

AUSTRALIAN CURRICULUM: MATHEMATICS

The Flow – Foundation to Year 2

NUMBER & ALGEBRA		
Foundation Year	Year 1	Year 2
Number & Place Value	Number & Place Value	Number & Place Value
<u>ESTABLISH UNDERSTANDING OF THE LANGUAGE AND PROCESSES OF COUNTING BY NAMING NUMBERS IN SEQUENCES, INITIALLY TO AND FROM 20, MOVING FROM ANY STARTING POINT</u>	<u>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</u>	<u>INVESTIGATE NUMBER SEQUENCES, INITIALLY THOSE INCREASING AND DECREASING BY TWOS, THREES, FIVES AND TEN FROM ANY STARTING POINT, THEN MOVING TO OTHER SEQUENCES.</u>
<ul style="list-style-type: none"> reading stories from other cultures featuring counting in sequence to assist students to recognise ways of counting in local languages and across cultures identifying the number words in sequence, backwards and forwards, and reasoning with the number sequences, establishing the language on which subsequent counting experiences can be built developing fluency with forwards and backwards counting in meaningful contexts, including stories and rhymes understanding that numbers are said in a particular order and there are patterns in the way we say them 	<ul style="list-style-type: none"> using the popular Korean counting game (sam-yuk-gu) for skip counting developing fluency with forwards and backwards counting in meaningful contexts such as circle games 	<ul style="list-style-type: none"> developing fluency and confidence with numbers and calculations by saying number sequences recognising patterns in number sequences, such as adding 10 always results in the same final digit
<u>CONNECT NUMBER NAMES, NUMERALS AND QUANTITIES, INCLUDING ZERO, INITIALLY UP TO 10 AND THEN BEYOND</u>	<u>RECOGNISE, MODEL, READ, WRITE AND ORDER NUMBERS TO AT LEAST 100. LOCATE THESE NUMBERS ON A NUMBER LINE</u>	<u>RECOGNISE, MODEL, REPRESENT AND ORDER NUMBERS TO AT LEAST 1000</u>
<ul style="list-style-type: none"> understanding that each object must be counted only once, that the arrangement of objects does not affect how many there are, and that the last number counted answers the 'how many' question using scenarios to help students recognise that other cultures count in a variety of ways, such as by placing one pebble in a bag to represent one object (for example to count the number of cattle). 	<ul style="list-style-type: none"> modelling numbers with a range of material and images identifying numbers that are represented on a number line and placing numbers on a prepared number line 	<ul style="list-style-type: none"> recognising there are different ways of representing numbers and identifying patterns going beyond 100 developing fluency with writing numbers in meaningful contexts
<u>SUBITISE SMALL COLLECTIONS OF OBJECTS</u>	<u>COUNT COLLECTIONS TO 100 BY PARTITIONING NUMBERS USING PLACE VALUE</u>	<u>GROUP, PARTITION AND REARRANGE COLLECTIONS UP TO 1000 IN HUNDREDS, TENS AND ONES TO FACILITATE MORE EFFICIENT COUNTING</u>
<ul style="list-style-type: none"> using subitising as the basis for ordering and comparing collections of numbers 	<ul style="list-style-type: none"> understanding partitioning of numbers and the importance of grouping in tens understanding two-digit numbers as comprised of tens and ones/units 	<ul style="list-style-type: none"> using an abacus to model and represent numbers understanding three-digit numbers as comprised of hundreds, tens and ones/units demonstrating and using models such as linking blocks, sticks in bundles, place-value blocks and Aboriginal bead strings and explaining reasoning

