Mathletics

British Columbia Program of Studies

Skill Quests

Grades 1 – 2

May, 2022

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Contents

Part I

Grade 1

1 Number

Number concepts to 20			
Quest: Number concepts to 20			
Learning Journey	Steps	Content	Description
Skip counting by 2s to 20	1	Using skip counting by 2s from zero up to 20	• use concrete materials, models, drawings, number lines/charts to skip count by 2s from zero
			• use rhythmic counting to count in 2s from zero
Skip counting by 5s to 20	1	Using skip counting by 5s from zero up to 20	• use concrete materials, models, drawings, number lines/charts to skip count by 5s from zero
			• use rhythmic counting to count in 5s from zero
	2	Counting by skip counting forward or backward by 5s from any multiple of 5 from 0 to 20	• use concrete materials, models, drawings, number lines/charts to skip count forward or backward by 5s from any multiple of 5 up to 20
			• skip count forward or backward by 5s from any multiple of 5 by memory and an understanding of the number sequence
			• recognize an error in the skip counting sequence
Sequencing numbers to 20	1	Counting forward or backward starting from any number using models (0 to 20)	• count forward starting from any number (0 to 20)
			• count backward starting from any number (0 to 20)
	2	Identifying numbers after and before 0 to 20	• recall and write the number that comes after a given number and describe that number as 'one more'
			• recall and write the number that comes before a given number and describe that number as 'one less'
			• recall and write the numbers that come before or after a given number and describe those numbers as 'one less' or 'one more'
	3	Identifying numbers 2 after and 2 before 0 to 20	• recall and write the numbers that come 2 before or 2 after a given number and describe those numbers as 'two less' or 'two more'
Comparing & ordering numbers to 20	1	Comparing collections and numbers 0 to 20: more than, less than, the same as (focus on 11 to 20)	• apply counting strategies to solve simple everyday problems and justify answers, e.g., 'Who has more?'

Learning Journey	Step	Content	Description
			• model, compare and describe collections, e.g., 'I have fourteen counters, you have seventeen counters. So you have more counters than me'
			• compare numbers 0 to 20 and describe as 'more than', 'less than' or 'the same as'
	2	Ordering collections and numbers 0 to 20 (focus on 11 to 20)	• count and label collections with numbers 0 to 20; order from smallest to largest or largest to smallest
			• order numbers 0 to 20 from smallest to largest or largest to smallest (not necessarily consecutive numbers)
Creating collections to 20	1	Creating collections 0 to 20 (focus on 11 to 20)	• represent numbers 0 to 20 using fingers, pictures and objects
	2	Counting collections 0 to 20 (focus on 11 to 20)	• count everyday concrete materials using one-to-one correspondence
			• recognize that the last number name represents the total number in the collection when counting; answer 'how many?' questions
Connecting number names to 20	1	Connecting number names, numbers, and collections 0 to 20 (focus on 11 to 20)	• represent numbers 0 to 20 using fingers, pictures, objects, numbers, and words
			• match the collection to the number and number word or given a number or number word, create the collection
Quest: Place value of numbers to 20			
Understanding place value of 10s & 1s to 20	1	Representing numbers on a number line with benchmarks of 0, 5, 10 and 20	• place numbers on a number line using benchmark numbers
	2	Representing numbers to 20 using partitioning models	• partition numbers to 20 using models, eg part-whole models, dominoes, beads

Ways to make 10			
Quest: Ways to make 10			
Learning Journey	Steps	Content	Description
Ways to make 10	1	Recognizing and recalling bonds to 10	• recognize pairs of numbers that add to 10
			• find the missing number to add to 10 given one number
			• recall and record the bonds that add to 10
	2	Recognizing and recalling bonds to 10 using a tens frame	• find the missing number to add to 10 given one number

2 Computational fluency

Addition and subtraction to 20 (understanding of operation and process)			
Quest: Addition & subtraction within 10			
Learning Journey	Steps	Content	Description
Adding & subtracting within 10	1	Adding and subtracting within 10 fluently	• recall addition and subtraction facts within 10
Quest: Addition & subtraction to 20			
Adding single numbers	1	Adding using compatible numbers and manipulatives for support	• combine numbers that add to 10 eg 4 + 7 + 8 + 6 + 3, first combine 4 and 6, and 7 and 3, then add 8
			• find compatible numbers (bonds to 10 or doubles) to add a list of 1-digit numbers, eg 6 + 3 + 4 + 3
	2	Adding 3 or more single-digit numbers	• use appropriate strategies to add 3 or more single-digit numbers; including changing the order, doubles if appropriate, bridging to a ten
			• explain and justify strategies used
Adding within 20	1	Modelling and recording combinations that add to numbers from 11 to 20	• model and recognize the relationship between numbers to 10 and numbers to 20 using models eg tens frames eg 5 + 4 = 9 and 15 + 4 = 19
			• use the additions to 10 to record the combinations of numbers that add to between 11 and 20
	2	Recalling number bonds to 20	• use known facts and number patterns to recall bonds to 20 eg 8 + 2 = 10 so 18 + 2 = 20
Subtracting within 20	1	Finding the difference between 2 numbers (up to 20)	• represent two numbers using concrete materials and a number line eg place value equipment and a number line; compare the materials and count from the smaller number to find the difference
			• find the missing number in an addition problem eg 4 + ? = 9
			• solve word problems which involve finding the difference between two numbers
Adding & subtracting within 20	1	Describing and using mental strategies for basic addition and related subtraction facts to 18	• describe and use mental strategies to solve addition and subtraction facts to 18
	2	Adding and subtracting within 20 fluently	• use known mental strategies to add and subtract fluently within 20
Recalling doubles to 20	1	Recalling doubles up to 10	• recall doubles and add doubles to 10 fluently
Adding doubles & near doubles	1	Adding doubles up to 20	• add doubles with and without using models (up to 20)

Learning Journey	Step	Content	Description
	2	Adding doubles or near doubles	• solve addition problems using doubles, eg 4 + 3 + 4 as 4 + 4 + 3
			• model and solve addition problems with near doubles, eg 5 + 7 as 5 + 5 + 2 = 12
Introducing commutative property of addition	1	Introducing the commutative property of addition	• represent and solve an addition problem both ways using concrete materials and models eg 5 + 4 or 4 + 5
			• swap an addition problem around so the larger number comes first and add by counting on (within 20)
			• determine, through investigation, that the order in which numbers are subtracted may affect the difference
Relationship of addition & subtraction	1	Finding fact families for addition and subtraction (between 10 and 20)	• model and investigate the relationship between addition and subtraction using concrete models and or a number line
			• find the other three facts given one fact, eg 12 + 5 = 17
	2	Using the commutative property of addition to find missing numbers (up to 20)	• develop an understanding of the commutative property of addition and complete number sentences in addition and subtraction fact families, eg 9 + 6 = 15, 6 + 9 = 15, 15 - 6 = 9, 15 - 9 = 6
			• describe how the missing number was calculated and check using the opposite operation
			• explain the purpose of the symbol used to represent the unknown number
Missing numbers in calculations	1	Finding the missing number to make an addition or subtraction number sentence true (up to 18)	• complete number sentences involving 1 operation of addition or subtraction by finding the missing number using a variety of tools, equipment and strategies, eg using guess and check, eg 5 + [ ] = 13 or 15 - [ ] = 9
Creating word problems for addition & subtraction	1	Creating and solving simple addition and subtraction word problems in context (within 20)	• represent a word problem as an addition or subtraction number sentence
			• solve a variety of simple addition and subtraction word problems in context, eg find the difference, find the sum, change unknown, start unknown simple addition and subtraction word problems
			• explain and compare strategies used to solve addition and subtraction word problems

Learning Journey	Step	Content	Description
Using a bar model	1	Introducing the bar model for addition and subtraction (within 20)	• represent addition problems where the result is unknown using a bar model (whole unknown)
			• represent subtraction problems where the result is unknown using a bar model (part unknown)
			• solve addition and subtraction problems where the result is unknown using a bar model
Adding zero to a number	1	Adding zero to a number (up to 20)	• investigate and recognize the effect of adding zero to a number; generalize that adding zero does not change the number
Subtracting zero from a number	1	Subtracting zero from a number (up to 20)	• investigate and recognize the effect of subtracting zero from a number; generalize that subtracting zero does not change the number

Change in quantity to 20, concretely and verbally			
Quest: Change in quantity to 20			
Learning Journey	Steps	Content	Description
Exploring change in quantity to 20	1	Exploring equality and inequality (up to 10)	• create a set in which the number of objects is greater than, less than or equal to the number of objects in a given set
			• demonstrate examples of equality through investigation, using a balance model; describe equality as balance and inequality as imbalance, concretely and pictorially
			• determine through investigation using a balance model and whole numbers to 10, the number of identical objects that must be added or subtracted to establish equality
			• determine if 2 given concrete sets are equal or unequal and explain the process used
	2	Exploring equality and inequality (up to 20)	• create a set in which the number of objects is greater than, less than or equal to the number of objects in a given set
			• demonstrate examples of equality and inequality through investigation, using a balance model; describe equality as balance and inequality as imbalance, concretely and pictorially

Learning Journey	Step	Content	Description
			• determine through investigation using a balance model and whole numbers to 20 the number of identical objects that must be added or subtracted to establish equality
			• determine if 2 given concrete sets are equal or unequal and explain the process used
	3	Exploring change in quantity using models (up to 20)	• explore change in quantity using models (up to 20), eg using a tens frame, building blocks

Meaning of equality and inequality			
Quest: Equality & inequality			
Learning Journey	Steps	Content	Description
Equality & inequality	1	Representing equality and inequality of number and objects using = and ≠ within 20	• represent equality and inequality of number and objects using = and ≠ eg 9 objects = 9 but 8 objects ≠ 9
	2	Recording equations symbolically, using = and ≠ within 20	• record equations symbolically using = and ≠ to make the number sentence true
	3	Representing equality and inequality in addition and/or subtraction including models (0 to 20)	• represent equality in addition and/or subtraction including models, eg 3 + 4 = 9 − 2 where students must balance the pan balance
	4	Recognizing equality in addition and subtraction number sentences using objects and models for support	• understand the meaning of the equal sign
			• determine if equations involving addition or subtraction are true or false, eg 6 = 6, 7 = 8 - 1, 5 + 2 = 2

3 Patterning

Repeating patterns with multiple elements and attributes			
Quest: Repeating patterns			
Learning Journey	Steps	Content	Description
Identifying sorting rules	1	Grouping simple data using 1 attribute	• sort concrete objects (data) into groups according to physical attributes (max number 10); explain the groups that have been made using their own language
			• sort concrete objects into given category groups (max number 10)
			• recognize the purpose and use of sorting objects (data)
			• use sorting circles to sort
Recognizing repeating patterns	1	Recognizing repeating patterns with 1 attribute change and 2 or 3 elements	• recognize repeating patterns that repeat in their everyday world, in designs, songs and the environment
			• understand that patterns are predictable
			• identify patterns from sequences of shapes, symbols, objects that do not form patterns
	2	Recognizing repeating patterns with 1 attribute change and 3 or 4 elements	• recognize repeating patterns that repeat in their everyday world, in designs, songs and the environment
			• understand that patterns are predictable
			• identify patterns from sequences of shapes, symbols, objects that do not form patterns
	3	Recognizing repeating patterns with 1 attribute change and 4 or 5 elements	• recognize repeating patterns that repeat in their everyday world, in designs, songs and the environment
			• understand that patterns are predictable
			• identify patterns from sequences of shapes, symbols, objects that do not form patterns
	4	Identifying the structure of repeating patterns with 1 attribute change	• identify the smallest unit (the core) of a pattern
			• identify a rule for a repeating pattern, eg ‘we are lining up girl, boy, girl, boy’
	5	Describing repeating patterns with 1 attribute change	• copy and describe repeating patterns (only 1 attribute change) using language such as ‘goes before’, ‘goes after’, ‘repeats’

