Falls Road Independent Public School
Mathematics Scope and Sequence Documentation

Purposes and Relevance

Our whole school maths scope and sequence document was developed in order to align our school with current department strategic directions: *Provide every student with a pathway to a successful future,* Focus 2023. By developing a shared understanding of curriculum, we are establishing one continuous learning journey for our students from K-6 and embedding whole school approaches to professional collaboration. Through reflective practise we will strengthen the teaching and learning of mathematics within our school community.

Through explicitly teaching mathematics skills and processes our students will:

- Develop competence, enjoyment and appreciation of mathematics.
- Acquire mathematical skills and knowledge which can be confidently applied in everyday life.
- Understand the dynamic role of mathematics in social and technological change.
- Use technology appropriately and effectively to support the learning of mathematics.

Formative Assessment

Students should be able to correctly use mathematical understanding in context and not just during the maths lesson.
Formative assessment may take place within a variety of contexts. A concept or skill may require reteaching if:

- the concept has been recently taught or revised.
- the mistake is one the students should know by their year level (age).
- the same mistake has been repeated.

Summative Assessment

Summative assessment is collected, tracked and analysed to better understand our students needs and to monitor the overall progress of our school community.

Kindy		
NUMBER AND ALGEBRA **Exploring and Developing Curiosity and Knowledge**	**MEASUREMENT AND GEOMETRY** **Exploring and developing curiosity and knowledge**	**STATISTICS AND PROBABILITY** **Exploring and developing curiosity and knowledge**
- Engaging in and extending numeracy in personally and culturally meaningful ways -Reciting number names in order, initially to 5, then to 10 consistently -Aware that numbers always happen in a conventional order (stable order) -Counting objects by using one to one correspondence (to ten) -Comparing collections of objects and describing whether there is more, less, the same or not the same -Subitising small quantities of objects or standard patterns on a die -Recognising numerals initially to 5 and then to 10 and begin to order them -Naming the last number in the count that represents how many in the set -Identifying and naming the numeral that matches a given collection – initially to five and then up to ten -Beginning to understand that the starting point and order in which you count them does not affect how many (order irrelevance) -Beginning to understand that the arrangement, size or differences of the objects doesn't affect how many (abstraction) -Identifying what number is missing in a number line 1 to 10 -Partitioning small numbers (part, part, whole), e.g. four counters can be split into two and two counters -Recognising, copying and creating simple repeating patterns - Engaging with culturally relevant objects and materials to develop curiosity for number and algebra -Exploring the use of simple representation to organise, record and communicate mathematical and scientific ideas and concepts	-Exploring the use of simple representation to organise, record and communicate mathematical and scientific ideas and concepts -Using the appropriate language of measurement to describe, compare and order: length, size, height (big/small, tall/short) -Describing the sequence of familiar events and routines, e.g. hand washing before morning tea at Kindergarten - Using the everyday language of time such as morning, afternoon, daytime -Naming, sorting, classifying and matching objects, e.g. colour, size and shape, and two-dimensional shapes such as square, rectangle, triangle and circle -Using positional and movement language, such as on, under, behind, between -Describing duration and relative duration, such as quick, slow, fast, it takes a long time -Using simple arbitrary measuring tools, e.g. one block to measure the length of the mat -Using properties of shape to make things balance, fit, transform, e.g. jigsaw puzzles -Observing and talking about observing people, places and things from different spatial viewpoints, e.g. close and far away -Using sequencing vocabulary, e.g. first, then, after, next, finally i	-Answering questions to collect information, such as using yes/no and group items in response to meaningful questions, e.g. class favourite pets -Using everyday language to state opinions on the possibility of an event or outcome happening, e.g. might happen, won't happen, will happen or could happen -Engaging with culturally relevant objects and materials to develop curiosity for statistics and probability.
Tricky words: Same, not the same	Tricky words: tall, short	