<p><u>COMPARE, ORDER AND MAKE CORRESPONDENCES BETWEEN COLLECTIONS, INITIALLY TO 20, AND EXPLAIN REASONING</u></p>		
<ul style="list-style-type: none"> • comparing and ordering items of like and unlike characteristics using the words 'more', 'less', 'same as' and 'not the same as' and giving reasons for these answers • understanding and using terms such as 'first' and 'second' to indicate ordinal position in a sequence. • using objects which are personally and culturally relevant to students 		
<p><u>REPRESENT PRACTICAL SITUATIONS TO MODEL ADDITION AND SHARING</u></p>	<p><u>REPRESENT AND SOLVE SIMPLE ADDITION AND SUBTRACTION PROBLEMS USING A RANGE OF STRATEGIES INCLUDING COUNTING ON, PARTITIONING AND REARRANGING PARTS</u></p>	<p><u>EXPLORE THE CONNECTION BETWEEN ADDITION AND SUBTRACTION</u></p>
<ul style="list-style-type: none"> • using a range of practical strategies for adding small groups of numbers, such as visual displays or concrete materials • using Aboriginal and Torres Strait Islander methods of adding, including spatial patterns and reasoning 	<ul style="list-style-type: none"> • developing a range of mental strategies for addition and subtraction problems 	<ul style="list-style-type: none"> • becoming fluent with partitioning numbers to understand the connection between addition and subtraction • using counting on to identify the missing element in an additive problem
		<p><u>SOLVE SIMPLE ADDITION AND SUBTRACTION PROBLEMS USING A RANGE OF EFFICIENT MENTAL AND WRITTEN STRATEGIES</u></p>
		<ul style="list-style-type: none"> • becoming fluent with a range of mental strategies for addition and subtraction problems, such as commutativity for addition, building to 10, doubles, 10 facts and adding 10 • modelling and representing simple additive situations using materials such as 10 frames, 20 frames and empty number lines
		<p><u>RECOGNISE AND REPRESENT MULTIPLICATION AS REPEATED ADDITION, GROUPS AND ARRAYS</u></p>
		<ul style="list-style-type: none"> • representing array problems with available materials and explaining reasoning • visualising a group of objects as a unit and using this to calculate the number of objects in several identical groups
		<p><u>RECOGNISE AND REPRESENT DIVISION AS GROUPING INTO EQUAL SETS AND SOLVE SIMPLE PROBLEMS USING THESE REPRESENTATIONS</u></p>
		<ul style="list-style-type: none"> • dividing the class or a collection of objects into equal-sized groups • identifying the difference between dividing a set of objects into three equal groups and dividing the same set of objects into groups of three

Fractions & Decimals	Fractions & Decimals	Fractions & Decimals
	<u>RECOGNISE AND DESCRIBE ONE-HALF AS ONE OF TWO EQUAL PARTS OF A WHOLE.</u>	<u>RECOGNISE AND INTERPRET COMMON USES OF HALVES, QUARTERS AND EIGHTHS OF SHAPES AND COLLECTIONS</u>
	<ul style="list-style-type: none"> • <i>sharing a collection of readily available materials into two equal portions</i> • <i>splitting an object into two equal pieces and describing how the pieces are equal</i> 	<ul style="list-style-type: none"> • <i>recognising that sets of objects can be partitioned in different ways to demonstrate fractions</i> • <i>relating the number of parts to the size of a fraction</i>
Money & Financial Mathematics	Money & Financial Mathematics	Money & Financial Mathematics
	<u>RECOGNISE, DESCRIBE AND ORDER AUSTRALIAN COINS ACCORDING TO THEIR VALUE</u>	<u>COUNT AND ORDER SMALL COLLECTIONS OF AUSTRALIAN COINS AND NOTES ACCORDING TO THEIR VALUE</u>
	<ul style="list-style-type: none"> • <i>showing that coins are different in other countries by comparing Asian coins to Australian coins</i> • <i>understanding that the value of Australian coins is not related to size</i> • <i>describing the features of coins that make it possible to identify them</i> 	<ul style="list-style-type: none"> • <i>identifying equivalent values in collections of coins or notes, such as two five-cent coins having the same value as one 10-cent coin</i> • <i>counting collections of coins or notes to make up a particular value, such as that shown on a price tag</i>
Patterns & Algebra	Patterns & Algebra	Patterns & Algebra
<u>SORT AND CLASSIFY FAMILIAR OBJECTS AND EXPLAIN THE BASIS FOR THESE CLASSIFICATIONS. COPY, CONTINUE AND CREATE PATTERNS WITH OBJECTS AND DRAWINGS</u>	<u>INVESTIGATE AND DESCRIBE NUMBER PATTERNS FORMED BY SKIP COUNTING AND PATTERNS WITH OBJECTS</u>	<u>DESCRIBE PATTERNS WITH NUMBERS AND IDENTIFY MISSING ELEMENTS</u>
<ul style="list-style-type: none"> • <i>observing natural patterns in the world around us</i> • <i>creating and describing patterns using materials, sounds, movements or drawings</i> 	<ul style="list-style-type: none"> • <i>using place-value patterns beyond the tens to generalise the number sequence and predict the next number</i> • <i>investigating patterns in the number system, such as the occurrence of a particular digit in the numbers to 100</i> 	<ul style="list-style-type: none"> • <i>describing a pattern created by skip counting and representing the pattern on a number line</i> • <i>investigating features of number patterns resulting from adding twos, fives or 10s</i>
		<u>SOLVE PROBLEMS BY USING NUMBER SENTENCES FOR ADDITION OR SUBTRACTION</u>
		<ul style="list-style-type: none"> • <i>representing a word problem as a number sentence</i> • <i>writing a word problem to represent a number sentence</i>