Learning Journey	Step	Content	Description
Creating repeating patterns	1	Creating repeating patterns with 1 attribute change and 2 or 3 elements	• create and describe a repeating visual pattern using drawings, or concrete materials (only 1 attribute change)
			• create and describe the rule for a repeating pattern that includes sounds or actions
	2	Creating repeating patterns with 1 attribute change and 3 or 4 elements	• create and describe a repeating visual pattern using drawings, or concrete materials (only 1 attribute change)
			• create and describe the rule for a repeating pattern that includes sounds or actions
	3	Creating repeating patterns with 1 attribute change and 4 or 5 elements	• create and describe a repeating visual pattern using drawings, or concrete materials (only 1 attribute change)
			• create and describe the rule for a repeating pattern that includes sounds or actions
Predicting a pattern	1	Continuing repeating patterns with objects and symbols	• continue repeating patterns using objects and symbols
	2	Creating repeating patterns with 1 attribute change	• create and describe a repeating visual pattern using drawings, or concrete materials (only 1 attribute change)
			• create and describe the rule for a repeating pattern that includes sounds or actions
	3	Extending a simple repeating pattern with 1 attribute change	• continue a repeating pattern (only 1 attribute change)
	4	Extending repeating patterns with more than 1 attribute change	• continue and describe the rule for a repeating pattern (can include more than 1 attribute change)
	5	Identifying, extending and describing repeating numeric patterns	• identify and extend through investigation, numeric repeating patterns, eg 1, 2, 1, 2, 1, 2,
			• describe numeric repeating patterns
Copying a repeating pattern	1	Translating patterns from 1 representation to another (1 attribute change)	• replicate a repeating pattern with 2 or 3 elements
Translating patterns from one to another	1	Translating patterns from 1 representation to another (1 attribute change)	• create and translate patterns, eg represent a 'red - blue - blue' pattern as 'circle - square - square'
	2	Copying repeating patterns using objects and symbols	• copy repeating patterns using objects and symbols

Learning Journey	Step	Content	Description
	3	Recognizing and describing additive and subtractive number patterns (within 5)	• recognize and describe given number patterns that increase or decrease, eg 'the numbers are going up'

4 Geometry and measurement

Direct measurement with non-standard units (non-uniform and uniform)			
Quest: Measuring with non-standard units			
Learning Journey	Steps	Content	Description
Non-uniform length	1	Exploring uniform informal units of length and distance	• identify appropriate uniform informal units to measure lengths and distances, e.g., paper clips instead of craft sticks to measure a pencil; explain the relationship between the size of a unit and the number of units needed, eg, more paper clips than craft sticks will be needed to measure the length of the desk
			• record lengths using informal units, eg, the pencil is __ units long
			• recognize the need for uniform units and the need to place the units end-to-end without gaps or overlaps
			• recognize that the length of an object remains the same even when the units are rearranged
			• recognize that the length of an object remains the same even when the orientation changes
			• investigate different informal units of length used in various cultures
	2	Comparing and ordering the lengths of shapes and objects using uniform informal units	• identify the length of an object or shape
			• compare and order 2 or more shapes or objects that cannot be moved or aligned, according to their lengths, using an appropriate uniform informal unit
			• record length comparisons informally using drawings, numerals and words, and by referring to the uniform informal unit used
	3	Measuring length using unit iteration	• measure lengths and distances with an informal unit by using the ‘make, mark and move’ strategy
			• record lengths and distances by referring to the number and type of uniform informal unit used
		Comparing lengths using an informal tape measure and the symbols >, =, <	• compare 2 lengths and record the comparison using symbols >, = , <
	4	Measuring lengths and distances with uniform informal units	• identify the length of an object or shape

Learning Journey	Step	Content	Description
			• estimate linear dimensions and curves and use uniform informal units to measure, eg handprints
			• record lengths and distances by referring to the number and type of uniform informal unit used
	5	Measuring lengths with uniform informal units (linking blocks)	• measure lengths with uniform informal units (linking blocks)
Non-uniform area/tiling	1	Comparing areas using direct comparison	• compare areas by positioning one area over another area
			• compare areas by tracing one area and placing it over the top of another area
			• describe one area as larger than, the same as (about the same as), or smaller than another area
	2	Measuring area using informal units	• compare use of non-uniform units with uniform units to measure area
			• tile units to completely cover an area
			• consider effect of gaps and overlaps when measuring area
			• recognize iteration and structure in arrangement of uniform informal units to measure the area
			• identify features that determine whether chosen units will be good units to measure area; ie, units must be the same size, units need to tile without gaps or overlaps
			• estimate areas in uniform informal units
	3	Comparing and ordering areas using uniform informal units (indirect comparison)	• compare two areas by measuring using uniform informal units
			• order three or more areas by measuring using uniform informal units
			• make statements of comparison about the relative size of three areas, eg if A is larger than B and B is larger than C, then A is larger than C
	4	Measuring and estimating areas of rectangles using a square unit	• establish usefulness of using a square unit to find an area as it allows for an array structure and does not have gaps or overlaps
			• compare the same area measured using different sized square unit

Learning Journey	Step	Content	Description
			• understand that the larger the unit square, the smaller the number of units needed and likewise the smaller the square unit, the larger the number of units needed

Comparison of 2D shapes and 3D objects			
Quest: 2D shapes			
Learning Journey	Steps	Content	Description
Naming 2D shapes	1	Identifying and naming two-dimensional shapes	• identify and name two-dimensional shapes including octagons, pentagons, circles, hexagons, triangles and quadrilaterals by their number of sides
			• select a shape from a description of its features, eg number of sides or vertices
			• measure and describe the side properties of the special quadrilaterals, including parallelograms, rectangles, rhombuses, squares, trapezoids and kites
			• identify and name shapes in pictures, designs and the environment
Sorting 2D shapes (1 attribute)	1	Sorting basic two-dimensional shapes by 1 attribute	• recognize and explain how a group of two-dimensional shapes as been sorted, e.g., size or shape
			• sort a group of two-dimensional shapes by 1 attribute, e.g., size, colour, shape
			• compare similarities and differences using informal language
	2	Sorting two-dimensional shapes	• sort regular and irregular two-dimensional shapes in various orientations including octagons, pentagons, circles, hexagons, triangles, quadrilaterals; explain the attribute used to sort, eg size
			• sort regular and irregular two-dimensional shapes in various orientations including octagons, pentagons, circles, hexagons, triangles, quadrilaterals using a given attribute, eg number of sides or vertices
Comparing 2D shapes	1	Comparing 1 shape with another: squares, rectangles, circles and triangles	• describe similarities and differences in terms of number of sides, side lengths and corners

Learning Journey	Step	Content	Description
	2	Comparing and describing two-dimensional shapes	• manipulate, compare and describe similarities and differences between two-dimensional shapes including octagons, pentagons, circles, hexagons, triangles and quadrilaterals
Quest: 3D objects			
Sorting 3D objects (1 attribute)	1	Sorting three-dimensional objects using 1 attribute	• sort basic three-dimensional objects by 1 attribute and explain the attribute used to sort, e.g., shape, colour, size, function
			• recognize and explain how a group of objects has been sorted (1 attribute only)
	2	Sorting familiar three-dimensional objects — cones, cubes, spheres, cylinders, prisms	• sort familiar three-dimensional objects using given attributes
			• sort familiar three-dimensional objects and explain the attribute(s) used
Comparing 3D objects	1	Comparing three-dimensional objects including pyramids, prisms, cones, spheres, and cylinders	• describe similarities and differences between prisms (including cubes), pyramids, cylinders, cones and spheres, e.g., surfaces, faces, edges, and vertices
			• recognize and describe the use of three-dimensional objects in a variety of contexts, e.g., buildings, packaging
			• identify and name three-dimensional objects as prisms (including cubes), pyramids, cylinders, cones and spheres
Replicating & building 3D objects	1	Building three-dimensional structures	• build three-dimensional structures using concrete materials
			• describe the two-dimensional shapes that the structure contains
Finding shapes in the environment	1	Identifying and naming shapes embedded in pictures, designs and the environment	• identify simple shapes embedded in pictures
			• use computer drawing tools to outline shapes embedded in a digital picture or design
	2	Comparing three-dimensional objects to everyday objects	• describe similarities and differences between an everyday object and a three-dimensional figure
			• identify common three-dimensional objects in everyday objects, eg, cans, balls, boxes
Quest: Position & movement			
Describing position & movement	1	Describing position and movement using everyday language	• describe the position of stationary objects/people in relation to themselves using everyday language

Learning Journey	Step	Content	Description
			• describe the position of stationary objects/people in relation to other objects/people and structures using everyday language
			• interpret the everyday language of position to move themselves
			• interpret the everyday language of position to move objects
	2	Distinguishing between left and right from own perspective	• distinguish between left and right from their own perspective
			• describe the position of an object as to the left or right of themselves
			• describe the position of an object as to the left or right of another object from their own perspective
			• move themselves to the left or right as instructed
			• move objects to the left or right as instructed

5 Data and probability

Concrete graphs, using one-to-one correspondence			
Quest: Using graphs			
Learning Journey	Steps	Content	Description
Graphs with one-to-one correspondence	1	Introducing arranged data displays	• use prepared templates to record and present category data using, eg objects, pictures, stickers
			• count and compare the objects in each category; use the language of 'more', 'less', 'same' to describe category data; is able to make statements such as 'there are 3 boys who have red lunchboxes'

Likelihood of familiar life events, using comparative language			
Quest: Language of probability			
Learning Journey	Steps	Content	Description
Using the language of probability	1	Using the basic language of probability: impossible, unlikely, less likely, more likely, certain	• identify practical activities and everyday events that involve chance, eg 'I might or might not win the game'
			• make predictions about what might happen when discussing practical activities and everyday events that involve chance
			• describe outcomes in everyday activities and events as being 'impossible', 'unlikely', 'less likely', 'more likely', 'certain'
	2	Exploring possible outcomes of familiar events and activities	• identify possible outcomes of familiar activities and events, eg the activities that might happen if the class is asked to sit on the floor in a circle
			• use everyday language to describe the possible outcomes of familiar activities and events, eg 'will happen', 'might/could happen', 'won't happen', 'probably'
			• explore the concept of chance; things we think might happen don't always happen

Financial literacy — values of coins, and monetary exchanges			
Quest: Financial literacy			
Learning Journey	Steps	Content	Description
Using money	1	Recognizing coins	• describe features of Canadian coins (color, size, shape, pictures)

Learning Journey	Step	Content	Description
			• recognize and name Canadian coins by their common names: penny, nickel, dime, quarter, half dollar, loonie, toonie
			• recognize the monetary value of Canadian coins and relate these values to their common names
			• understand that the value of coins is not related to their size
			• order Canadian coins by value
			• sort coins into groups of the same denomination
			• recognize that countries have different coins and describe similarities and differences between Canadian coins and coins from other countries
	2	Counting in multiples of the same denomination of coin up to a total of 100¢	• determine the total amount of money by counting the value of coins of the same denomination

Part II

Grade 1 – Big Ideas

6 Number

Big Idea - Number: Numbers to 20 represent quantities that can be decomposed into 10s and 1s.			
Quest: Place value of numbers to 20			
Learning Journey	Steps	Content	Description
Understanding place value of 10s and 1s to 20	1	Representing numbers on a number line with benchmarks of 0, 5, 10 and 20	• place numbers on a number line using benchmark numbers
	2	Representing numbers to 20 using partitioning models	• partition numbers to 20 using models, eg part-whole models, dominoes, beads

Big Idea - Number: Addition and subtraction with numbers to 10 can be modelled concretely, pictorially, and symbolically to develop computational fluency.			
Quest: Ways to make 10			
Learning Journey	Steps	Content	Description
Ways to make 10	1	Recognizing and recalling bonds to 10	• recognize pairs of numbers that add to 10
			• find the missing number to add to 10 given one number
			• recall and record the bonds that add to 10
	2	Recognizing and recalling bonds to 10 using a tens frame	• find the missing number to add to 10 given one number

