

Long Term Planning – Mathematics Overview



Staley First School

Long Term overview – Overview of Main Mathematics Content

	Autumn	Spring	Summer
Reception	<ul style="list-style-type: none"> Number Match and sort Compare Amounts Representing 1,2,3 Comparing 1,2,3 Composition of 1,2,3 Representing Numbers 1-5 One more and one less <p>Measure, Shape and Spatial Thinking</p> <ul style="list-style-type: none"> Compare size, mass & capacity Explore Pattern Circles and Triangles Positional Language Shapes with 4 sides Time - Night and Day 	<ul style="list-style-type: none"> Number Introducing Zero Comparing numbers to 5 Composition of 4 & 5 Representing 6,7,8 Comparing 6,7,8 Composition of 6,7,8 Making pairs Combining 2 groups Representing 9,10 Comparing numbers to 10 Number bonds to 10 <p>Measure, Shape and Spatial Thinking</p> <ul style="list-style-type: none"> Compare mass Compare capacity Comparing length & height by direct comparison Time - sequencing events & developing time language 	<ul style="list-style-type: none"> Number Building numbers beyond 10 Counting patterns beyond 10 Adding more Taking away Doubling Sharing & grouping Odd & even Deepening understanding of numerical patterns and relationships <p>Measure, Shape and Spatial Thinking</p> <ul style="list-style-type: none"> Spatial reasoning - match, rotate and manipulate Spatial reasoning - compose & decompose Spatial reasoning - visualise and build Spatial reasoning - mapping
Year 1	<ul style="list-style-type: none"> Number / Number and Place Value Count to and across 100, forwards and backwards, beginning with 0 or 1 count, read and write numbers to 100 in numerals Given a number, identify one more and one less <p>Addition and Subtraction represent and use number bonds and related subtraction facts within 20 Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$</p> <p>Multiplication and Division recognise odd and even numbers</p> <p>Fractions recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity</p> <p>Measurement lengths and heights / mass or weight / capacity / volume / time / recognise and use language relating to dates, including days of the week, weeks, months and years.</p> <p>Geometry – Properties of Shapes recognise and name common 2-D and 3-D shapes</p> <p>Geometry – Position and Direction describe position, direction and movement, including whole, half, quarter and three-quarter turns</p>	<ul style="list-style-type: none"> Number / Number and Place Value count in multiples of twos and tens Addition and Subtraction read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs represent and use number bonds and related subtraction facts within 20 Multiplication and Division solve one-step problems involving multiplication and division, by calculating the answer using concrete objects Fractions recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity Measurement sequence events in chronological order using language Geometry – Properties of Shapes Pupils handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. Geometry – Position and Direction Pupils use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside. 	<ul style="list-style-type: none"> Number / Number and Place Value Count in multiples of twos, <u>fives</u> and tens Addition and Subtraction represent and use number bonds and related subtraction facts within 20 add and subtract one-digit and two-digit numbers to 20 including zero Multiplication and Division solve one-step problems involving multiplication and division, by calculating the answer using concrete objects Fractions recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity Measurement recognise and use language relating to dates, including days of the week, weeks, months and years Geometry – Properties of Shapes They recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other. Geometry – Position and Direction Pupils make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.

- **Number and Place Value**

count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward
recognise the place value of each digit in a two-digit number (10s, 1s)

- **Addition and Subtraction**

recall and use addition and subtraction facts to 20 fluently
add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
a two-digit number and ones
a two-digit number and tens
adding three one-digit numbers

- **Multiplication and Division**

recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

- **Fractions**

connect unit fractions to equal sharing and grouping,

- **Measurement**

compare and order lengths, mass, volume / capacity
compare and sequence intervals of time
compare and order lengths, mass, volume / capacity and
record the results using $>$, $<$ and $=$

- **Geometry – Properties of Shapes**

identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
identify 2-D shapes on the surface of 3-D shapes

- **Geometry – Position and Direction**

order and arrange combinations of mathematical objects in patterns and sequences

- **Statistics**

ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity

- **Number and Place Value**

read and write numbers to at least 100 in numerals
use place value and number facts to solve problems