PrePrimary			
NUMBER/ ALGEBRA	MEASUREMENT	GEOMETRY	STATISTICS/PROBABILITY
<u>Number and Place Value</u> -Count forwards initially to 20 then beyond -Count backwards from 20 initially and then beyond -Numbers Before & After -Rainbow facts of 10 -Identify odd/even numbers -Match number names, numerals and quantities including zero to 20 -Skip count by 2s, 5s, 10s, to 100 starting at any point -Specifically identify 10s & 20s numbers e.g.14,15,23,29 then 30s to 100 -Ordinal Numbers – 1st, 2nd up to 10th -Subitising to 6 – regular/irregular -Subtraction of small numbers up to 10 -Demonstrate addition and sharing in practical situations -Compare, order and make correspondence between collections to 20. Explain reasoning <u>Patterns and Algebra</u> -Sort and classify objects. Explain reasoning -Copy, continue and create patterns using objects and drawings -Describe patterns as an AB or ABC pattern <u>Fractions</u> -Fractions : identify halves	<u>Using Units of Measurement</u> -Identify days of the week, months of the year, seasonal months -Explain the order and duration of events using everyday language of time. -Link events to days of the week -Connect days of the week to familiar events and actions -Time: o'clock & half past (digital & analogue) -Make comparisons between objects to decide which is longer, heavier, lighter, holds more (volume/ capacity). Explain reasoning.	<u>Shape</u> -Group objects based on common characteristics -Sort, describe and name familiar 2D shapes and 3D objects in the environment -Identify 2D shapes: Square – 4 sided- all even Triangles – 3 sides -can be uneven Circle – Perfect round shape Rectangle – 4 sides -2 even Hexagon Octagon Pentagon/Septagon -Identify 3D shapes: Cube Rectangular prism Triangular pyramid Triangular prism Cone Cylinder -Line Symmetry: split shape exactly in half <u>Location and Transformation</u> -Use appropriate language to describe location (positional and movement) left, right, above, below, next to	<u>Data Representation and Interpretation</u> -Collect information by reading graphs (bar graph, pictograph) -Make simple inferences by answering yes/no to questions using language of probability (will happen, might happen, may happen, making inferences). Explaining reasoning.
Tricky words: more than, less than, bigger, smaller, addition, subtraction, groups	**Tricky words:** more, less, bigger, smaller, smallest, smallest to biggest, same size, area, weight, length, height		**Tricky words:** likely/ unlikely

Year 1			
NUMBER/ALGEBRA	MEASUREMENT	GEOMETRY	STATISTICS/PROBABILITY
<u>Number and Place Value</u> -Read write and say numbers to 100 and beyond -Identify and locate numbers to 100 and beyond -Count collections to 100 by partitioning numbers using place value -Skip count by 2s (up to 100), 5s (up to 100), 10s (up to 100) starting from zero -Skip count backwards by10s from 100 -Specifically identify numbers to 100 -Commutative property to 10 (4+6 =10 and 6+4=10) -Addition of double numbers to a value of 10 (5+5, 4+4, 3+3, 2+2, 1+1 only) -Count in ordinal number to 12th -Use counting on as an addition strategy for small numbers (20's 18+3) -Turn around facts, friends of 10 <u>Money and Financial Matters</u> -Recognise and describe Australian coins 5c,10c,20c,50c and order them according to their value <u>Fractions and Decimals</u> -Identify ½ as a fraction in context – it is two equal parts of a whole, it is a group of objects equally divided into 2 parts. <u>Patterns and Algebra</u> -Investigate and describe number patterns formed by skip-counting and patterns with objects -Continue patterns using objects or numbers -Find the missing number in a number sentence <u>Addition and Subtraction Strategies</u> -Represent and solve simple addition and subtraction problems using a range of strategies including counting on/counting back, partitioning and rearranging parts -Doubles, near doubles, bridging to 10	<u>Using Units of Measurement</u> -Selecting the most appropriate uniform informal unit to order objects in their length or capacity. Students to be able to explain their decision. -Vocabulary for opposites: sunset/sunrise, midday/midnight -Identify days per month, months per year, seasons -Describe duration using months, weeks, days, hours -Reading/ demonstrating effective use of the calendar <u>Time</u> -Understand and apply am/pm and 60mins = 1 hour -Identify the hour and tell the time to half past the hour -Digital time as per analogue to the hour and to the half hour	<u>Shape</u> -Identify familiar 2D shapes and 3D objects -Identify the number of sides and corners for 2D and 3D shapes -Introduce non-standard shapes (polygons) <u>Location and Transformation</u> -Give and follow direction to familiar locations -Language of direction: inside, under, in front of, outside, above, behind, left, right, above, below, next to :	<u>Chance</u> -Identify outcomes of familiar events involving chance and describe them using everyday language such as *will happen, won't happen, might happen* <u>Data Representation and Interpretation</u> -Choose simple questions to gather responses and make inferences -Display data using objects and drawings. -Make inferences based on the data using everyday language such as *will happen, won't happen or might happen*
Tricky words: difference between, digit, groups of, numeral, sum	**Tricky words:** measuring unit		**Tricky words:** I will, I won't, unlikely, likely, possible, impossible