7 Computational fluency

Big Idea - Computational Fluency			
Quest: Addition and subtraction within 10			
Learning Journey	Steps	Content	Description
Adding & subtracting within 10	1	Adding and subtracting within 10 fluently	• recall addition and subtraction facts within 10

8 Patterning

Big Idea - Patterning: Repeating elements in patterns can be identified.			
Quest: Repeating patterns			
Learning Journey	Steps	Content	Description
Identifying sorting rules	1	Grouping simple data using 1 attribute	• sort concrete objects (data) into groups according to physical attributes (max number 10); explain the groups that have been made using their own language
			• sort concrete objects into given category groups (max number 10)
			• recognize the purpose and use of sorting objects (data)
			• use sorting circles to sort
Recognizing repeating patterns	1	Recognizing repeating patterns with 1 attribute change and 2 or 3 elements	• recognize repeating patterns that repeat in their everyday world, in designs, songs and the environment
			• understand that patterns are predictable
			• identify patterns from sequences of shapes, symbols, objects that do not form patterns
	2	Recognizing repeating patterns with 1 attribute change and 3 or 4 elements	• recognize repeating patterns that repeat in their everyday world, in designs, songs and the environment
			• understand that patterns are predictable
			• identify patterns from sequences of shapes, symbols, objects that do not form patterns
	3	Recognizing repeating patterns with 1 attribute change and 4 or 5 elements	• recognize repeating patterns that repeat in their everyday world, in designs, songs and the environment
			• understand that patterns are predictable
			• identify patterns from sequences of shapes, symbols, objects that do not form patterns
	4	Identifying the structure of repeating patterns with 1 attribute change	• identify the smallest unit (the core) of a pattern
			• identify a rule for a repeating pattern, eg 'we are lining up girl, boy, girl, boy'
	5	Describing repeating patterns with 1 attribute change	• copy and describe repeating patterns (only 1 attribute change) using language such as 'goes before', 'goes after', 'repeats'

Learning Journey	Step	Content	Description
Creating repeating patterns	1	Creating repeating patterns with 1 attribute change and 2 or 3 elements	• create and describe a repeating visual pattern using drawings, or concrete materials (only 1 attribute change)
			• create and describe the rule for a repeating pattern that includes sounds or actions
	2	Creating repeating patterns with 1 attribute change and 3 or 4 elements	• create and describe a repeating visual pattern using drawings, or concrete materials (only 1 attribute change)
			• create and describe the rule for a repeating pattern that includes sounds or actions
	3	Creating repeating patterns with 1 attribute change and 4 or 5 elements	• create and describe a repeating visual pattern using drawings, or concrete materials (only 1 attribute change)
			• create and describe the rule for a repeating pattern that includes sounds or actions
Predicting a pattern	1	Continuing repeating patterns with objects and symbols	• continue repeating patterns using objects and symbols
	2	Creating repeating patterns with 1 attribute change	• create and describe a repeating visual pattern using drawings, or concrete materials (only 1 attribute change)
			• create and describe the rule for a repeating pattern that includes sounds or actions
	3	Extending a simple repeating pattern with 1 attribute change	• continue a repeating pattern (only 1 attribute change)
	4	Extending repeating patterns with more than 1 attribute change	• continue and describe the rule for a repeating pattern (can include more than 1 attribute change)
	5	Identifying, extending and describing repeating numeric patterns	• identify and extend through investigation, numeric repeating patterns, eg 1, 2, 1, 2, 1, 2,
			• describe numeric repeating patterns
Copying a repeating pattern	1	Translating patterns from 1 representation to another (1 attribute change)	• replicate a repeating pattern with 2 or 3 elements
Translating patterns from one to another	1	Translating patterns from 1 representation to another (1 attribute change)	• create and translate patterns, eg represent a ‘red - blue - blue’ pattern as ‘circle - square - square’
	2	Copying repeating patterns using objects and symbols	• copy repeating patterns using objects and symbols

Learning Journey	Step	Content	Description
	3	Recognizing and describing additive and subtractive number patterns (within 5)	• recognize and describe given number patterns that increase or decrease, eg 'the numbers are going up'

9 Geometry and measurement

Big Idea - Geo and Measurement: Objects and shapes have attributes that can be described, measured, and compared.			
Quest: Measuring with non-standard units			
Learning Journey	Steps	Content	Description
Non-uniform length	1	Exploring uniform informal units of length and distance	• identify appropriate uniform informal units to measure lengths and distances, e.g., paper clips instead of craft sticks to measure a pencil; explain the relationship between the size of a unit and the number of units needed, eg, more paper clips than craft sticks will be needed to measure the length of the desk
			• record lengths using informal units, eg, the pencil is __ units long
			• recognize the need for uniform units and the need to place the units end-to-end without gaps or overlaps
			• recognize that the length of an object remains the same even when the units are rearranged
			• recognize that the length of an object remains the same even when the orientation changes
			• investigate different informal units of length used in various cultures
	2	Comparing and ordering the lengths of shapes and objects using uniform informal units	• identify the length of an object or shape
			• compare and order 2 or more shapes or objects that cannot be moved or aligned, according to their lengths, using an appropriate uniform informal unit
			• record length comparisons informally using drawings, numerals and words, and by referring to the uniform informal unit used
	3	Measuring length using unit iteration	• measure lengths and distances with an informal unit by using the 'make, mark and move' strategy
			• record lengths and distances by referring to the number and type of uniform informal unit used
		Comparing lengths using an informal tape measure and the symbols >, =, <	• compare 2 lengths and record the comparison using symbols >, = , <
	4	Measuring lengths and distances with uniform informal units	• identify the length of an object or shape

Learning Journey	Step	Content	Description
			• estimate linear dimensions and curves and use uniform informal units to measure, eg handprints
			• record lengths and distances by referring to the number and type of uniform informal unit used
	5	Measuring lengths with uniform informal units (linking blocks)	• measure lengths with uniform informal units (linking blocks)
Non-uniform area/tiling	1	Comparing areas using direct comparison	• compare areas by positioning one area over another area
			• compare areas by tracing one area and placing it over the top of another area
			• describe one area as larger than, the same as (about the same as), or smaller than another area
	2	Measuring area using informal units	• compare use of non-uniform units with uniform units to measure area
			• tile units to completely cover an area
			• consider effect of gaps and overlaps when measuring area
			• recognize iteration and structure in arrangement of uniform informal units to measure the area
			• identify features that determine whether chosen units will be good units to measure area; ie, units must be the same size, units need to tile without gaps or overlaps
			• estimate areas in uniform informal units
	3	Comparing and ordering areas using uniform informal units (indirect comparison)	• compare two areas by measuring using uniform informal units
			• order three or more areas by measuring using uniform informal units
			• make statements of comparison about the relative size of three areas, eg if A is larger than B and B is larger than C, then A is larger than C
	4	Measuring and estimating areas of rectangles using a square unit	• establish usefulness of using a square unit to find an area as it allows for an array structure and does not have gaps or overlaps
			• compare the same area measured using different sized square unit

Learning Journey	Step	Content	Description
			• understand that the larger the unit square, the smaller the number of units needed and likewise the smaller the square unit, the larger the number of units needed
Quest: 2D shapes			
Naming 2D shapes	1	Identifying and naming two-dimensional shapes	• identify and name two-dimensional shapes including octagons, pentagons, circles, hexagons, triangles and quadrilaterals by their number of sides
			• select a shape from a description of its features, eg number of sides or vertices
			• measure and describe the side properties of the special quadrilaterals, including parallelograms, rectangles, rhombuses, squares, trapezoids and kites
			• identify and name shapes in pictures, designs and the environment
Sorting 2D shape (1 attribute)	1	Sorting basic two-dimensional shapes by 1 attribute	• recognize and explain how a group of two-dimensional shapes as been sorted, e.g., size or shape
			• sort a group of two-dimensional shapes by 1 attribute, e.g., size,colour, shape
			• compare similarities and differences using informal language
	2	Sorting two-dimensional shapes	• sort regular and irregular two-dimensional shapes in various orientations including octagons, pentagons, circles, hexagons, triangles, quadrilaterals; explain the attribute used to sort, eg size
			• sort regular and irregular two-dimensional shapes in various orientations including octagons, pentagons, circles, hexagons, triangles, quadrilaterals using a given attribute, eg number of sides or vertices
Comparing 2D shape	1	Comparing 1 shape with another: squares, rectangles, circles and triangles	• describe similarities and differences in terms of number of sides, side lengths and corners
	2	Comparing and describing two-dimensional shapes	• manipulate, compare and describe similarities and differences between two-dimensional shapes including octagons, pentagons, circles, hexagons, triangles and quadrilaterals

Learning Journey	Step	Content	Description
Quest: 3D objects			
Sorting 3D objects (1 attribute)	1	Sorting three-dimensional objects using 1 attribute	• sort basic three-dimensional objects by 1 attribute and explain the attribute used to sort, e.g., shape, colour, size, function
			• recognize and explain how a group of objects has been sorted (1 attribute only)
	2	Sorting familiar three-dimensional objects — cones, cubes, spheres, cylinders, prisms	• sort familiar three-dimensional objects using given attributes
			• sort familiar three-dimensional objects and explain the attribute(s) used
Comparing 3D objects	1	Comparing three-dimensional objects including pyramids, prisms, cones, spheres, and cylinders	• describe similarities and differences between prisms (including cubes), pyramids, cylinders, cones and spheres, e.g., surfaces, faces, edges, and vertices
			• recognize and describe the use of three-dimensional objects in a variety of contexts, e.g., buildings, packaging
			• identify and name three-dimensional objects as prisms (including cubes), pyramids, cylinders, cones and spheres
Replicating & building 3D objects	1	Building three-dimensional structures	• build three-dimensional structures using concrete materials
			• describe the two-dimensional shapes that the structure contains
Finding shape in the environment	1	Identifying and naming shapes embedded in pictures, designs and the environment	• identify simple shapes embedded in pictures
			• use computer drawing tools to outline shapes embedded in a digital picture or design
	2	Comparing three-dimensional objects to everyday objects	• describe similarities and differences between an everyday object and a three-dimensional figure
			• identify common three-dimensional objects in everyday objects, eg, cans, balls, boxes
Quest: Position & movement			
Describing position & movement	1	Describing position and movement using everyday language	• describe the position of stationary objects/people in relation to themselves using everyday language
			• describe the position of stationary objects/people in relation to other objects/people and structures using everyday language
			• interpret the everyday language of position to move themselves

Learning Journey	Step	Content	Description
			• interpret the everyday language of position to move objects
	2	Distinguishing between left and right from own perspective	• distinguish between left and right from their own perspective
			• describe the position of an object as to the left or right of themselves
			• describe the position of an object as to the left or right of another object from their own perspective
			• move themselves to the left or right as instructed
			• move objects to the left or right as instructed

10 Data and probability

Big Idea - Data: Concrete graphs help us to compare and interpret data and show one-to-one correspondence.			
Quest: Using graphs			
Learning Journey	Steps	Content	Description
Graphs with one-to-one correspondence	1	Introducing arranged data displays	• use prepared templates to record and present category data using, eg objects, pictures, stickers
			• count and compare the objects in each category; use the language of 'more', 'less', 'same' to describe category data; is able to make statements such as 'there are 3 boys who have red lunchboxes'

Part III

Grade 2

11 Number

Number concepts to 100			
Quest: Number concepts to 100			
Learning Journey	Steps	Content	Description
Skip counting by 2s to 100	1	Counting by skip counting forward by 2s from any multiple of 2 to 100	• use concrete materials, models, drawings, number lines/charts to skip count forward by 2s from any multiple of 2 up to 100
			• skip count forward by 2s from any multiple of 2 by memory and an understanding of the number sequence
			• recognize an error in the skip counting sequence
	2	Counting by skip counting backward by 2s from any multiple of 2 up to 100	• use concrete materials, models, drawings, number lines/charts to skip count backward by 2s from any multiple of 2 up to 100
			• skip count backward by 2s from any multiple of 2 by memory and an understanding of the number sequence
			• recognize an error in the skip counting sequence
	3	Counting by skip counting forward or backward by 2s from any multiple of 2 up to 100	• use concrete materials, models, drawings, number lines/charts to skip count forward or backward by 2s from any multiple of 2 up to 100
			• skip count forward or backward by 2s from any multiple of 2 by memory and an understanding of the number sequence
			• recognize an error in the skip counting sequence
	4	Counting by skip counting forward or backward in 2s from any number up to 100	• use concrete materials, models, drawings, number lines/charts to skip count forward or backward in 2s from any number up to 100
			• skip count by 2s forward and backward by memory and an understanding of the number sequence
			• recognize an error in the skip counting sequence
Skip counting by 5s to 100	1	Counting by skip counting forward by 5s from any multiple of 5 to 100	• use concrete materials, models, drawings, number lines/charts to skip count forward by 5s from any multiple of 5 up to 100

