

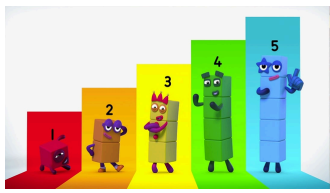
Mathematics Learning Journey

Year R



Connection finding-

The ability to use connections from previous learning and experiences in the real world.



Counting to 5

The children will develop their counting skills and knowledge, learning that each number is one more than the previous; learning to be accurate in counting everything around them.

Numbers within 5

Pupils will begin to develop their conceptual subitising skills, to talk about what they can see and spot numbers within 5, They will explore different ways to represent numbers to 5 on their fingers.



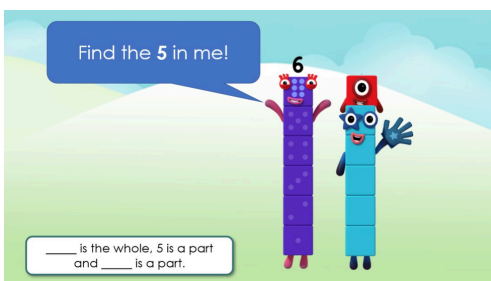
Comparing objects

To compare sets of objects and match the numerals to quantities.



Numbers within and beyond 5

To identify missing 'parts' of the 'whole' which is 5 and explore the structure of numbers beyond 5.

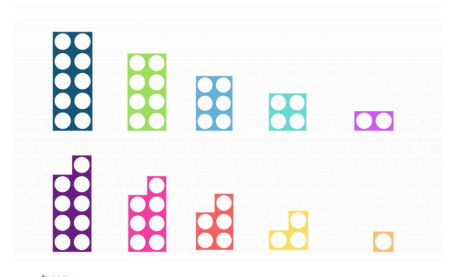


Confident

The ability to develop a belief in your knowledge, understanding and action.

Grouping

To compare groups as equal and unequal with a focus on doubling as two equal groups and exploring the shape of odd and even numbers.



Counting beyond 20

Can the children identify the repeated pattern when counting larger numbers? They will explore different representations of numbers and compare different quantities.

Number bonds to 5

To recall the **bonds to 5** with speed and accuracy.

Automaticity -

The ability to use some skills with such ease as they no longer require active thinking

Conceptual Subitising

Can the children spot smaller groups of numbers within a larger number? When can we subitise and when do we need to count?



Shape, Space and Measure

To identify common 2D and 3D shapes while learning the key vocabulary for sides, edges, faces, vertices, size, height, weight, time, position and capacity.

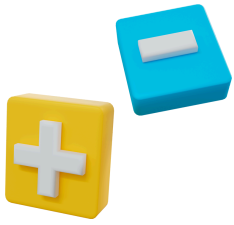
Mathematics Learning Journey

Year 1

Place Value- Numbers to 10

In Year 1 the children will learn to count forwards and backwards from any given number within 10 and to use the language for more than, less than, fewer, and most.

Addition and Subtraction Within 10



In Year 1, the children will learn to represent number **bonds to 10** and to solve simple addition and subtraction problems with concrete resources and pictorial representations.



Enquiring

The ability to be curious; be willing to be proactive; keen to learn; and think independently

Addition and Subtraction within 20

Pupils will progress to represent and use number **bonds to 20** when adding and subtracting 1 and 2 digit number.

Place Value- Numbers to 20

Can the pupils identify, represent, compare and locate numbers to 20?

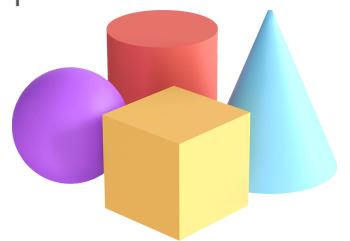


Measurement- Length and Height

To be able to describe, compare and measure different lengths and heights while solving practical problems.

Geometry- Shapes

The children will learn to recognise and name common 2D and 3D shapes in **different orientations** and manipulate them to compose different shapes.



Multiplication and Division

Pupils will learn to count forwards and backwards in **2s, 5s and 10s**.