MEASUREMENT & GEOMETRY

Foundation Year	Year 1	Year 2
Using Units of Measurement	Using Units of Measurement	Using Units of Measurement
<u>USE DIRECT AND INDIRECT COMPARISONS TO DECIDE WHICH IS LONGER, HEAVIER OR HOLDS MORE, AND EXPLAIN REASONING IN EVERYDAY LANGUAGE</u>	<u>MEASURE AND COMPARE THE LENGTHS AND CAPACITIES OF PAIRS OF OBJECTS USING UNIFORM INFORMAL UNITS</u>	<u>COMPARE AND ORDER SEVERAL SHAPES AND OBJECTS BASED ON LENGTH, AREA, VOLUME AND CAPACITY USING APPROPRIATE UNIFORM INFORMAL UNITS</u>
<ul style="list-style-type: none"> comparing objects directly, by placing one object against another to determine which is longer or by pouring from one container into the other to see which one holds more using suitable language associated with measurement attributes, such as 'tall' and 'taller', 'heavy' and 'heavier', 'holds more' and 'holds less' 	<ul style="list-style-type: none"> understanding that in order to compare objects, the unit of measurement must be the same size 	<ul style="list-style-type: none"> comparing lengths using finger length, hand span or a piece of string comparing areas using the palm of the hand or a stone comparing capacities using a range of containers
		<u>COMPARE MASSES OF OBJECTS USING BALANCE SCALES</u>
		<ul style="list-style-type: none"> using balance scales to determine whether the mass of different objects is more, less or about the same, or to find out how many marbles are needed to balance a tub of margarine or a carton of milk
<u>COMPARE AND ORDER THE DURATION OF EVENTS USING THE EVERYDAY LANGUAGE OF TIME</u>	<u>TELL TIME TO THE HALF-HOUR</u>	<u>TELL TIME TO THE QUARTER-HOUR, USING THE LANGUAGE OF 'PAST' AND 'TO'</u>
<ul style="list-style-type: none"> knowing and identifying the days of the week and linking specific days to familiar events sequencing familiar events in time order 	<ul style="list-style-type: none"> reading time on analogue and digital clocks and observing the characteristics of half-hour times 	<ul style="list-style-type: none"> describing the characteristics of quarter-past times on an analogue clock, and identifying that the small hand is pointing just past the number and the big hand is pointing to the three
<u>CONNECT DAYS OF THE WEEK TO FAMILIAR EVENTS AND ACTIONS</u>	<u>DESCRIBE DURATION USING MONTHS, WEEKS, DAYS AND HOURS</u>	<u>NAME AND ORDER MONTHS AND SEASONS</u>
<ul style="list-style-type: none"> choosing events and actions that make connections with students' everyday family routines 	<ul style="list-style-type: none"> describing the duration of familiar situations such as 'how long is it until we next come to school?' 	<ul style="list-style-type: none"> investigating the seasons used by Aboriginal people, comparing them to those used in Western society and recognising the connection to weather patterns.
		<u>USE A CALENDAR TO IDENTIFY THE DATE AND DETERMINE THE NUMBER OF DAYS IN EACH MONTH</u>
		<ul style="list-style-type: none"> using calendars to locate specific information, such as finding a given date on a calendar and saying what day it is, and identifying personally or culturally specific days

Shape	Shape	Shape
<u>SORT, DESCRIBE AND NAME FAMILIAR TWO-DIMENSIONAL SHAPES AND THREE-DIMENSIONAL OBJECTS IN THE ENVIRONMENT</u>	<u>RECOGNISE AND CLASSIFY FAMILIAR TWO-DIMENSIONAL SHAPES AND THREE-DIMENSIONAL OBJECTS USING OBVIOUS FEATURES</u>	<u>DESCRIBE AND DRAW TWO-DIMENSIONAL SHAPES, WITH AND WITHOUT DIGITAL TECHNOLOGIES</u>
<ul style="list-style-type: none"> • <i>sorting and describing squares, circles, triangles, rectangles, spheres and cubes</i> 	<ul style="list-style-type: none"> • <i>focusing on geometric features and describing shapes and objects using everyday words such as 'corners', 'edges' and 'faces'</i> 	<ul style="list-style-type: none"> • <i>identifying key features of squares, rectangles, triangles, kites, rhombuses and circles, such as straight lines or curved lines, and counting the edges and corners</i>
		<u>DESCRIBE THE FEATURES OF THREE-DIMENSIONAL OBJECTS</u>
		<ul style="list-style-type: none"> • <i>identifying geometric features such as the number of faces, corners or edges</i>
Location & Transformation	Location & Transformation	Location & Transformation
<u>DESCRIBE POSITION AND MOVEMENT</u>	<u>GIVE AND FOLLOW DIRECTIONS TO FAMILIAR LOCATIONS</u>	<u>INTERPRET SIMPLE MAPS OF FAMILIAR LOCATIONS AND IDENTIFY THE RELATIVE POSITIONS OF KEY FEATURES</u>
<ul style="list-style-type: none"> • <i>interpreting the everyday language of location and direction, such as 'between', 'near', 'next to', 'forwards', 'towards'</i> • <i>following and giving simple directions to guide a friend around an obstacle path and vice versa</i> 	<ul style="list-style-type: none"> • <i>understanding that people need to give and follow directions to and from a place, and that this involves turns, direction and distance</i> • <i>understanding the meaning and importance of words such as 'clockwise', 'anticlockwise', 'forward' and 'under' when giving and following directions</i> • <i>interpreting and following directions around familiar locations</i> 	<ul style="list-style-type: none"> • <i>understanding that we use representations of objects and their positions, such as on maps, to allow us to receive and give directions and to describe place</i> • <i>constructing arrangements of objects from a set of directions</i>
		<u>INVESTIGATE THE EFFECT OF ONE-STEP SLIDES AND FLIPS WITH AND WITHOUT DIGITAL TECHNOLOGIES</u>
		<ul style="list-style-type: none"> • <i>understanding that objects can be moved but changing position does not alter an object's size or features</i>
		<u>IDENTIFY AND DESCRIBE HALF AND QUARTER TURNS</u>
		<ul style="list-style-type: none"> • <i>predicting and reproducing a pattern based around half and quarter turns of a shape and sketching the next element in the pattern</i>