Year Two Tricky words: identify, sequence, create			
NUMBER/ ALGEBRA	MEASUREMENT	GEOMETRY	STATISTICS/PROBABILITY
<u>Number and Place Value</u> -Read, write and order numbers to at least 1000 -Represent numbers to 1000s using manipulatives -Use a variety of written and mental addition and subtraction strategies -Explore the connection between +/- -Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting -Initially recognise and represent increasing and decreasing number sequences of 2s, 5s and 10s from any starting point then move on to others -Skip count by 2s,5s and 10s -Identify tens, ones and hundreds in 3-digit numbers -Rounding 2- and 3-digit numbers -Represent multiplication as repeated addition (including grouping into equal sized groups/ sets) -Recognise and represent division as grouping into equal sets and solve simple problems -Solve simple + and – equations using a bank of strategies (friends of 10, line, vertical, no regrouping, fact families) -Consolidate terminology of 4 operations (sum, total, add, plus, subtract, minus, takeaway, product, altogether) <u>Money and Financial Maths</u> -Count and order small collections of coins and notes -Represent equivalent amounts of a collection of coins/notes <u>Fractions and Decimals</u> -Divide collections and shapes into halves, quarters and eighths -Expose to numerator, denominator <u>Patterns and Algebra</u> -Describe patterns with numbers -Identify the missing element within a pattern -Solve problems by using number sentences for addition and subtraction <u>Addition and Subtraction Strategies</u> -Maintain; doubles, near doubles, friends of 10 -Explicitly Teach; counting on/back/up, bridging to the nearest 10, fact families, number bonds, number lines, vertical addition and subtraction without regrouping and subtract to the nearest 10 <u>Multiplication and Division Strategies</u> -Explicitly Teach; repeated addition, groups of, arrays <u>Times Tables</u> - Expose to 2x, 3x, 5x and 10x tables	<u>Using Units of Measurement</u> -Use informal units to compare and order a range of shapes and containers based on their volume, capacity, length and area -Compare masses of objects using balance scales -Tell the time to quarter hour intervals using the terminology quarter to/ quarter past -Digital time; adding time (10.20am + 20mins) -Name and order months and seasons -Identify days per month, months per year -Use a calendar to identify a date -Locate information on a calendar	<u>Shape</u> -Describe the features of 3D objects (faces, corners, edges) -Describe and draw 2D shapes with and without digital technologies <u>Location and Transformation</u> -Give directions from one location to another -Interpret simple maps of familiar locations -Identify the relative positions of key features on a simple map explain using directional language - Identify and describe half and quarter turns; transformation of 2D shapes (one step flip, slide, turn) with and without digital technologies	<u>Chance</u> -Identify practical activities and everyday events that involve chance - Describe and classify probability of everyday events as likely, unlikely, certain, impossible <u>Data and Interpretation</u> -Choose a question of interest based on one categorical variable -Gather data relevant to question and represent in an appropriate way -Check and classify data collected -Make simple inferences based on information on a graph -Construct a graph accurately using tally marks, lists, tables, picture graphs, column graphs -Answers questions about collected data
Tricky words: group in, near, nearer, nearest, numbers to…, once/twice, represents, score, sequence, sets of/equal sets, standard partition, strategy, jotting, removed, solve, eighths, currency, save, spend	**Tricky words:** further, furthest, litre, measuring scale, millilitre, tape measure	**Tricky words:** apex, circular, polygon/_gon, quadrilateral, surface, key, key features, pathway, right angle, route	**Tricky words:** likely/ unlikely, interpret, key, least common, most common, represent