- **Addition and Subtraction**

to 20 fluently, and derive and use related facts up to 100
show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot

- **Multiplication and Division**

show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot

- **Fractions**

recognise, find, name and write fractions one third, one quarter, three quarters, of a length, shape, set of objects or quantity

- **Measurement**

recognise and use symbols for pounds (£) and pence (p);
combine amounts to make a particular value / find different combinations of coins to equal the same amounts of money
tell and write the time to five minutes
know the number of minutes in an hour and the number of hours in a day

- **Geometry – Properties of Shapes**

compare and sort common 2-D and 3-D shapes and everyday objects

- **Geometry – Position and Direction**

order and arrange combinations of mathematical objects in patterns and sequences
use mathematical vocabulary to describe position, direction and movement

- **Statistics**

interpret and construct simple pictograms, tally charts, block diagrams

- **Number and Place Value**

read and write numbers to at least 100 in numerals/words

- **Addition and Subtraction**

add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
a two-digit number and ones / tens

- **Multiplication and Division**

calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs

- **Fractions**

write simple fractions for example, one half of 6 = 3 and recognise the equivalence of 2 quarters and one half

- **Measurement**

choose and use appropriate standard units to estimate and measure length / height in any direction (m / cm);
mass (kg / g); temperature ($^{\circ}\text{C}$); capacity (litres / ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels

- **Geometry – Properties of Shapes**

use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)

- **Geometry – Position and Direction**

order and arrange combinations of mathematical objects in patterns and sequences
use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)

- **Statistics**

interpret and construct simple pictograms, tally charts, block diagrams and simple tables

- **Number and Place Value**
- Count from 0 in multiples of 50 and 100
- Finding 10 or 100 more than a given number
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- **Addition and Subtraction**
- Add and subtract numbers with two digits, using partitioning or three digits using the efficient written methods of columnar addition and subtraction + 4 digits
- **Multiplication and Division**
- Recall and use multiplication and division facts for the 3 and 4 multiplication tables
- Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including two-digit numbers times one-digit numbers, using mental strategies
- **Fractions**
- Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- Recognise, find and write fractions of a discrete set of objects;
- unit fractions and non-unit fractions with small denominators
- **Measurement**
- Measure, compare, add and subtract lengths (m/cm/mm) and mass (kg/g) and volume/capacity (ml/l)
- Measure the perimeter of simple 2-D shapes
- Know the number of seconds in a minute and the number of days in each month, year and leap year
- **Geometry – Properties of Shapes**
- Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations; and describe them with increasing accuracy
- **Statistics**
- Interpret and present data using pictograms and tables
- Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled pictograms and tables

- **Number and Place Value**
- Count from 0 in multiples of 4, 50 and 100
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- Read and write numbers to 1000 in numerals and in words
- Compare and order numbers up to 1000
- **Addition and Subtraction**
- Add and subtract numbers mentally, including:
 - A three-digit number and ones
 - A three-digit number and tens
 - A three-digit number and hundreds
- **Multiplication and Division**
- Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including two-digit numbers times one-digit numbers, using mental and progressing to efficient written methods
- **Fractions**
- Recognise and use fractions as numbers; non-unit fractions with small denominators
- Recognise and show, using diagrams, equivalent fractions with small denominators
- **Measurement**
- Tell and write the time from an analogue clock and 12 hour and 24 hour clocks
- Estimate and read time to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as am/pm, morning, afternoon, noon and midnight
- **Geometry – Properties of Shapes**
- Recognise angles as a property of shape and associate angles with turning
- Identify right angles, recognise that two right angles make a half-turn, three make three-quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle
- **Statistics**
- Interpret and present data using bar charts and tables