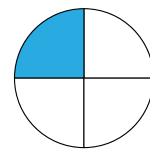
Place Value- Numbers to 50

The children will progress to using groups of 10 to count larger numbers to 50.

Geometry- Position and Direction

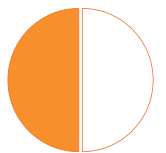
To understand positional language such as: forwards and backwards, left and right, above and below, top and bottom, whole and half turns.

Fractions



$\frac{1}{4}$

$\frac{1}{2}$



Originality

The ability to conceive something new



Measurement- Money

To be able to recognise the value of different coins and notes.

Place Value- Numbers to 100

Can the pupils identify, represent, compare and locate numbers to 100?

Measurement- Time



The children will learn the days of the week and months of the year and will begin to understand, hours, minutes and seconds.

Measurement- Mass and Volume

To measure and compare mass and volume using the correct vocabulary and units of measurement.

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Mathematics Learning Journey


Year 2

Connection finding-
The ability to use connections from past experiences to seek possible generalisations

Multiplication and Division

The children will be introduced to TT Rockstars to recall and use **multiplication and division facts for the 2, 5 and 10 multiplication tables**, including recognising odd and even numbers.

They will learn that multiplication is commutative.



$4 \times 2 = 8 = 2 \times 4$

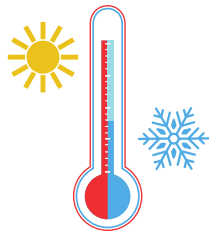
Measurement: Money

In Year 2, the children will solve simple problems in a practical context involving addition and subtraction of money.

Perseverance
The ability to keep going, to not give up.

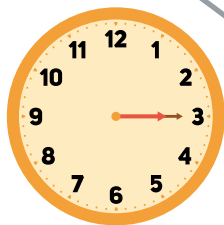
Measurement: Mass, Capacity and Temperature

To choose and use standard units of grams, kilograms, millilitres, litres and degrees Celsius to measure and compare.



Geometry

In Year 2, the children will progress to identify and describe the properties of 2D and 3D shapes, including the number of sides and lines of symmetry and the number of edges, vertices and faces on a 3D shape.



Measurement: Time

To tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.





Place Value: Numbers to 100

In Year 2, the children will learn to identify, represent and estimate numbers to 100 using different representations, including the number line. They will learn to recognise the place value of each digit in a two-digit number

Addition and Subtraction

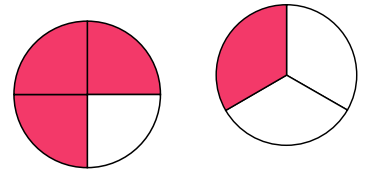
To add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, two two-digit numbers and adding three one-digit numbers

1. $26 + 33 =$

Tens	Ones
	
	

Fractions

Pupils will learn to recognise, find and names $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity.







Children will use White Rose Maths, NRich and I See Maths throughout the year to aid their learning.

Measurement: Length and Height

Using the four operations above, the children will use addition, subtraction, multiplication and division to solve problems of length, height, mass, capacity and volume.

Statistics

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

Toys in my box	Tally
	
	
	
	

Mathematics Learning Journey

Year 3

Connection finding-

The ability to use connections from previous learning and experiences in the real world.

Number and Place Value

In Year 3, the children will learn to compare and order numbers up to 1000 and reason about their location.

Addition and Subtraction

Pupils will progress to add and subtract 3- digit numbers both mentally and using a formal written method.

	H	T	O
	100 100 100	10 10 10 10	1 1 1
		10 10 10	1 1 1 1 1
		10 10 10	1 1 1 1 1
			1 1 1 1 1

	H	T	O
	3	7	6
+		6	7
	4	4	3
	1	1	

Precision

The ability to break work effectively using the rules and strategies of a domain.

Measurement- Money

Using their addition and subtraction knowledge to 100, pupils will explore pence and pounds in practical contexts including finding change.