Year Three			
NUMBER/ ALGEBRA	MEASUREMENT	GEOMETRY	STATISTICS/ PROBABILITY
<u>Number and Place Value</u> -Identify odd and even numbers and investigate the conditions required for a number to be odd or even -Count backwards and forwards to 10 000 from any starting point -Skip count in odd numbers starting at any point -Skip count backwards by 5s,10s from 10 000 -Identify place value (to tens of thousands) -Apply place value to partition, rearrange and regroup numbers to assist with calculations and solve problems -Whole number addition two digit + single digit 77+8 -Whole number subtraction two digit – single digit 77-8 -Recognise and explain the connection between addition and subtraction -Expose to multiplying 10's numbers (40x5=200) -Introduce communicative properties to 20 (addition/ subtraction 3+2=2+3 and division/ multiplication 4x5=5x4=20/4=5) -Consolidate and use terminology for all 4 operations (Sum of, product, add, share) -Facts about 10 (6+4, 5+5) -Expose to Roman Numerals to C=100 <u>Money and Financial Mathematics</u> -Recognise all Australian notes and coins -Represent an amount in multiple ways -Count change to the nearest 5c <u>Fractions and Decimals</u> -Identify fractions (1/2,1/4, 1/3, 1/5) and their multiples to complete a whole -Introduce simple percentages (5/10 = 50%) -Explicitly teach numerator, denominator -Count in fractions on a number line -Identify equivalence visually (matching up shaded pictures 1/2 = 2/4, number line comparisons) <u>Patterns and Algebra</u> -Describe, continue and create number patterns and identify the missing element as a result of performing addition and subtraction -Find the missing number in a number sequence <u>Addition and Subtraction Strategies</u> -Explicitly Teach: doubles and near doubles, split, vertical, friends to 20, fact families, regrouping, bridge to 10, jump strategies <u>Multiplication and Division Strategies</u> -Explicitly Teach: Arrays, groups of, repeated addition <u>Times Tables</u> -Explicitly teach 2x, 3x, 4x, 5x, 10x and related division facts	<u>Using Units of Measurement</u> -Tell the time to 1/4 hour and explain that 1/4 hour =15mins -Maintain calendars -Recall the months in order- and the number of days in every month -Measure, order and compare objects using familiar metric units of length, mass and capacity -Expose to Conversions (m-km, ml-L, g-kg) -Identify rows and columns on a map/graph -Identify grid coordinates on a simple map -Create and interpret simple grid maps to show position and pathways	<u>Shape</u> -Maintain 2D shapes from year 2 -Make models of 3D shapes and describe key features -Name nets of 3D shapes -Identify key aspects of prisms and pyramids (faces, vertices, base) <u>Location and Transformation</u> -Rotate a shape clockwise and anticlockwise -Symmetrical shapes/letters numbers in the environment -Expose to translation, refection and rotation -Identifying movement of a shape (flip, slide, turn) -Identify line of symmetry in a shape -Rotate a shape 90˚ (quarter of a turn) and 180 ˚ (half a turn) <u>Geometric Reasoning</u> -Identify characteristics of angles (point of comparison is a right angle- is this angle bigger or smaller than a right angle, find angles in the picture that are smaller/bigger than a right angle, no degrees are used) -Positional vocabulary: top, bottom, middle, left, right, below, above, front, back, behind, next to, first, second, third, North, South, East, West etc	<u>Chance</u> -Conduct chance experiments, identify and describe possible outcomes and recognise variation in results. -Use probability vocabulary including certain, likely, unlikely, impossible, possible <u>Data Representation and Interpretation</u> -Identify questions/issues for categorical variables -Identify data sources and plan methods of collecting and recording data -Collect data, organise into categories and create displays using lists, tables, picture graphs, simple column graphs both with and without digital technologies. -Reading and adding tally marks -Read graphs using simple keys and legends -Identify rows and columns in a graph -Identify graphs (bar, picture) -Interpret and compare data displays
Tricky words: adjust and compensate, non-standard partition, calculations, relationship, jump strategy (names of strategies), Patterns (method, sign), unit fractions, quarters (alternative to fourths), Money (debit card, Goods and Services Tax, worth)	**Tricky words:** century, decade, cylindrical, hexagonal, pentagonal, octagonal, polyhedron, polygon, tangram, approximately	**Tricky words:** ascend/descend, horizontal/vertical, column/row	**Tricky words:** axis/axes, Carroll Diagram, frequency, certain, impossible, probable, least and most, unlikely/likely