Learning Journey	Step	Content	Description
			• skip count forward by 5s from any multiple of 5 by memory and an understanding of the number sequence
			• recognize an error in the skip counting sequence
	2	Counting by skip counting backward by 5s from any multiple of 5 up to 100	• use concrete materials, models, drawings, number lines/charts to skip count backward by 5s from any multiple of 5 up to 100
			• skip count backward by 5s from any multiple of 5 by memory and an understanding of the number sequence
			• recognize an error in the skip counting sequence
	3	Counting by skip counting forward or backward by 5s from any multiple of 5 up to 100	• use concrete materials, models, drawings, number lines/charts to skip count forward or backward by 5s from any multiple of 5 up to 100
			• skip count forward or backward by 5s from any multiple of 5 by memory and an understanding of the number sequence
			• recognize an error in the skip counting sequence
Skip counting by 10s to 100	1	Counting by skip counting forward by 10s from zero up to 100	• use concrete materials, models, drawings, number lines/charts to skip count by 10s from zero
			• use rhythmic counting to count in 10s from zero
			• recognize an error in the skip counting sequence
	2	Counting by skip counting backward by 10s from up to 100	• use concrete materials, models, drawings, number lines/charts to skip count backward by 10s
			• use rhythmic counting to count in 10s from zero
			• recognize an error in the skip counting sequence
	3	Counting by skip counting forward or backward by 10s from zero up to 100	• use concrete materials, models, drawings, number lines/charts to skip count forward and backward by 10s from zero
			• use rhythmic counting to count in 10s forward and backward
			• recognize an error in the skip counting sequence
	4	Counting by skip counting forward or backward by 10s from any number up to 100	• use concrete materials, models, drawings, number lines/charts to skip count forward or backward by 10s from any number up to 100

Learning Journey	Step	Content	Description
			• skip count forward or backward by 10s from any number up to 100 using place value understanding
			• recognize an error in the skip counting sequence
Skip counting by 2s, 5s & 10s to 100	1	Counting by skip counting in 2s, 5s, 10s from zero to 100	• use concrete materials, models, drawings, number lines/charts to skip count by 2s, 5s, 10s from zero
			• use rhythmic counting to count in 2s, 5s or 10s from zero
	2	Finding 'how many' objects using skip counting by 2, 5 or 10 up to 100	• use skip counting by 2, 5 or 10 to determine 'how many' when objects are grouped or shared equally
		Skip counting forward or backward by 2s, 5s, 10s or 3s off the multiple up to 100 using a model	• count forward or backward by 2s off the multiple up to 100 using a 100 chart
			• count forward or backward by 5s off the multiple up to 100 using a 100 chart
			• count forward or backward by 10s off the multiple up to 100 using a 100 chart
			• count forward or backward by 3s off the multiple up to 100 using a 100 chart
Sequencing numbers to 100	1	Identifying numbers before and after up to 100	• identify the number that comes after a given number up to 100; describe this number as 'one more than'
			• identify the number that comes before a given number up to 100; describe this number as 'one less than'
			• identify the number that comes before or after a given number up to 100; describe this number as 'one more than' or 'one less than'
Comparing & ordering numbers to 100	1	Ordering numbers to 100	• order up to 4 consecutive numbers within 100 from smallest to largest or largest to smallest; explain the reason for the order given
			• order up to 4 non-consecutive numbers within 100 from smallest to largest or largest to smallest; explain the reason for the order given
	2	Comparing numbers to 100	• model and compare two 2-digit numbers using place value equipment
			• compare two 2-digit numbers
	3	Ordering and comparing numbers on benchmarked number lines (using benchmarks of 0, 25, 50, 100)	• order numbers on benchmarked number lines (0, 25, 50, 100)
			• compare numbers on benchmarked number lines (0, 25, 50, 100)

Learning Journey	Step	Content	Description
Counting to 100	1	Connecting number names, numbers, and collections 0 to 50 (focus on 21 to 50)	• represent numbers 0 to 50 using fingers, pictures, objects, numbers, and words
			• match the collection to the number and number word or given a number or number word, create the collection
			• represent quantities from 1 to 50 using concrete materials and visual representations
	2	Counting collections 0 to 100	• count everyday concrete materials using one-to-one correspondence
			• recognize that the last number name represents the total number in the collection when counting ; answer 'how many?' questions
Using words & numbers for 2-digit numbers	1	Reading and writing 2-digit numbers using words and numerals	• write a given 2-digit number in words, eg 67 as sixty-seven
			• write the numerals for a 2-digit number given in words
	2	Representing 2-digit numbers using words, numerals and objects	• model a given 2-digit number using concrete materials, pictures or drawings
			• write the numbers and words, eg 'fifty-three' for a 2-digit number represented using place value equipment or using pictures, drawings
Investigating even & odd numbers	1	Modelling odd and even number patterns up to 20	• model odd and even numbers using objects such as counters paired in 2 rows
			• describe the pattern created using the terms 'odd' or 'even' numbers
	2	Investigating odd and even numbers using models (up to 20)	• recognize odd or even numbers using tens frames, decide if the number shown is odd or even
			• model odd and even numbers using tens frames
	3	Investigating odd and even numbers (up to 100)	• identify odd and even numbers up to 100
			• sort numbers into odd or even sets
Quest: Place value of numbers to 100			
Using place value: 10s and 1s	1	Using place value to partition 2-digit numbers up to 50	• use place value equipment and models, eg tens frames, to partition a given 2-digit number (up to 50) into tens and ones
	2	Using place value to partition 2-digit numbers	• use place value equipment and models, eg tens frames, to partition a given 2-digit number into tens and ones
			• model and describe a 2-digit number in both words and numerals, eg 53 as '5 tens and 3 ones' or '50 and 3'

Learning Journey	Step	Content	Description
			• model a number expressed in words, eg '6 tens and 2 ones'
Non-standard place value	1	Partitioning 2-digit numbers up to 50 using non-standard partitioning	• use place value equipment and models, eg tens frames, to partition a given 2-digit number (up to 50) using non-standard partitioning, eg 35 as 2 tens and 15 ones
	2	Recognizing non-standard partitioning of 2-digit numbers using words	• recognize non-standard partitioning of 2-digit numbers using words, eg 34 is 3 tens and 4 ones or 3 tens and 14 ones
	3	Identifying the place value of digits in 2-digit numbers	• write the numeral for a 2-digit number modelled using place value equipment
			• identify the digit in the tens or ones column for a given 2-digit number
	4	Partitioning 2-digit numbers using non-standard partitioning	• use place value equipment and models, eg tens frames, to partition a given 2-digit number using non-standard partitioning, eg, 35 as 2 tens and 15 ones
			• model and identify a number from non-standard partitioning, eg, recognize 4 tens and 13 ones as 53

12 Computational fluency

Addition and subtraction facts to 20 (introduction of computational strategies)			
Quest: Addition & subtraction facts to 20			
Learning Journey	Steps	Content	Description
Using doubles & near doubles to 20	1	Adding doubles up to 20	• add doubles with and without using models (up to 20)
	2	Adding doubles or near doubles	• solve addition problems using doubles, eg 4 + 3 + 4 as 4 + 4 + 3
			• model and solve addition problems with near doubles, eg 5 + 7 as 5 + 5 + 2 = 12
	3	Subtracting using doubles	• model and solve subtraction problems using doubles, eg 14 - 7 as 7 + 7 = 14 or 15 - 8 as 7 + 7 + 1 = 15
Solving number problems using near doubles	1	Adding near doubles including where both addends change	• model and solve addition problems with near doubles, eg 5 + 7 as 5 + 5 + 2 = 12
			• model and solve addition problems using near doubles where both addends change, eg 5 + 7 as 6 + 6 = 12
Adding to 20	1	Modelling and recording combinations that add to numbers from 11 to 20	• model and recognize the relationship between numbers to 10 and numbers to 20 using models eg tens frames eg 5 + 4 = 9 and 15 + 4 = 19
			• use the additions to 10 to record the combinations of numbers that add to between 11 and 20
	2	Recalling number bonds to 20	• use known facts and number patterns to recall bonds to 20 eg 8 + 2 = 10 so 18 + 2 = 20
	3	Solving addition problems with start and change unknown (within 20)	• solve and recall addition facts within 20 with start and change unknown ; include problems where the operation is on the right side of the equation
Subtracting to 20	1	Finding the difference between 2 numbers (up to 20)	• represent two numbers using concrete materials and a number line eg place value equipment and a number line; compare the materials and count from the smaller number to find the difference
			• find the missing number in an addition problem eg 4 + ? = 9
			• solve word problems which involve finding the difference between two numbers
	2	Describing and using mental strategies for basic addition and related subtraction facts to 18	• describe and use mental strategies to solve addition and subtraction facts to 18

Learning Journey	Step	Content	Description
	3	Adding and subtracting within 20 fluently	• use known mental strategies to add and subtract fluently within 20
	4	Solving subtraction problems with start and change unknown (within 20)	• solve and recall subtraction facts within 20 with start and change unknown; include problems where the operation is on the right side of the equation
Adding & subtracting to 20	1	Finding fact families for addition and subtraction (between 10 and 20)	• model and investigate the relationship between addition and subtraction using concrete models and or a number line
			• find the other three facts given one fact, eg 12 + 5 = 17
Using the commutative property of addition	1	Using the commutative property of addition to find missing numbers (up to 20)	• develop an understanding of the commutative property of addition and complete number sentences in addition and subtraction fact families, eg 9 + 6 = 15, 6 + 9 = 15, 15 - 6 = 9, 15 - 9 = 6
			• describe how the missing number was calculated and check using the opposite operation
			• explain the purpose of the symbol used to represent the unknown number
Counting on by bridging to 10	1	Bridging to ten to add a 1-digit and 1-digit number using models and diagrams	• add to the nearest ten first then add the rest, using models for support, e.g., 8 + 7 as 8 + 2 = 10 and 10 + 5 = 15
			• recognize the best time to use this strategy is when one number is close to a ten
			• record the strategy of bridging to ten using numbers and/or models, eg, number lines
Creating word problems	1	Creating and solving simple addition and subtraction word problems in context (within 20)	• represent a word problem as an addition or subtraction number sentence
			• solve a variety of simple addition and subtraction word problems in context, eg find the difference, find the sum, change unknown, start unknown simple addition and subtraction word problems
			• explain and compare strategies used to solve addition and subtraction word problems

