numerical data by observation or survey (ACMSP118)		NMS 4:54, 4:55			
Construct displays, including column graphs, dot plots and tables, appropriate for data type, with and without the use of digital technologies (ACMSP119)		NMS 4:56 PS 5:50, 5:52			
Describe and interpret different data sets in context (ACMSP120)		NMS 4:54, 4:56, 4:59			

Year 5 achievement standard

By the end of Year 5 students identify and describe factors and multiples and use estimation and rounding to check the reasonableness of answers. They solve multiplication and division problems and compare, order and represent decimals. Students perform addition and subtraction of fractions with the same denominator and continue patterns with fractions and decimals. They plan simple budgets. Students list the outcomes of chance experiments as fractions. They pose questions to gather data and construct, describe and interpret different data sets. Students calculate perimeter and area of rectangles using appropriate units. They connect three dimensional objects with two dimensional representations. They measure and construct different angles and describe transformations of two-dimensional shapes, including the enlargement transformation. They identify line and rotational symmetry.

Year 6

At this year level:

Understanding includes describing properties of different sets of numbers, using fractions and decimals to describe probabilities, representing fractions and decimals in various ways and describing connections between them, and making reasonable estimations

Fluency includes representing negative numbers on a number line, calculating simple percentages, using brackets appropriately, converting between fractions and decimals, using operations with fractions, decimals and percentages, measuring using metric units, and interpreting timetables

Problem Solving includes formulating and solving authentic problems using numbers and measurements, creating similar shapes through enlargements, representing secondary data, and calculating angles

Reasoning includes explaining mental strategies for performing calculations, describing results for continuing number sequences, investigating new situations using known properties of angles, explaining the transformation of one shape into another, and inferring from the results of experiment

Number and Algebra

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Number and place value					
Identify and describe properties of prime, composite, square and triangular numbers (ACMNA122)			SM-N UP2:95, UP2:97, UP2:101	SM-N UP2:105	
Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)		NMS 4:107, 4:118	SM-N UP2:75 – 80, UP2:93		

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Investigate everyday situations that use positive and negative whole numbers and zero. Locate and represent these numbers on a number line (ACMNA124)	NMS 4:112			NMS 4:120	
Fractions and Decimals					
Compare fractions with related denominators and locate and represent them on a number line (ACMNA125)	SM-N UP2:18		SM-N UP2:23		
Solve problems involving addition and subtraction of fractions with the same or related denominators (ACMNA126)			SM-N UP2:27 – 30		
Find a simple fraction of a quantity where the result is a whole number, with and without digital technologies (ACMNA127)			SM-N UP2:21, UP2:25	SM-N UP2:31 – 34	
Add and subtract decimals, with and without digital technologies, and use estimation and rounding to check the reasonableness of answers (ACMNA128)			SM-N UP1:27 – 30, UP1:53, UP1:65	SM-N UP1:66 – 68	

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Multiply decimals by whole numbers and perform divisions that result in terminating decimals, with and without digital technologies (ACMNA129)		NMS 4:102	SM-N UP1:99		
Multiply and divide decimals by powers of 10 (ACMNA130)					
Make connections between equivalent fractions, decimals and percentages (ACMNA131)		NMS 4:58	SM-N UP2:39 – 46	SM-N UP2:49	
Money and financial mathematics					
Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without digital technologies (ACMNA132)			SM-N UP2:47	NMS 4:36, 4:120 SM-N UP2:51	
Patterns and algebra					
Continue and create sequences involving whole numbers, fractions and decimals. Describe the rule used to create the sequence (ACMNA133)					
Explore the use of brackets and order of operations to write number sentences (ACMNA134)		NMS 4:68, 4:73	SM-N UP2:81, UP2:83	SM-N UP2:85, UP2:87	

Measurement and Geometry

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Using units of measurement					
Connect decimal representations to the metric system (ACMMG135)					
Convert between common metric units of length, mass and capacity (ACMMG136)					
Solve problems involving the comparison of lengths and areas using appropriate units (ACMMG137)		NMS 4:106			
Connect volume and capacity and their units of measurement (ACMMG138)					
Interpret and use timetables (ACMMG139)	NMS 4:76	NMS 4:80		NMS 4:84	
Shape					
Construct simple prisms and pyramids (ACMMG140)					
Location and transformation					
Investigate combinations of translations, reflections and rotations, with and without the use of digital technologies (ACMMG142)					
Introduce the Cartesian coordinate system using all four quadrants (ACMMG143)					

	Mental Routines	Problematised Sit ^{ns}	Strategy Lessons	Assessment	Games
Geometric Reasoning					
Investigate, with and without digital technologies, angles on a straight line, angles at a point and vertically opposite angles. Use results to find unknown angles (ACMMG141)		NMS 4:91			

Statistics and Probability

Chance					
Describe probabilities using fractions, decimals and percentages (ACMSP144)	NMS 4:53				
Conduct chance experiments with both small and large numbers of trials using appropriate digital technologies (ACMSP145)					
Compare observed frequencies across experiments with expected frequencies (ACMSP146)					
Data representation and interpretation					
Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables (ACMSP147)					
Interpret secondary data presented in digital media and elsewhere (ACMSP148)					

Year 6 achievement standard

By the end of Year 6, students recognise the properties of special numbers. They connect fractions, decimals and percentages as different representations of the same number and solve associated problems. They write correct number sentences. Students predict and communicate probabilities using simple fractions, decimals and percentages and construct and interpret a range of data displays. Students connect decimal representations to the metric system and choose appropriate units of measurement to solve problems. They interpret and use timetables. Students investigate angles. They investigate combinations of transformations and apply the enlargement transformation.