Year Four			
NUMBER/ ALGEBRA	MEASUREMENT	GEOMETRY	STATISTICS/PROBABILITY
<u>Number and Place Value</u> -Investigate and use the properties of odd and even numbers -Recognise, represent and order whole numbers (ten thousands) and decimals (hundredths) -Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems -Identify number sequences involving multiples of 3,4,6,7,8,9 -Whole number addition two digit + single digit 77+8 -Whole number subtraction two digit – single digit 77-8 - Multiply 10's numbers (40x50=2000) -Communicative properties addition and subtraction 3+2=2+3 -Communicative properties of division and multiplication 4x5=5x4=20/4=5 -Identify symbols: not equal to, equal to, greater than, lea than -Facts about 10 (6+4, 5+5), 20 (16+4=20), 100 (80+20=100) -Expose Roman Numerals to D <u>Money and Financial Maths</u> -Calculate change to nearest 5c with and without digital technologies -Solve purchasing problems <u>Fractions and Decimals</u> -Create number lines using decimals -Locate fractions (1/4, 1/3, 1/2) on a number line -Investigate equivalent fractions used in context e.g. 1/6 + 2/3 = ?/6 -Count by 1/4, 1/3, 1/2 and mixed numerals and improper fractions -Understand relationship between simple and decimal fractions eg 3/10 = 0.3 -Recognise that the place value system can be extended to tenths and hundredths <u>Patterns and Algebra</u> -Explore and describe number patterns resulting from multiplication -Describe a pattern and identify the missing element -Find the missing number in a number sentence -Make each side of an equation equal involving + and – -Solve word problems involving x and ÷ (with no remainders) -Find unknown quantities in number sentences involving addition and subtraction and identify equivalent number sentences involving addition and subtraction <u>Addition and Subtraction Strategies</u> -Maintain: compensation, regrouping, terminology; sum of, add -Explicitly Teach: compensation strategy, vertical strategy including regrouping <u>Multiplication and Division Strategies</u> -Vertical strategy (including regrouping), division with no remainder <u>Times Tables</u> -Maintain times tables 2x, 3x, 4x 5x, 10x and related division facts -Learn times tables 6x, 7x, 8x, 9x and related division facts	<u>Using Units of Measurement</u> -Measurement of time ¼ hour=15min, 60 mins in an hour -Conversions of time e.g. 5h = ? mins -Use am/pm notation to solve simple time problems -Maintain the months in order- number of days in every month -Calculate perimeter -Calculate Area -Calculate Volume -Conversions/ abbreviations: m-km, ml-l, kg-t -Use scaled instruments to measure and compare mass, length, capacity, temperature -Compare objects using familiar metric units of area and volume -Measurement vocabulary: decade, century	<u>Shape</u> -Identify 2D shapes -Draw 3D shapes -Symmetrical shapes/letters numbers - Identify movement of a shape: translations, rotations and reflections of shapes/objects -Compare areas of regular and irregular shapes by informal means -Compare and describe 2D shapes that result from combining and splitting common shapes, with and without the use of digital technologies <u>Location and Transformation</u> -Directions: NW,SW -Identify coordinates on a map -Identify rows and columns -Interpret scale on graphs -Read graphs using keys and legends -Use simple directions to interpret information in basic maps -Create symmetrical patterns, pictures and shapes with and without digital technologies <u>Geometric Reasoning</u> -Identify and name angles -Compare angles as being equal to, less than or greater than a right angle.	<u>Chance</u> -Describe possible everyday events and order their chances of occurring -Identify everyday events where one cannot happen if the other happens -Identify events where the chance of one will not be affected by the occurrence of the other -Utilise vocabulary such as most likely, likely, very likely, equally likely, unlikely, certain, possible, impossible, certain <u>Data Representation and Interpretation</u> -Select and trial methods for data collection including survey questions and recording sheets -Identify and construct suitable displays with and without digital technologies from given or collected data including tables, bar graphs, column graphs, picture graphs where one picture can represent many data values -Evaluate effectiveness of data displays in illustrating data collected
Tricky words: property, operation, multiples, inverse, integer, consecutive, classify, ascending, descending, product, operation, divisible/divisibility, Patterns (equivalent), hundredths, proportion, tenths, equivalent fractions, Money (deposit, purchase, withdraw)	**Tricky words:** attributes, volume, annual, breadth, width, depth	**Tricky words:** radius, oblong, decagon, heptagon, vertex, vertices, oblong, transformation, translation, translate, acute, obtuse, right angle, degrees	**Tricky words:** survey, least likely, most likely, related/unrelated, events, occurring, summarise, questionnaire