Addition and subtraction to 100			
Quest: Addition within 100			
Learning Journey	Steps	Content	Description
Adding 2-digit & 1-digit numbers using place value	1	Adding 2-digit and 1-digit numbers using place value partitioning with models (split strategy)	• model and solve the addition of a 2-digit and 1-digit number using place value equipment, eg use base 10 blocks to show 25 + 8 as 20 + 5 + 8 and then 20 + 13 = 33
			• record and explain the use of the strategy
	2	Adding 2-digit and 1-digit numbers using place value understanding (split strategy)	• mentally solve the addition of a 2-digit and 1-digit number using place value partitioning
			• record and explain the use of the strategy
	3	Adding 2-digit and 1-digit numbers using place value understanding and a 100 chart	• use a 100 chart to help solve 2-digit and 1-digit addition
			• use an empty number line to model and solve the addition of a 2-digit number and 10s, eg use a number line to model 32 + 30 as 32, 42, 52, [62]
			• record and explain the use of the strategy
	4	Adding with 1 digit to/from 2-digit numbers using efficient mental strategies (max sum 100)	• select, use and record an efficient strategy to solve an addition problem, eg counting on, bridging to ten, split strategy, jump strategy, place value
			• check the solution to an addition problem using a different strategy
			• recognize the most efficient strategy and explain why
Adding by bridging to 10 with 2- & 1-digit numbers	1	Bridging to ten to add a 2-digit and 1-digit number using models and diagrams	• add to the nearest ten first then add the rest, using models for support, e.g., 28 + 7 as 28 + 2 = 30 and 30 + 5 = 35
			• recognize the best time to use this strategy is when one number is close to a ten
			• record the strategy of bridging to ten using numbers and/or models, eg number lines
Adding tens to a 2-digit number using models	1	Adding tens to a 2-digit number using models and/or equipment for support	• add ten and multiples of ten to a given 2-digit number, eg 36 + 20 = 56 (max sum 100)
	2	Adding 2-digit numbers and 10s using place value understanding and a 100 chart	• use a 100 chart to help solve 2-digit and 1-digit addition

Learning Journey	Step	Content	Description
Adding two 2-digit numbers using place value	1	Adding tens and ones using place value equipment and a split strategy (no crossing tens)	• model and solve the addition of two 2-digit numbers represented horizontally using place value equipment (not crossing ten), eg use base 10 blocks to model 34 + 12 as 30 + 10 and 4 + 2 (max sum 100)
			• record and explain the use of the strategy
	2	Adding two 2-digit numbers using place value models (split strategy)	• use place value equipment to model and solve the addition of two 2-digit numbers using standard partitioning, eg 37 + 45 as 30 + 40 and 5 + 7
			• explain the use of a split strategy using informal recordings
	3	Adding two 2-digit numbers using place value understanding and a 100 chart	• use a 100 chart to help add two 2-digit numbers
Adding two 2-digit numbers using a number line	1	Introducing the addition of two 2-digit numbers using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the addition of two 2-digit numbers, eg solve 35 + 43 as 35 + 10 + 10 + 10 + 10 = 75 then 75 + 1 + 1 + 1 = 78 (max sum 100)
			• record and explain the use of the strategy
	2	Adding two 2-digit numbers using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the addition of two 2-digit numbers, eg solve 35 + 43 as 35 + 40 = 75 then 75 + 3 = 78
			• record and explain the use of the strategy
Adding by compensating	1	Adding 10 then compensating to add a single digit (7, 8 or 9) to a 1- or 2-digit number	• add 10 first then subtract to compensate using models for support, eg, 6 + 9 as 6 + 10 = 16 then 16 -1 = 15
			• record the strategy adding 10 then compensating to add a single digit (7, 8 or 9) using numbers and/or models, eg, number lines
Using number bonds to 100	1	Using number bonds to 100 (multiples of 10)	• use knowledge of number bonds to 10 to relate to number bonds to 100, eg 4 + 6 = 10 so 40 + 60 = 100
			• combine numbers that add to 100, eg 40 + 70 + 60 + 30, first combine 40 and 60, and 70 and 30
Quest: Subtraction within 100			
Subtracting by bridging to 10	1	Bridging to ten to mentally add or subtract a 1-digit and 2-digit number	• use bridging to ten to solve addition and subtraction problems with 1- and 2-digit numbers
			• use bridging to ten to solve addition and subtraction problems with 1- and 2-digit numbers where the change is unknown, eg 25 + ? = 32

Learning Journey	Step	Content	Description
Subtracting 2- & 1-digit numbers using place value	1	Bridging to ten to subtract a 1-digit number from a 2-digit number using models and diagrams	• subtract to the nearest ten first then subtract the rest, using models for support, e.g., 32 - 6 as 32 - 2 = 30 and 30 - 4 = 26
			• recognize the best time to use this strategy is when one number is close to a ten
			• record the strategy of bridging to ten using numbers and/or models eg number lines
	2	Subtracting a 1-digit from a 2-digit number using place value understanding and a 100 chart	• use a 100 chart to help solve 2-digit and 1-digit subtraction
Subtracting using mixed strategies	1	Subtracting with 1 digit to/from 2-digit numbers using efficient strategies	• select, use and record an efficient strategy to solve the subtraction of a 1-digit number from a 2-digit number, eg counting back, bridging to ten, inverse relationship with addition, jump strategy (max sum 100)
			• check the solution to a subtraction problem using a different strategy, eg, an addition strategy
			• recognize the most efficient strategy and explain why
Subtracting tens from a 2-digit number	1	Subtracting tens from a 2-digit number using models and/or equipment for support	• subtract ten and multiples of ten to a give 2-digit number, eg 36 - 20 = 16 (max sum 100)
	2	Subtracting 2-digit numbers and tens using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the subtraction of tens from 2-digit numbers
			• record and explain the use of a jump strategy
	3	Subtracting 10s from a 2-digit numbers using place value understanding and a 100 chart	• use a 100 chart to help subtract 10s from a 2-digit number
Subtracting two 2-digit numbers using place value	1	Subtracting tens and ones using place value equipment and a split strategy (no crossing tens)	• model and solve the subtraction of two 2-digit numbers represented horizontally using place value equipment (not crossing ten), eg use base 10 blocks to model 34 – 12 as 30 – 10 and 4 – 2
			• record and explain the use of the strategy
	2	Subtracting two 2-digit numbers using place value understanding and a 100 chart	• use a 100 chart to subtract two 2-digit numbers

Learning Journey	Step	Content	Description
Subtracting two 2-digit numbers on a number line	1	Introducing subtraction of two 2-digit numbers using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the subtraction of two 2-digit numbers by counting back, eg solve 52 – 23 as 52 – 10 – 10 = 32 then 32 – 1 – 1 – 1 = 29 (max sum 100)
			• record and explain the use of the strategy
	2	Subtracting two 2-digit numbers using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the subtraction of two 2-digit numbers by counting back, eg solve 52 – 23 as 52 – 20 = 32 then 32 – 3 = 29 (max sum 100)
			• record and explain the use of the strategy
Subtracting by compensating	2	Subtracting 10 then compensating to subtract a single digit (7, 8 or 9) from a 2-digit number	• subtract 10 first then add to compensate using models for support, eg, 15 - 9 as 15 - 10 = 5 then 5 + 1 = 6
			• record the strategy subtracting 10 then compensating to subtract a single digit (7, 8 or 9) using numbers and/or models, eg, number lines
Quest: Addition & subtraction within 100			
Adding up to find the difference	1	Subtracting two 2-digit numbers using addition	• recognize and model the inverse relationship between addition and subtraction
			• rearrange a subtraction problem into an addition problem with change unknown and then use an effective addition strategy to solve, eg using a jump strategy to solve 54 – 38 as 38 + ? = 54 on a number line
	2	Introducing the mental addition and subtraction of two 2-digit numbers using place value understanding (jump strategy)	• mentally solve the addition or subtraction of two 2-digit numbers using place value partitioning (max sum 100)
Solving add/sub problems with place value	1	Applying place value and patterns to solve addition and subtraction problems within 100	• apply place value and patterns to solve addition and subtraction problems within 100, eg 3 + 5 = 8, so 13 + 5 = 18 and 23 + 5 = 28
Adding/subtracting using mixed strategies	1	Adding and subtracting 1 digit to/from 2-digit numbers using efficient strategies (max sum 100)	• select, use and record an efficient strategy to solve an addition or subtraction problem (max sum 100)
			• check the solution to an addition or subtraction problem using a different strategy
			• recognize the most efficient strategy and explain why

Learning Journey	Step	Content	Description
Add/subtract two 2-digit numbers using place value	1	Adding and subtracting two 2-digit numbers mentally using place value understanding	• mentally solve the addition or subtraction of two 2-digit numbers using a jump strategy, eg solve 35 + 43 as 35 + 40 = 75 then 75 + 3 = 78 (max sum 100)
			• check calculations by doing the inverse operation
Using the relationship of addition & subtraction	1	Adding and subtracting tens and ones mentally using place value understanding (no crossing tens)	• solve the addition or subtraction of two 2-digit numbers represented horizontally (no crossing ten)
			• check calculations by doing the inverse operation
Solving addition & subtraction word problems	1	Solving addition and subtraction word problems where either the start or the change is unknown (1-digit and 2-digit numbers)	• solve word problems where the start is unknown, eg 'Anna had some plums. Sam gave her 5 more. Now she has 13 plums. How many did she have to start with?'
			• solve word problems where the change is unknown, eg 'Anna has 5 plums. How many more does she need to have 13?' or 'Anna had 13 plums. She gave some to Sam. Now she has 7 plums. How many plums did she give to Sam?'
			• solve word problems involving comparisons, eg Anna has 13 plums. Sam has 7 plums. How many more plums does Anna have? or Anna has 7 more plums than Sam. Sam has 5 plums. How many plums does Anna have?
	2	Creating and solving one step addition and subtraction word problems (within 99 with no regrouping)	• represent a word problem as an addition or subtraction number sentence
			• solve simple addition and subtraction word problems in context including find the difference, find the sum, change unknown, start unknown; no regrouping needed
			• explain and compare strategies used to solve addition and subtraction word problems
Writing number sentences to solve word problems	1	Writing number sentences to solve word problems (1-digit and 2-digit addition and subtraction)	• represent a word problem as an addition or subtraction number sentence
			• solve and check the appropriateness of the answer against the word problem
			• pose an addition or subtraction word problem using a given number sentence

Learning Journey	Step	Content	Description
Estimating sums & differences	1	Estimating addition and subtraction of two 2-digit numbers in a problem solving context	• round numbers to the nearest 10 to estimate addition in a problem solving context, eg 46 + 38 as 50 + 40 in a problem solving context
			• round numbers to the nearest 10 to estimate subtraction in a problem solving context eg 86 – 38 as 90 – 40 in a problem solving context

Change in quantity, using pictorial and symbolic representation			
Quest: Explore change in quantity			
Learning Journey	Steps	Content	Description
Exploring change in quantity	1	Exploring equality and inequality (up to 20)	• create a set in which the number of objects is greater than, less than or equal to the number of objects in a given set
			• demonstrate examples of equality and inequality through investigation, using a balance model; describe equality as balance and inequality as imbalance, concretely and pictorially
			• determine through investigation using a balance model and whole numbers to 20 the number of identical objects that must be added or subtracted to establish equality
			• determine if 2 given concrete sets are equal or unequal and explain the process used
	2	Exploring change in quantity using models (up to 100)	• explore change in quantity using models (up to 100)

Symbolic representation of equality and inequality			
Quest: Equality & inequality			
Learning Journey	Steps	Content	Description
Equality in number sentences to 20 using models	1	Recognizing the concept of equality in numbers up to 18	• partition whole numbers to 18 in a variety of ways using concrete materials
			• recognize equality, eg starting with 9 tiles and adding 6 more gives the same result as starting with 10 tiles and adding 5 more
			• represent with concrete materials and pictures, 2 number sentences that are equal, using the equal sign
Recognizing equality in number sentences to 20	1	Recognizing equality in addition and subtraction number sentences using objects and models for support	• understand the meaning of the equal sign

Learning Journey	Step	Content	Description
			• determine if equations involving addition or subtraction are true or false, eg 6 = 6, 7 = 8 - 1, 5 + 2 = 2
Recognizing equality in number sentences to 50	1	Recognizing the concept of equality in numbers up to 50	• partition whole numbers to 50 in a variety of ways using concrete materials
			• recognize equality, eg starting with 12 tiles and adding 20 more yields the same result as starting with 30 tiles and adding 2 more
			• find the missing number to make an addition or subtraction number sentence true (up to 50)
Using the inequality symbol	1	Representing equality and inequality of number and objects using = and ≠ within 100	• represent equality and inequality of number and objects using = and ≠ eg 9 objects = 9 object but 8 objects ≠ 9 objects
			• record equations symbolically using = and ≠ to make the number sentence true
Equality & inequality in number sentences to 100	1	Representing equality and inequality in addition and/or subtraction using models (0 to 100)	• represent equality in addition and/or subtraction using models, eg 3+4 = 9-2 where students must balance the pan balance
			• represent inequality in addition and/or subtraction using models, eg 3+4 ≠ 9-2 where students must balance the pan balance
Writing equivalent number sentences	1	Recognizing and recording equivalent addition and subtraction number sentences (1-digit and 2-digit addition and subtraction)	• determine, through investigation using models and objects for support, whether the 2 sides of a given addition or subtraction number sentence are equal or not equal using symbols; justify the answer
			• model equal number sentences using a variety of concrete and/or pictorial representations and record the equalities symbolically
			• justify solutions when completing number sentences