STATISTICS & PROBABILITY

Foundation Year	Year 1	Year 2
Chance	Chance	Chance
	<u>IDENTIFY OUTCOMES OF FAMILIAR EVENTS INVOLVING CHANCE AND DESCRIBE THEM USING EVERYDAY LANGUAGE SUCH AS 'WILL HAPPEN', 'WON'T HAPPEN' OR 'MIGHT HAPPEN'</u>	<u>IDENTIFY PRACTICAL ACTIVITIES AND EVERYDAY EVENTS THAT INVOLVE CHANCE. DESCRIBE OUTCOMES AS 'LIKELY' OR 'UNLIKELY' AND IDENTIFY SOME EVENTS AS 'CERTAIN' OR 'IMPOSSIBLE'</u>
	<ul style="list-style-type: none"> justifying that some events are certain or impossible 	<ul style="list-style-type: none"> classifying a list of everyday events according to how likely they are to happen, using the language of chance, and explaining reasoning
Data Representation & Interpretation	Data Representation & Interpretation	Data Representation & Interpretation
<u>ANSWER YES/NO QUESTIONS TO COLLECT INFORMATION</u>	<u>CHOOSE SIMPLE QUESTIONS AND GATHER RESPONSES</u>	<u>IDENTIFY A QUESTION OF INTEREST BASED ON ONE CATEGORICAL VARIABLE. GATHER DATA RELEVANT TO THE QUESTION</u>
<ul style="list-style-type: none"> posing questions about themselves and familiar objects and events representing responses to questions using simple displays, including grouping students according to their answers using data displays to answer simple questions such as 'how many students answered "yes" to having brown hair?' 	<ul style="list-style-type: none"> determining which questions will gather appropriate responses for a simple investigation 	<ul style="list-style-type: none"> determining the variety of birdlife in the playground and using a prepared table to record observations
		<u>COLLECT, CHECK AND CLASSIFY DATA</u>
		<ul style="list-style-type: none"> recognising the usefulness of tally marks identifying categories of data and using them to sort data
	<u>REPRESENT DATA WITH OBJECTS AND DRAWINGS WHERE ONE OBJECT OR DRAWING REPRESENTS ONE DATA VALUE. DESCRIBE THE DISPLAYS</u>	<u>CREATE DISPLAYS OF DATA USING LISTS, TABLE AND PICTURE GRAPHS AND INTERPRET THEM</u>
	<ul style="list-style-type: none"> understanding one-to-one correspondence describing displays by identifying categories with the greatest or least number of objects 	<ul style="list-style-type: none"> creating picture graphs to represent data using one-to-one correspondence comparing the usefulness of different data displays

ACHIEVEMENT STANDARD

Foundation Year	Year 1	Year 2
<p>By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They explain the order and duration of events. They use appropriate language to describe location.</p> <p>Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information.</p>	<p>By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.</p> <p>Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions and draw simple data displays.</p>	<p>By the end of Year 2, students recognise increasing and decreasing number sequences involving 2s, 3s and 5s. They represent multiplication and division by grouping into sets. They associate collections of Australian coins with their value. Students identify the missing element in a number sequence. Students recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. They explain the effects of one-step transformations. Students make sense of collected information.</p> <p>Students count to and from 1000. They perform simple addition and subtraction calculations using a range of strategies. They divide collections and shapes into halves, quarters and eighths. Students order shapes and objects using informal units. They tell time to the quarter hour and use a calendar to identify the date and the months included in seasons. They draw two-dimensional shapes. They describe outcomes for everyday events. Students collect data from relevant questions to create lists, tables and picture graphs.</p>