Year Five

NUMBER/ ALGEBRA

Number and Place Value
-Identify factors up to 100 (2,4,5,20,25) and multiples of whole numbers to solve problems
-Rounding to 100 thousands - Decimals to 100ths
-Use estimation and rounding to check the reasonableness of answers to calculations
-Solve problems including multiplication of large numbers by one or two digits
-Apply mental and written strategies and appropriate digital technologies to efficiently solve problems
-Solve single digit division problems with remainders
-Identify place value in whole numbers (billions) and decimals (thousandths)
-Multiply 100's numbers (400x50=20000)
-Consolidate communicative properties addition and subtraction 3+2=2+3
-Investigate inverse relationships multiplication/division, addition/subtraction
-Consolidate terminology for all 4 operations (sum of, product, add, share)
-Identify symbols: not equal to, equal to, greater than, less than
-Facts about 10, 100 (6+4, 5+5/ 60+40)
-Indices of numbers (squared and cubed numbers)
-Roman Numerals to M

Money and Financial Maths
-Create simple financial plans

Fractions and Decimals
-Position of numerator and denominator
-Compare, order, locate and represent fractions on number lines
-Investigate strategies to solve problems using addition/subtraction of fractions with the same denominator (1/6 + 4/6 =5/6)
-Equivalent fractions, establish same denominator (1/6 + 2/3 = ?/6)
-Calculating mixed numeral fractions (3 1/2 = ?/2)
-Add and subtract whole numbers and decimals (7.1-0.2)
-Recognise place value beyond 100ths
-Compare, order and represent decimals
-Convert fractions/decimals/percentages (1/3=0.33=33%)

Patterns and Algebra
-Describe, create and continue patterns with fractions, decimals and whole numbers resulting from addition/subtraction
-Identify the missing number in a number sentence (+ - x ÷)
-Make each side of an equation equal (6x4 = 20+4)

Addition and Subtraction Strategies
-Maintain: compensation, regrouping, jump, split, vertical algorithm, terminology for all four operations (sum, product of, add, share)
-Explicitly Teach: selecting and applying efficient mental and written strategies (incl digital tech) to solve problems involving addition/ subtraction of whole numbers and decimals.

Multiplication and Division Strategies
- Split multiplication, multiplying by 10 and contracted multiplication strategies, identify factors up to 100 (2,4,5,20,25) and multiples of whole numbers to solve problems, solve problems including multiplication of large numbers by one or two digits, select and apply efficient mental and written strategies (incl digital technologies) to solve problems involving multiplication and division of whole numbers, decimals and fractions, multiply and divide decimals by powers of 10, single digit division problems with remainders, terminology for all 4 operations: sum of, product, add, share

Times Tables
Teach & Maintain ALL TABLES

Tricky words: simplify, expense, expenditure, income, transaction, numeral, factors and multiples, rule, let 'm' represent, expression, ratio, deposits, equivalent, prime, power, operation, difference

MEASUREMENT

Using Units of Measurement
-Choose appropriate units of measurement for length, area, volume, capacity and mass
-Calculate perimeter *(L+W)x2* and area *LxW* of rectangles