13 Patterning

Repeating and increasing patterns			
Quest: Repeating patterns			
Learning Journey	Steps	Content	Description
Identifying repeating patterns	1	Exploring simple patterns with transformations	• identify a pattern involving simple transformations
			• copy and continue patterns involving transformations
			• create simple patterns involving transformations and demonstrate an understanding that a pattern can result from repeating transformations
Extending repeating patterns	1	Continuing repeating patterns with objects and symbols	• continue repeating patterns using objects and symbols
	2	Creating, extending and describing repeating patterns	• extend and describe repeating patterns involving more than 1 attribute change, eg transformation and size
			• create repeating patterns involving more than 1 attribute change, eg transformation and size
			• predict the next element in a repeating pattern; justify
Creating repeating patterns	1	Copying repeating patterns using objects and symbols	• copy repeating patterns using objects and symbols
	2	Creating repeating patterns using a given criteria, eg using 3 colours and 2 shapes	• create repeating patterns using a given criteria, eg using 3 colours and 2 shapes
			• predict the next element in a repeating element; justify
Identifying errors in repeating patterns	1	Manipulating repeating patterns with 1 attribute change and 2 or 3 elements	• identify errors in simple patterns with 1 attribute change
			• identify the missing element in a simple pattern
			• identify the element required to complete a simple given pattern
	2	Manipulating repeating patterns with 1 attribute change and 3 or 4 elements	• identify errors in simple patterns with 1 attribute change
			• identify the missing element in a simple pattern
			• identify the element required to complete a simple given pattern
Quest: Repeating number patterns			
Repeating numerical patterns	1	Identifying, extending and describing repeating numeric patterns	• identify and extend through investigation, numeric repeating patterns, eg 1, 2, 1, 2, 1, 2,
			• describe numeric repeating patterns

Learning Journey	Step	Content	Description
	2	Representing and describing number patterns (2s, 5s or 10s)	• represent number patterns (skip counting in multiples of 1s, 2s, 5s or 10s from any number) on a number line or number chart
			• describe the number pattern represented, eg 'this number pattern goes up in 5s'
Identifying & describing number patterns to 100	1	Identifying and describing number patterns (1s, 2s, 5s, 10s, 25s) up to 100	• identify and describe growing and shrinking patterns generated by the repeated addition or subtraction of 1s, 2s, 5s, 10s or 25s on a number line or number chart
	2	Extending additive and subtractive number patterns (within 5)	• continue given number patterns that increase or decrease, eg 1, 2, 3, 4, ... 20, 18, 16, 14, ...
	3	Extending, completing and describing simple additive or subtractive number patterns with 1 operation (within 10) up to 100	• determine a missing number in a number pattern, eg 3, 7, 11, _, 19
			• explain how a solution was determined and check solutions by repeating the pattern
			• describe a number pattern in words, eg 'It goes up by 3s'
			• continue a number pattern, eg '3, 7, 11,__,__'
Relating repeating patterns to number patterns	1	Relating patterns with objects and symbols to number patterns	• describe and relate a pattern to the corresponding number pattern, eg circle, square, circle, square ... is a 'two pattern'
			• skip count to count the total objects in a pattern, eg count the total number of objects in a 'two pattern' by skip counting the groups of objects in 2s
Quest: Repeating and increasing patterns			
Increasing & growing patterns	1	Exploring growing number patterns up to 100	• identify and describe growing number patterns involving addition
			• create growing patterns and demonstrate an understanding that a pattern results from repeating an operation (addition)
	2	Exploring and representing growing visual patterns using addition	• identify growing patterns found in visual patterns including real-life contexts (eg wallpaper pattern, music) and create the next step in the sequence
	3	Exploring and representing growing patterns	• represent a given growing pattern in a variety of ways, eg represent a letter pattern A, AA, AAA, AAAA using shapes

14 Geometry and measurement

Direct linear measurement, introducing standard metric units			
Quest: Measure length			
Learning Journey	Steps	Content	Description
Measuring in centimetres	1	Introducing formal units for length: centimetres	• recognize the need for a formal unit smaller than the metre
			• develop a personal reference for the approximate length of 1 cm
			• recognize and model that there are 100 cm in 1 m ie 100 cm = 1 m
			• estimate and use the centimetre as a unit to measure lengths, to the nearest centimetre, using a device with 1 cm markings, eg use a paper strip of length 10 cm
			• record lengths and distances using the abbreviation for centimetres (cm)
			• compare lengths with the same standard unit
	2	Measuring in centimetres	• measure lengths using a centimetre ruler
Estimating length	1	Estimating and measuring to the nearest centimetre	• estimate lengths and check by measuring; explain strategies used to estimate lengths and distances, such as by referring to a known length, eg 'My handspan is 10 cm and my desk is 8 handspans long, so my desk is about 80 cm long'
			• measure lengths and distances to the nearest centimetre using a centimetre ruler
			• record lengths and distances using the abbreviation for centimetres (cm)
Selecting appropriate units of measure (m & cm)	1	Selecting appropriate units of measurement: cm and m	• select and justify the most appropriate metric unit to measure given mass (centimetres and metres)
	2	Selecting appropriate units of measurement: metres, centimetres	• select and justify the most appropriate metric unit to measure given lengths and distances (metres and centimetres)

Multiple attributes of 2D shapes and 3D objects			
Quest: 2D shapes			
Learning Journey	Steps	Content	Description
Sorting 2D shapes	1	Sorting basic two-dimensional shapes by more than 1 attribute	• recognize and explain how a group of two-dimensional shapes as been sorted, e.g., size or shape

Learning Journey	Step	Content	Description
			• sort a group of two-dimensional shapes by attributes such as size,colour, shape
			• compare similarities and differences using informal language
Comparing 2D shape	1	Comparing and describing two-dimensional shapes	• manipulate, compare and describe similarities and differences between two-dimensional shapes including octagons, pentagons, circles, hexagons, triangles and quadrilaterals
			• identify and describe the number of sides
Quest: 3D objects			
Sorting 3D objects	1	Sorting three-dimensional objects using more than 1 basic attributes	• sort three-dimensional objects and explain the attribute used to sort, eg shape, colour, size, function
			• recognize and explain how a group of objects has been sorted
	2	Sorting familiar three-dimensional objects — cones, cubes, spheres, cylinders, prisms	• sort familiar three-dimensional objects using given attributes
			• sort familiar three-dimensional objects and explain the attribute(s) used
	3	Sorting three-dimensional objects (cubes, prisms, spheres, cylinders)	• sort three-dimensional objects according to particular attributes, eg the shape of the surfaces or number of edges
			• explain the attribute or multiple attributes used
			• distinguish between the attributes of objects that are geometric properties and the attributes that are not, eg colour, size, texture
2D shapes as part of 3D objects	1	Recognizing and naming three-dimensional objects	• recognise common three-dimensional objects in the environment and drawings, including different orientations
			• name common three-dimensional objects
	2	Building three-dimensional structures	• build three-dimensional structures using concrete materials
			• describe the two-dimensional shapes that the structure contains

15 Data and probability

Pictorial representation of concrete graphs, using one-to-one correspondence			
Quest: Explore graphs			
Learning Journey	Steps	Content	Description
Pictographs	1	Representing and reading category data in a pictograph	• represent category data in a pictograph using a baseline, equal spacing, same-sized symbols and a key indicating one-to-one correspondence
			• read and interpret data represented in a pictograph; pose and answer simple summative and comparative questions, eg 'Which is the least favourite season?'
	2	Introducing and reading pictographs with one-to-one correspondence	• become familiar with the structure and layout of a basic pictograph including title, labels on each axis, equal spacing
			• read and interpret pictographs; answer one-step questions, eg, 'How many more students like reading than art?'; identify basic similarities and differences between categories in pictographs; make simple conclusions
Tally charts	1	Introducing and completing tally tables	• collect and sort data using a simple given tally table
			• answer yes, no or quantity questions; agree or disagree with statements made by others; make basic statements regarding the number of items in a data category, eg '3 more children prefer the colour red to the colour blue'
	2	Introducing and reading data in basic tables	• read data in tables; become familiar with the structure of tables
			• compare category data in a tally chart and use the language of 'more', 'most', 'fewer', 'least'; identify basic similarities and differences between categories
Interpreting & creating basic data displays	1	Ordering category data from greatest to least frequency for various data sets	• order category data from greatest to least frequency for various data sets displayed in tally tables, concrete graphs and pictographs
	2	Conducting a well-supported and basic statistical investigation using category data	• ask a simple question to gather category or discrete data, eg 'How many letters are in our names?'
			• collect and record data using concrete objects, pictures or symbols

Learning Journey	Step	Content	Description
			• display data in simple displays or using graphic organizers, eg tables, lists, using concrete objects, simple block diagrams, pictographs
			• answer questions and make simple statements related to the data gathered
	3	Representing category or discrete data using simple displays	• use concrete materials or pictures of objects as symbols to create data displays where 1 object or picture represents 1 data value (one-to-one correspondence), e.g., use different-coloured blocks to represent different-coloured cars
			• record data in prepared graphic organizers such as simple bar graphs, pictographs or other diagrams
	4	Introducing the statistical investigation process (tables, lists, pictographs or bar graphs)	• determine what data to gather in order to investigate a question of interest, eg colour, mode of transport, gender, type of animal, sport
			• collect data through questioning and record the data using tally marks
			• identify categories of data and use them to sort data, eg sort data collected on attendance by day of the week and into boys and girls present
			• represent category data in a table, list, bar graph or pictograph (one-to-one correspondence)
			• record observations and answer simple summary questions based on data collected and displayed in a list, table, pictograph, or simple bar graph

Likelihood of familiar life events, using comparative language			
Quest: Comparative language			
Learning Journey	Steps	Content	Description
Using possible & impossible	1	Using the language of probability: possible and impossible	• identify and distinguish between 'possible' and 'impossible' events
			• describe familiar events as being 'possible' or 'impossible', eg 'It is possible that it will rain today', 'It is impossible to roll a standard six-sided dice and get a 7'
Using likely & unlikely	1	Using the language of probability: likely and unlikely	• describe possible outcomes in everyday activities and events as being 'likely' or 'unlikely' to happen
			• compare familiar activities and events and describe them as being 'likely' or 'unlikely' to happen

Learning Journey	Step	Content	Description
Using certain & uncertain	1	Using the language of probability: certain and uncertain	• identify and distinguish between 'certain' and 'uncertain' events
			• describe familiar situations as being certain or uncertain, eg 'It is uncertain what the weather will be like tomorrow', 'It is certain that tomorrow is Saturday'
Using comparative language	1	Using the basic language of probability: impossible, possible, likely, unlikely	• identify practical activities and everyday events that involve chance, eg 'I might play with my friend after school'
			• make predictions about what might happen when discussing practical activities and everyday events that involve chance
			• describe outcomes in everyday activities and events as being 'possible', 'impossible', 'likely' or 'unlikely' to happen
	2	Using the language of probability, including the terms "impossible", "possible", and "certain", to describe the likelihood of complementary events happening	• use the language of probability, including the terms "impossible", "possible", and "certain", to describe the likelihood of complementary events happening
	3	Using the language of probability: equally likely, less likely and more likely	• identify and distinguish between 'equally likely', 'less likely' and 'more likely' events
			• compare familiar activities and events and describe them as being 'equally likely', 'more likely' or 'less likely' to happen
	4	Using the basic language of probability: impossible, unlikely, less likely, equally likely, more likely, certain	• Identify practical activities and everyday events that involve chance, eg 'I might or might not win the game'
			• make predictions about what might happen when discussing practical activities and everyday events that involve chance
			• describe outcomes in everyday activities and events as being 'impossible', 'unlikely', 'less likely', 'equally likely', 'more likely', 'certain'