Statistics

To construct and interpret pictograms, bar charts and tables, solving one-step and two-step problems.



Multiplication and Division

The children will learn to calculate using the multiplication and division facts for the **10, 5, 2, 4, 8 and 3 multiplication tables.**

They will progress to use mental strategies a formal written method to multiply a two-digit number by a one-digit number.

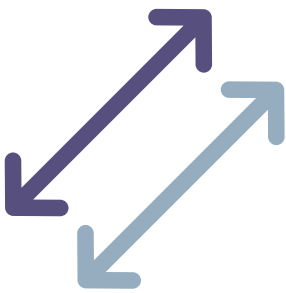
Fractions

In Year 3, the children will progress to understand, compare, add and subtract unit and non-unit fractions.

$$\frac{1}{5} + \frac{2}{5} =$$

Geometry

Can the pupils identify parallel and perpendicular lines?

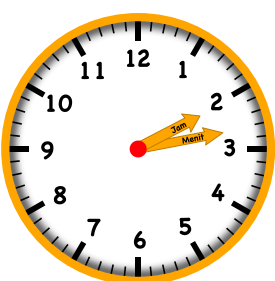


Measurement- Length, Mass and Volume

Pupils will learn to find equivalent lengths, mass and capacities.

Measurement- Time

To estimate and read time with increasing accuracy to the nearest minute.



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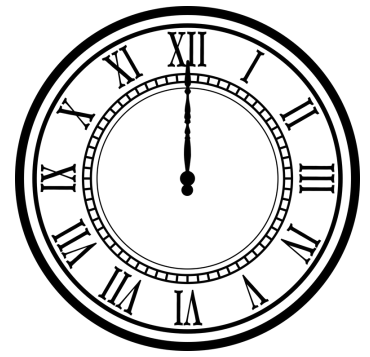
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Mathematics Learning Journey

Year 4

Place Value- Numbers beyond 1000

In Year 4, children will begin to explore negative numbers and Roman Numerals.



Addition and Subtraction

Pupils will progress to use a formal written method to add and subtract 4-digit numbers and to solve two-step problems.



Multiplication and Division

The children must be able to rapidly recall the **multiplication and division facts to 12x12** in preparation for **The Multiplication Check in Year 4.**

Measurement- Time

To read, write and convert time between analogue and digital 12- and 24-hour clocks



Speed & Accuracy -

The ability to work at speed and with accuracy.

Measurement- Length, Mass and Volume

Pupils will convert between metres and kilometres.

Measurement- Area and Perimeter

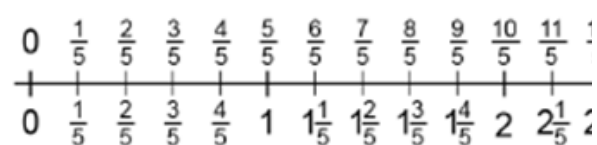
Can they children measure and calculate the perimeter of a rectilinear figure in centimetres and metres?

Collaborative

The ability to seek out opportunities to receive responses to your work, present your own views, listen to the view of others; be willing to work in team

Fractions

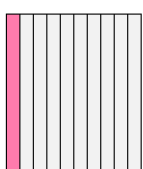
The children will learn about improper fractions and mixed numbers.



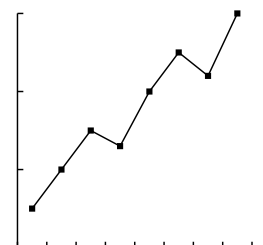
Decimal Numbers

In Year 4, the children will learn to recognise and write decimal equivalents of any number of tenths or hundredths and the decimal equivalent to a half, quarter and three quarters.

0.1



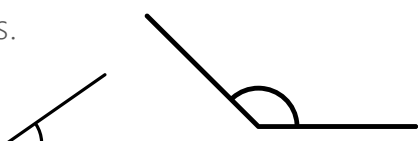
Statistics



To construct and interpret line graphs.

Geometry- Shape, Position and Direction

Pupils will learn to identify different angles, use coordinates and translate shapes.