-Compare 12hour and 24hour time
-Time: 1/4 hour=15min
-Conversions of time (5h = ?mins)
-Automatically know the months in order- days in every months
-Define a decade, a century

-Volume *LxWxH*
-Conversions/abbreviations (*m-km, ml-l, kg-t*)
-Identify rows and columns

Tricky words: square/cubic metre, square measure, surface area, congruent, quadrant, diameter, perpendicular

GEOMETRY

Shape
-Identify 2D shapes
-Identify 3D shapes
-Identify key aspects of prisms and pyramids (faces, vertices, base)
-Identify cross sections of 3D shapes
-Connect 3D objects and shapes with their nets
-Connect 2D representations with objects

Location and Transformation
-Use a grid reference system to describe locations.
-Describe routes using landmarks and directional language
-Use directional language (NNW, WSW) including degrees
-Identify line and rotational symmetries
-Identify symmetrical shapes/letters numbers and reflections of shapes/objects
-Lines: horizontal, oblique, vertical, perpendicular, parallel
-Describe translations, reflections, and rotations of 2D shapes
-Apply the enlargement transformation to familiar 2D shapes and explore the properties of the resulting image compared with the original

Geometric Reasoning
-Identify types & characteristics of triangles
-Identify key characteristics of angles
-Estimate, measure, compare angles using degrees
-Construct angles using a protractor
-Parts of circles: diameter, radius, circumference

Tricky words: concave/convex, dilation/enlarge/enlargement, reduction, radius, revolution, scale drawing

STATISTICS/PROBABILITY

Chance
-Conduct chance experiments with equally likely outcomes and record the outcomes
-Represent the probability of outcomes using fractions. Also, express fractions as percentages and decimals
-Understand that probabilities range from 0-1
-Discuss the likelihood of an event using language of probability; most likely, less chance, no chance, most likely, unlikely, certain

Data Representation and Interpretation
-Pose questions and collect categorical or numerical data by observation or survey
-Explore categorical vs numerical data in observation surveys
-Identify graphs as bar, line, scatter, picture
-Interpret scale on graphs
- Construct displays including column graphs, dot plots and tables appropriate to the data type collected with and without the use of digital technologies
-Read and interpret data in graphs using keys and legends in context

Tricky words: certain, probability range 0-1, categorical/numerical data, cell

Year Six

NUMBER/ ALGEBRA

Number and Place Value
-Identify and describe properties of prime, composite, square and triangular numbers
-Select and apply efficient mental and written strategies as well as digital technologies to solve problems involving all four operations with whole numbers
-Identify place value in whole numbers (billions) and decimals (tens of thousandths)
-Whole number addition two/three digit + two digit 77+14, 564+22
-Whole number subtraction two/three digit –two digit 77-18
-Multiply 100's numbers eg:400 x 500=200000
-Consolidate communicative properties addition/subtraction and division/multiplication
-Consolidate terminology for all 4 operations: sum of, product, add, share
-Identify Symbols: not equal to, about equal to
-Identify factors up to 100 (for example, 2,4,5,10,20,25 and multiples)
-Square root of numbers
-Ratio
-Roman Numerals to M
-Investigate everyday situations that use integers. Locate and represent these on a number line

Money and Financial Maths
-Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items with and without digital technologies

Fractions and Decimals
-Compare fractions with related denominators
-Equivalent fractions (1/6 + 2/3 = ?/6)
-Calculating mixed numeral fractions 3 ½ = ?/2
-Addition/subtraction of equivalent fractions with different/same denominators to solve problems (1/6 + 4/12 – 2/12 = 4/12 =1/3)
-Find a simple fraction of a quantity where the result is a whole number with or without digital technologies
-Add and subtract whole numbers and decimals with or without digital technologies (7.1-0.2)
-Estimation- rounding to millions- decimals to tens of thousandths to check the reasonableness of answers
-Multiply decimals by whole numbers and perform divisions by non-zero whole numbers where the results are terminating decimals, with and without digital technologies
-Multiply and divide decimals by powers of 10
-Connect equivalent fractions, decimals and percentages
-Convert fractions/decimals/percentages (3/4=.75=75%)
-Locate and represent fractions and decimals on a number line