Financial literacy – coin combinations to 100 cents, and spending and saving			
Quest: Financial literacy			
Learning Journey	Steps	Content	Description
Using coin combinations to 100¢	1	Using coins to make amounts (up to 100¢)	• combine amounts of coins to make a given amount of money shown in cents (no decimals)
			• calculate the total value of a group of coins and record this value in cents
			• generate and recognize different combinations of coins that have the same value
	2	Calculating change within 100¢	• calculate the change when using coins within 100¢

Part IV

Grade 2 – Big Ideas

16 Number

Big Idea - Number: Numbers to 100 represent quantities that can be decomposed into 10s and 1s.			
Quest: Place value of numbers to 100			
Learning Journey	Steps	Content	Description
Place value - 10s & 1s	1	Using place value to partition 2-digit numbers up to 50	• use place value equipment and models, eg tens frames, to partition a given 2-digit number (up to 50) into tens and ones
	2	Using place value to partition 2-digit numbers	• use place value equipment and models, eg tens frames, to partition a given 2-digit number into tens and ones
			• model and describe a 2-digit number in both words and numerals, eg 53 as '5 tens and 3 ones' or '50 and 3'
			• model a number expressed in words, eg '6 tens and 2 ones'
Non-standard place value	1	Partitioning 2-digit numbers up to 50 using non-standard partitioning	• use place value equipment and models, eg tens frames, to partition a given 2-digit number (up to 50) using non-standard partitioning, eg 35 as 2 tens and 15 ones
	2	Recognizing non-standard partitioning of 2-digit numbers using words	• recognize non-standard partitioning of 2-digit numbers using words, eg 34 is 3 tens and 4 ones or 3 tens and 14 ones
	3	Identifying the place value of digits in 2-digit numbers	• write the numeral for a 2-digit number modelled using place value equipment
			• identify the digit in the tens or ones column for a given 2-digit number
	4	Partitioning 2-digit numbers using non-standard partitioning	• use place value equipment and models, eg tens frames, to partition a given 2-digit number using non-standard partitioning, eg, 35 as 2 tens and 15 ones
			• model and identify a number from non-standard partitioning, eg, recognize 4 tens and 13 ones as 53

17 Computational fluency

Big Idea - Comp fluency: Development of computational fluency in addition and subtraction with numbers to 100 requires an understanding of place value.			
Quest: Addition within 100			
Learning Journey	Steps	Content	Description
Adding 2-digit & 1-digit numbers using place value	1	Adding 2-digit and 1-digit numbers using place value partitioning with models (split strategy)	• model and solve the addition of a 2-digit and 1-digit number using place value equipment, eg use base 10 blocks to show 25 + 8 as 20 + 5 + 8 and then 20 + 13 = 33
			• record and explain the use of the strategy
	2	Adding 2-digit and 1-digit numbers using place value understanding (split strategy)	• mentally solve the addition of a 2-digit and 1-digit number using place value partitioning
			• record and explain the use of the strategy
	3	Adding 2-digit and 1-digit numbers using place value understanding and a 100 chart	• use a 100 chart to help solve 2-digit and 1-digit addition
			• use an empty number line to model and solve the addition of a 2-digit number and 10s, eg use a number line to model 32 + 30 as 32, 42, 52, [62]
			• record and explain the use of the strategy
	4	Adding with 1 digit to/from 2-digit numbers using efficient mental strategies (max sum 100)	• select, use and record an efficient strategy to solve an addition problem, eg counting on, bridging to ten, split strategy, jump strategy, place value
			• check the solution to an addition problem using a different strategy
			• recognize the most efficient strategy and explain why
Adding by bridging to 10 with 2- & 1-digit numbers	1	Bridging to ten to add a 2-digit and 1-digit number using models and diagrams	• add to the nearest ten first then add the rest, using models for support, e.g., 28 + 7 as 28 + 2 = 30 and 30 + 5 = 35
			• recognize the best time to use this strategy is when one number is close to a ten
			• record the strategy of bridging to ten using numbers and/or models, eg number lines
Adding tens to a 2-digit number using models	1	Adding tens to a 2-digit number using models and/or equipment for support	• add ten and multiples of ten to a give 2-digit number, eg 36 + 20 = 56 (max sum 100)
	2	Adding 2-digit numbers and 10s using place value understanding and a 100 chart	• use a 100 chart to help solve 2-digit and 1-digit addition

Learning Journey	Step	Content	Description
Adding two 2-digit numbers using place value	1	Adding tens and ones using place value equipment and a split strategy (no crossing tens)	• model and solve the addition of two 2-digit numbers represented horizontally using place value equipment (not crossing ten), eg use base 10 blocks to model 34 + 12 as 30 + 10 and 4 + 2 (max sum 100)
			• record and explain the use of the strategy
	2	Adding two 2-digit numbers using place value models (split strategy)	• use place value equipment to model and solve the addition of two 2-digit numbers using standard partitioning, eg 37 + 45 as 30 + 40 and 5 + 7
			• explain the use of a split strategy using informal recordings
	3	Adding two 2-digit numbers using place value understanding and a 100 chart	• use a 100 chart to help add two 2-digit numbers
Adding two 2-digit numbers using a number line	1	Introducing the addition of two 2-digit numbers using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the addition of two 2-digit numbers, eg solve 35 + 43 as 35 + 10 + 10 + 10 + 10 = 75 then 75 + 1 + 1 + 1 = 78 (max sum 100)
			• record and explain the use of the strategy
	2	Adding two 2-digit numbers using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the addition of two 2-digit numbers, eg solve 35 + 43 as 35 + 40 = 75 then 75 + 3 = 78
			• record and explain the use of the strategy
Adding by compensating	1	Adding 10 then compensating to add a single digit (7, 8 or 9) to a 1- or 2-digit number	• add 10 first then subtract to compensate using models for support, eg, 6 + 9 as 6 + 10 = 16 then 16 -1 = 15
			• record the strategy adding 10 then compensating to add a single digit (7, 8 or 9) using numbers and/or models, eg, number lines
Using number bonds to 100	1	Using number bonds to 100 (multiples of 10)	• use knowledge of number bonds to 10 to relate to number bonds to 100, eg 4 + 6 = 10 so 40 + 60 = 100
			• combine numbers that add to 100, eg 40 + 70 + 60 + 30, first combine 40 and 60, and 70 and 30
Quest: Subtraction within 100			
Subtracting by bridging to 10	1	Bridging to ten to mentally add or subtract a 1-digit and 2-digit number	• use bridging to ten to solve addition and subtraction problems with 1- and 2-digit numbers
			• use bridging to ten to solve addition and subtraction problems with 1- and 2-digit numbers where the change is unknown, eg 25 + ? = 32

Learning Journey	Step	Content	Description
Subtracting 2- & 1-digit numbers using place value	1	Bridging to ten to subtract a 1-digit number from a 2-digit number using models and diagrams	• subtract to the nearest ten first then subtract the rest, using models for support, e.g., 32 - 6 as 32 - 2 = 30 and 30 - 4 = 26 • recognize the best time to use this strategy is when one number is close to a ten • record the strategy of bridging to ten using numbers and/or models eg number lines
	2	Subtracting a 1-digit from a 2-digit number using place value understanding and a 100 chart	• use a 100 chart to help solve 2-digit and 1-digit subtraction
Subtracting using mixed strategies	1	Subtracting with 1 digit to/from 2-digit numbers using efficient strategies	• select, use and record an efficient strategy to solve the subtraction of a 1-digit number from a 2-digit number, eg counting back, bridging to ten, inverse relationship with addition, jump strategy (max sum 100) • check the solution to a subtraction problem using a different strategy, eg, an addition strategy • recognize the most efficient strategy and explain why
Subtracting tens from a 2-digit number	1	Subtracting tens from a 2-digit number using models and/or equipment for support	• subtract ten and multiples of ten to a give 2-digit number, eg 36 - 20 = 16 (max sum 100)
	2	Subtracting 2-digit numbers and tens using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the subtraction of tens from 2-digit numbers • record and explain the use of a jump strategy
	3	Subtracting 10s from a 2-digit numbers using place value understanding and a 100 square	• use a 100 square to help subtract 10s from a 2-digit number
Subtracting two 2-digit numbers using place value	1	Subtracting tens and ones using place value equipment and a split strategy (no crossing tens)	• model and solve the subtraction of two 2-digit numbers represented horizontally using place value equipment (not crossing ten), eg use base 10 blocks to model 34 – 12 as 30 – 10 and 4 – 2 • record and explain the use of the strategy
	2	Subtracting two 2-digit numbers using place value understanding and a 100 chart	• use a 100 chart to subtract two 2-digit numbers

Learning Journey	Step	Content	Description
Subtracting two 2-digit numbers, number line	1	Introducing subtraction of two 2-digit numbers using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the subtraction of two 2-digit numbers by counting back, eg solve 52 – 23 as 52 – 10 – 10 = 32 then 32 – 1 – 1 – 1 = 29 (max sum 100)
			• record and explain the use of the strategy
	2	Subtracting two 2-digit numbers using place value partitioning on a number line (jump strategy)	• use an empty number line to model and solve the subtraction of two 2-digit numbers by counting back, eg solve 52 – 23 as 52 – 20 = 32 then 32 – 3 = 29 (max sum 100)
			• record and explain the use of the strategy
Subtracting by compensating	2	Subtracting 10 then compensating to subtract a single digit (7, 8 or 9) from a 2-digit number	• subtract 10 first then add to compensate using models for support, eg, 15 - 9 as 15 - 10 = 5 then 5 + 1 = 6
			• record the strategy subtracting 10 then compensating to subtract a single digit (7, 8 or 9) using numbers and/or models, eg, number lines
Quest: Addition & subtraction within 100			
Adding up to find the difference	1	Subtracting two 2-digit numbers using addition	• recognize and model the inverse relationship between addition and subtraction
			• rearrange a subtraction problem into an addition problem with change unknown and then use an effective addition strategy to solve, eg using a jump strategy to solve 54 – 38 as 38 + ? = 54 on a number line
	2	Introducing the mental addition and subtraction of two 2-digit numbers using place value understanding (jump strategy)	• mentally solve the addition or subtraction of two 2-digit numbers using place value partitioning (max sum 100)
Solving add/sub problems with place value	1	Applying place value and patterns to solve addition and subtraction problems within 100	• apply place value and patterns to solve addition and subtraction problems within 100, eg 3 + 5 = 8, so 13 + 5 = 18 and 23 + 5 = 28
Adding/subtracting using mixed strategies	1	Adding and subtracting 1 digit to/from 2-digit numbers using efficient strategies (max sum 100)	• select, use and record an efficient strategy to solve an addition or subtraction problem (max sum 100)
			• check the solution to an addition or subtraction problem using a different strategy
			• recognize the most efficient strategy and explain why