- **Number and Place Value**
- Count from 0 in multiples of 4, 8, 50 and 100
- **Addition and Subtraction**
- Add and subtract numbers with three digits using the efficient written methods of columnar addition and subtraction.
- Estimate the answer to a calculation and use inverse operations to check answers
- **Multiplication and Division**
- Multiples of 10, missing numbers and 2 step problems
- **Fractions**
- Recognise and use fractions as numbers; unit fractions and non-unit fractions with small denominators
- Add and subtract fractions with the same denominator within one whole (e.g. $5/7 + 1/7 = 6/7$)
- **Measurement**
- Add and subtract amounts of money giving change, using both £ and p in practical contexts
- Tell and write the time from an analogue clock, including using Roman numerals from 1 to X11, and 12 hour and 24 hour clocks
- Estimate and read time to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as am/pm, morning, afternoon, noon and midnight.
- **Geometry – Properties of Shapes**
- Identify horizontal, vertical, perpendicular and parallel lines in relation to other lines
- **Statistics**
- Interpret and present data using bar charts, pictograms and tables – Maths Investigation (First Names)

- **Number and Place Value**
Find 1000 more or less than a given number
Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)
Order and compare numbers beyond 1000
- **Addition and Subtraction**
Continue to use a range of strategies to add and subtract mentally / Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate + 5 digits
- **Multiplication and Division**
Recall multiplication and division facts for multiplication tables up to 12 x 12
Use place value, known and derived facts to multiply and Divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- **Fractions (including Decimals)**
Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten
Solve problems involving increasingly harder fractions to calculate quantities, including non-unit fractions where the answer is a whole number
- **Measurement**
Convert between different units of measure (e.g. kilometre to metre; hour to minute) Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
Geometry – Properties of shapes
Compare and classify geometric shapes, including triangles, based on their properties and sizes.
Identify lines of symmetry in 2-D shapes presented in Different orientations
Geometry Position and direction
Compare and classify geometric shapes, including triangles
Identify lines of symmetry in 2-D shapes presented in different orientations
Complete a simple symmetric figure with respect to a specific line of symmetry.
Describe positions on a 2-D grid as coordinates in the first quadrant
Statistics
Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

- **Number and Place Value**
Count in multiples of 6, 9, 25 and 100
Count backwards through zero to include negative Numbers
Round any number to the nearest 10, 100 or 1000
- **Addition and Subtraction**
Estimate and use inverse operations to check answers to a calculation / Add and subtract decimal numbers with up to two decimal places (problem solving context)
- **Multiplication and Division**
Recall multiplication and division facts for multiplication tables up to 12 x 12 + Friday mornings (puzzles)
Multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- **Fractions (including Decimals)**
Find the effect of dividing a one or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- **Measurement**
Convert between different units of measure (e.g. kilometre to metre; hour to minute)
Read, write the time to the nearest minute using an analogue clock.
Read and write the time using a digital clock to 12 and 24 hours.
- **Geometry – Properties of shapes**
- Compare and classify geometric shapes, including **quadrilaterals**, based on their properties and sizes
- Identify lines of symmetry in 2-D shapes presented in different orientations + oblique
- **Geometry- Position and direction**
Plot specified points and draw sides to complete a given polygon
Statistics
Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs – focus on 'time' and constructing own graphs.

- **Number and Place Value**
Count in multiples of 6, 7, 9, 25 and 100
Read Roman numerals to 100 (I to C) and understand how, over time, the numeral system changed to include the concept of zero and place value.
- **Addition and Subtraction**
Estimate and use inverse operations to check answers to a calculation - Money context
- **Multiplication and Division**
Recognise and use factor pairs and commutatively in mental calculations Revisit and consolidate objectives from Autumn and Spring terms linking to decimals (money)
- **Fractions (including Decimals)**
Recognise and write decimal equivalents of any number of tenths or hundredths
Compare numbers with the same number of decimal places up to two decimal places
Round decimals with one decimal place to the nearest whole number
- **Measurement**
- Read, write and convert time between analogue and digital 12 and 24-hour clocks.
Estimate, compare and calculate different measures, including money in pounds and pence – linked to decimals
- **Geometry – Properties of shapes**
Explore co-ordinates
- **Geometry- Position and direction**
Describe positions on a 2-D grid as coordinates in the first quadrant
Plot specified points and draw sides to complete a given polygon.
- Describe movement between positions as translations of a given unit to the left/right and up/down
Statistics
Interpret and present grouped data using appropriate graphical methods, including bar charts