Patterns and Algebra
-Describe a pattern or number sequence and identify the missing element or number
-Make each side of an equation equal (6x4 = 20+4)
-Create sequences of whole numbers, fractions, decimals. Describe the application of rules used to create the sequence.
-Expose to BODMAS/BIDMAS/BIMDAS. Explicitly teach BODMAS.(Exploring brackets, order of operations to solve problems)

Addition and Subtraction Strategies
-Application and consolidation of compensation, regrouping, jump, split, vertical algorithm strategies, terminology for all 4 operations: sum of, product, add, share, select and apply efficient mental and written strategies (incl digital technologies) to solve problems involving addition and subtraction of whole numbers, decimals and fractions, addition and subtraction of equivalent fractions with different and the same denominators to solve problems (1/6 + 4/12 – 2/12 = 4/12 =1/3)

Multiplication and Division Strategies
- Split multiplication, multiplying by 10, contracted multiplication and extended multiplication strategies, practice and apply trading of 2, 3 and 4 digit numbers in multiplication and division, select and apply efficient mental and written strategies (incl digital technologies) to solve problems involving multiplication and division of whole numbers, decimals and fractions, multiply and divide decimals by powers of 10, short and long division with and without remainders, terminology for all 4 operations: sum of, product, add, share, BODMAS/ BIDMAS/BIMDAS (exploring brackets, order of operations to solve problems)

Times Tables
-Teach & Maintain ALL TABLES

Tricky words: integer, prime factor, prime number, triangular number, index, indices, parenthesis, profit, compensation, inverse

MEASUREMENT

Using Units of Measurement
-Connect decimal representations to the metric system
-Conversions of length (2.5km = 2500m)
-Conversions of mass (2t =?kg)
-Convert capacity
-Recall abbreviations for conversions (m-km, mL-L, kg-t)
-Connect volume and capacity to units of measurement
-Solve problems involving the comparison of lengths and areas using appropriate units
-Perimeter *(L+W)x2*
-Area *LxW*
-Volume *LxWxH*
-Interpret and use timetables

-Time: ¼ hour=15min
-24 hour time
-Time Zones (WST, CST, EST)
-Conversions of time eg: 5h = ? mins
-Automatically know the months in order- days in every months
-Area of triangles
-Identify rows and columns
-Lines: horizontal, oblique, vertical, perpendicular, parallel

-Terminology: decade, century

Tricky words: circumference, chevron/delta, plane, skeletal

GEOMETRY

Shape
-Identify 2D shapes
-Identify 3D shapes
-Identify key aspects of prisms and pyramids: faces, vertices, base
-Construct simple prisms and pyramids
-Create nets of 3D shapes and name them
-3D shape perspectives
-Draw 3D representations

Location and Transformation
-Symmetrical shapes/letters numbers
-Reflections of shapes/objects
-Investigate combinations of translations, reflections, and rotations with and without the use of digital technologies
- Introduce the Cartesian coordinate system using all four quadrants

Geometric Reasoning
-Horizontal, oblique, vertical, perpendicular, parallel lines
-Investigate angles on a straight line with and without digital technologies. -Identify, measure and name angles
-Identify types & characteristics of triangles (angles:180°) and quadrilaterals (angles:360°)
-Investigate angles at a point, opposite and missing angle
-Acute, Right, Obtuse, Straight, Reflex and Revolution angles
-Measure angles using a protractor including reflex angles
-Circles: diameter, radius, circumference
-Directions: NNW, WSW including degrees

Tricky words: four quadrants, complementary, supplementary

STATISTICS/PROBABILITY

Chance
-Describe probabilities using fractions, percentages and decimals
-Conduct chance experiments with both large and small number trials using appropriate digital technologies
-Compare observed frequencies across experiments with expected frequencies

Data Representation and Interpretation
-Interpret, compare and construct a range of data displays including side-by-side column graphs for two categorical variables
-Identify graphs: bar, line, scatter, picture
-Interpret scale on graphs
-Define X axis and Y axis on a graph
-Interpret secondary data in digital media and elsewhere

Tricky words: biased, frequencies, mean, median, mode, range