Learning Journey	Step	Content	Description
Add/subtract two 2-digit numbers using place value	1	Adding and subtracting two 2-digit numbers mentally using place value understanding	• mentally solve the addition or subtraction of two 2-digit numbers using a jump strategy, eg solve 35 + 43 as 35 + 40 = 75 then 75 + 3 = 78 (max sum 100)
			• check calculations by doing the inverse operation
Using the relationship of addition & subtraction	1	Adding and subtracting tens and ones mentally using place value understanding (no crossing tens)	• solve the addition or subtraction of two 2-digit numbers represented horizontally (no crossing ten)
			• check calculations by doing the inverse operation
Solving addition & subtraction word problems	1	Solving addition and subtraction word problems where either the start or the change is unknown (1-digit and 2-digit numbers)	• solve word problems where the start is unknown, eg 'Anna had some plums. Sam gave her 5 more. Now she has 13 plums. How many did she have to start with?'
			• solve word problems where the change is unknown, eg 'Anna has 5 plums. How many more does she need to have 13?' or 'Anna had 13 plums. She gave some to Sam. Now she has 7 plums. How many plums did she give to Sam?'
			• solve word problems involving comparisons, eg Anna has 13 plums. Sam has 7 plums. How many more plums does Anna have? or Anna has 7 more plums than Sam. Sam has 5 plums. How many plums does Anna have?
	2	Creating and solving one step addition and subtraction word problems (within 99 with no regrouping)	• represent a word problem as an addition or subtraction number sentence
			• solve simple addition and subtraction word problems in context including find the difference, find the sum, change unknown, start unknown; no regrouping needed
			• explain and compare strategies used to solve addition and subtraction word problems
Writing number sentences to solve word problems	1	Writing number sentences to solve word problems (1-digit and 2-digit addition and subtraction)	• represent a word problem as an addition or subtraction number sentence
			• solve and check the appropriateness of the answer against the word problem
			• pose an addition or subtraction word problem using a given number sentence

Learning Journey	Step	Content	Description
Estimating sums & differences	1	Estimating addition and subtraction of two 2-digit numbers in a problem solving context	• round numbers to the nearest 10 to estimate addition in a problem solving context, eg 46 + 38 as 50 + 40 in a problem solving context
			• round numbers to the nearest 10 to estimate subtraction in a problem solving context eg 86 – 38 as 90 – 40 in a problem solving context

18 Patterning

Big Idea - Patterning: The regular change in increasing patterns can be identified and used to make generalizations.			
Quest: Repeating patterns			
Learning Journey	Steps	Content	Description
Identifying repeating patterns	1	Exploring simple patterns with transformations	• identify a pattern involving simple transformations
			• copy and continue patterns involving transformations
			• create simple patterns involving transformations and demonstrate an understanding that a pattern can result from repeating transformations
Extending repeating patterns	1	Continuing repeating patterns with objects and symbols	• continue repeating patterns using objects and symbols
	2	Creating, extending and describing repeating patterns	• extend and describe repeating patterns involving more than 1 attribute change, eg transformation and size
			• create repeating patterns involving more than 1 attribute change, eg transformation and size
			• predict the next element in a repeating pattern; justify
Creating repeating patterns	1	Copying repeating patterns using objects and symbols	• copy repeating patterns using objects and symbols
	2	Creating repeating patterns using a given criteria, eg using 3 colours and 2 shapes	• create repeating patterns using a given criteria, eg using 3 colours and 2 shapes
			• predict the next element in a repeating element; justify
Identifying errors in repeating patterns	1	Manipulating repeating patterns with 1 attribute change and 2 or 3 elements	• identify errors in simple patterns with 1 attribute change
			• identify the missing element in a simple pattern
			• identify the element required to complete a simple given pattern
	2	Manipulating repeating patterns with 1 attribute change and 3 or 4 elements	• identify errors in simple patterns with 1 attribute change
			• identify the missing element in a simple pattern
			• identify the element required to complete a simple given pattern
Quest: Repeating number patterns			
Repeating numerical patterns	1	Identifying, extending and describing repeating numeric patterns	• identify and extend through investigation, numeric repeating patterns, eg 1, 2, 1, 2, 1, 2,
			• describe numeric repeating patterns

Learning Journey	Step	Content	Description
	2	Representing and describing number patterns (2s, 5s or 10s)	• represent number patterns (skip counting in multiples of 1s, 2s, 5s or 10s from any number) on a number line or number chart
			• describe the number pattern represented, eg 'this number pattern goes up in 5s'
Identifying & describing number patterns to 100	1	Identifying and describing number patterns (1s, 2s, 5s, 10s, 25s) up to 100	• identify and describe growing and shrinking patterns generated by the repeated addition or subtraction of 1s, 2s, 5s, 10s or 25s on a number line or number chart
	2	Extending additive and subtractive number patterns (within 5)	• continue given number patterns that increase or decrease, eg 1, 2, 3, 4, ... 20, 18, 16, 14, ...
	3	Extending, completing and describing simple additive or subtractive number patterns with 1 operation (within 10) up to 100	• determine a missing number in a number pattern, eg 3, 7, 11, _, 19
			• explain how a solution was determined and check solutions by repeating the pattern
			• describe a number pattern in words, eg 'It goes up by 3s'
			• continue a number pattern, eg '3, 7, 11,__,__'
Relating repeating patterns to number patterns	1	Relating patterns with objects and symbols to number patterns	• describe and relate a pattern to the corresponding number pattern, eg circle, square, circle, square ... is a 'two pattern'
			• skip count to count the total objects in a pattern, eg count the total number of objects in a 'two pattern' by skip counting the groups of objects in 2s
Quest: Repeating and increasing patterns			
Increasing & growing patterns	1	Exploring growing number patterns up to 100	• identify and describe growing number patterns involving addition
			• create growing patterns and demonstrate an understanding that a pattern results from repeating an operation (addition)
	2	Exploring and representing growing visual patterns using addition	• identify growing patterns found in visual patterns including real-life contexts (eg wallpaper pattern, music) and create the next step in the sequence
	3	Exploring and representing growing patterns	• represent a given growing pattern in a variety of ways, eg represent a letter pattern A, AA, AAA, AAAA using shapes

19 Geometry and measurement

<table>
<tr><th colspan="4">Big Idea - Geo and measurement: Objects and shapes have attributes that can be described, measured, and compared.</th></tr>
<tr><th colspan="4">Quest: Measure length</th></tr>
<tr><th>Learning Journey</th><th>Steps</th><th>Content</th><th>Description</th></tr>
<tr><td rowspan="7">Measuring in centimetres</td><td rowspan="6">1</td><td rowspan="6">Introducing formal units for length: centimetres</td><td>• recognize the need for a formal unit smaller than the metre</td></tr>
<tr><td>• develop a personal reference for the approximate length of 1 cm</td></tr>
<tr><td>• recognize and model that there are 100 cm in 1 m ie 100 cm = 1 m</td></tr>
<tr><td>• estimate and use the centimetre as a unit to measure lengths, to the nearest centimetre, using a device with 1 cm markings, eg use a paper strip of length 10 cm</td></tr>
<tr><td>• record lengths and distances using the abbreviation for centimetres (cm)</td></tr>
<tr><td>• compare lengths with the same standard unit</td></tr>
<tr><td>2</td><td>Measuring in centimetres</td><td>• measure lengths using a centimetre ruler</td></tr>
<tr><td rowspan="3">Estimating length</td><td rowspan="3">1</td><td rowspan="3">Estimating and measuring to the nearest centimetre</td><td>• estimate lengths and check by measuring; explain strategies used to estimate lengths and distances, such as by referring to a known length, eg 'My handspan is 10 cm and my desk is 8 handspans long, so my desk is about 80 cm long'</td></tr>
<tr><td>• measure lengths and distances to the nearest centimetre using a centimetre ruler</td></tr>
<tr><td>• record lengths and distances using the abbreviation for centimetres (cm)</td></tr>
<tr><td rowspan="2">Selecting appropriate units of measure (m & cm)</td><td>1</td><td>Selecting appropriate units of measurement: cm and m</td><td>• select and justify the most appropriate metric unit to measure given mass (centimetres and metres)</td></tr>
<tr><td>2</td><td>Selecting appropriate units of measurement: metres, centimetres</td><td>• select and justify the most appropriate metric unit to measure given lengths and distances (metres and centimetres)</td></tr>
<tr><th colspan="4">Quest: 2D shapes</th></tr>
<tr><td rowspan="3">Sorting 2D shapes</td><td rowspan="3">1</td><td rowspan="3">Sorting basic two-dimensional shapes by more than 1 attribute</td><td>• recognize and explain how a group of two-dimensional shapes as been sorted, e.g., size or shape</td></tr>
<tr><td>• sort a group of two-dimensional shapes by attributes such as size,colour, shape</td></tr>
<tr><td>• compare similarities and differences using informal language</td></tr>
</table>

Learning Journey	Step	Content	Description
Comparing 2D shape	1	Comparing and describing two-dimensional shapes	• manipulate, compare and describe similarities and differences between two-dimensional shapes including octagons, pentagons, circles, hexagons, triangles and quadrilaterals
			• identify and describe the number of sides
Quest: 3D objects			
Sorting 3D objects	1	Sorting three-dimensional objects using more than 1 basic attributes	• sort three-dimensional objects and explain the attribute used to sort, eg shape, colour, size, function
			• recognize and explain how a group of objects has been sorted
	2	Sorting familiar three-dimensional objects — cones, cubes, spheres, cylinders, prisms	• sort familiar three-dimensional objects using given attributes
			• sort familiar three-dimensional objects and explain the attribute(s) used
	3	Sorting three-dimensional objects (cubes, prisms, spheres, cylinders)	• sort three-dimensional objects according to particular attributes, eg the shape of the surfaces or number of edges
			• explain the attribute or multiple attributes used
			• distinguish between the attributes of objects that are geometric properties and the attributes that are not, eg colour, size, texture
2D shapes as part of 3D objects	1	Recognizing and naming three-dimensional objects	• recognise common three-dimensional objects in the environment and drawings, including different orientations
			• name common three-dimensional objects
	2	Building three-dimensional structures	• build three-dimensional structures using concrete materials
			• describe the two-dimensional shapes that the structure contains

20 Data and probability

Big Idea - Data & probability: Concrete items can be represented, compared, and interpreted pictorially in graphs.			
Quest: Exploring graphs			
Learning Journey	Steps	Content	Description
Pictographs	1	Representing and reading category data in a pictograph	• represent category data in a pictograph using a baseline, equal spacing, same-sized symbols and a key indicating one-to-one correspondence
			• read and interpret data represented in a pictograph; pose and answer simple summative and comparative questions, eg 'Which is the least favourite season?'
	2	Introducing and reading pictographs with one-to-one correspondence	• become familiar with the structure and layout of a basic pictograph including title, labels on each axis, equal spacing
			• read and interpret pictographs; answer one-step questions, eg, 'How many more students like reading than art?'; identify basic similarities and differences between categories in pictographs; make simple conclusions
Tally charts	1	Introducing and completing tally tables	• collect and sort data using a simple given tally table
			• answer yes, no or quantity questions; agree or disagree with statements made by others; make basic statements regarding the number of items in a data category, eg '3 more children prefer the colour red to the colour blue'
	2	Introducing and reading data in basic tables	• read data in tables; become familiar with the structure of tables
			• compare category data in a tally chart and use the language of 'more', 'most', 'fewer', 'least'; identify basic similarities and differences between categories
Interpreting & creating basic data displays	1	Ordering category data from greatest to least frequency for various data sets	• order category data from greatest to least frequency for various data sets displayed in tally tables, concrete graphs and pictographs
	2	Conducting a well-supported and basic statistical investigation using category data	• ask a simple question to gather category or discrete data, eg 'How many letters are in our names?'
			• collect and record data using concrete objects, pictures or symbols

Learning Journey	Step	Content	Description
			• display data in simple displays or using graphic organizers, eg tables, lists, using concrete objects, simple block diagrams, pictographs
			• answer questions and make simple statements related to the data gathered
	3	Representing category or discrete data using simple displays	• use concrete materials or pictures of objects as symbols to create data displays where 1 object or picture represents 1 data value (one-to-one correspondence), e.g., use different-coloured blocks to represent different-coloured cars
			• record data in prepared graphic organizers such as simple bar graphs, pictographs or other diagrams
	4	Introducing the statistical investigation process (tables, lists, pictographs or bar graphs)	• determine what data to gather in order to investigate a question of interest, eg colour, mode of transport, gender, type of animal, sport
			• collect data through questioning and record the data using tally marks
			• identify categories of data and use them to sort data, eg sort data collected on attendance by day of the week and into boys and girls present
			• represent category data in a table, list, bar graph or pictograph (one-to-one correspondence)
			• record observations and answer simple summary questions based on data collected and displayed in a list, table, pictograph, or simple bar graph

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