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Mathematics Learning Journey

Year 5

Place Value- Numbers to 1 000 000

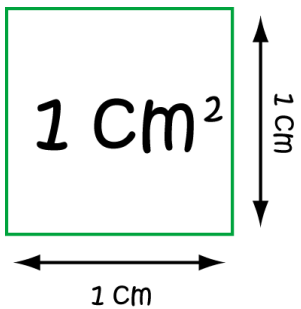
In Year 5, children will solve a variety of problems including negative numbers in context, roman numerals, rounding numbers to the nearest 10, 100 and 1000 and numbers to a million.

Addition and Subtraction

Pupils will progress to solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Measurement- Length and Mass

Pupils will progress to calculate the perimeter of composite shapes in cm and m and the area of shapes using their multiplication facts.



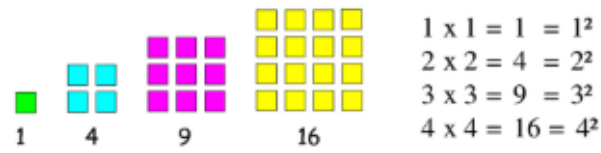
Automaticity -

The ability to use skills with ease that no longer require active thinking.

Multiplication and Division

Pupils will learn how to use the formal written method of *Long Multiplication* to multiply by a 2- digit number.

They will know and use the vocabulary of *Prime Numbers, Prime Factors, Common Factors* and *Multiples, Square and Cube Numbers*.



Measurement- Converting Units

To convert between different units of metric measurement and begin to understand the equivalences between metric and common imperial units.

Measurement- Time

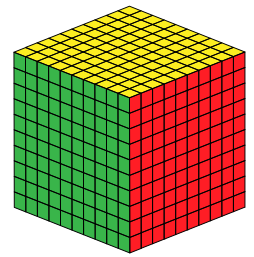
Can the children solve different problems converting units of time?

Complex and multi-step problem solving

The ability to break down a task, decide on a suitable approach and then act

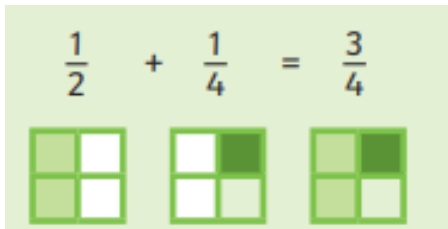
Measurement- Volume

To estimate volume including using 1 cm³ blocks to build cuboids



Fractions

The children will progress to calculate and compare fractions with different denominators



Statistics

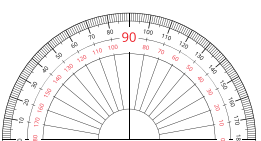
Can the children solve comparison, sum and difference problems using information presented in a line graph?



Decimals and Percentages

The children will begin to identify equivalent fractions, decimals and percentages.

Geometry



To estimate, compare, draw and measure different angles.

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Mathematics Learning Journey

Year 6

Place Value: Numbers to 10,000,000

In Year 6, children will learn to round any whole number to a required degree of accuracy, including in context and use negative numbers in context.

Addition, Subtraction, Multiplication and Division

Pupils will use the formal written methods of long multiplication and long and short division to solve multi-step problems as well as identifying common factors, multiples, prime, square and cube numbers.

432 ÷ 15 becomes

$$\begin{array}{r} 28.8 \\ 15 \overline{) 432.0} \\ \underline{30} \\ 132 \\ \underline{120} \\ 120 \\ \underline{120} \\ 0 \end{array}$$

Answer: 28.8



Practice

The ability to train and prepare through repetition of the same processes in order to become more proficient

Problem Solving

To express missing number problems algebraically and find pairs of numbers that satisfy an equation with two unknowns



Risk taking-

The ability to experiment with new ideas.

Fractions

The ability to add, subtract, multiply and divide fractions using both mixed numbers and improper fractions.

$$\frac{1}{3} \div 2 = \frac{1}{6}$$

Ration and Proportion

Pupils will learn to solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts



Decimal Numbers

To identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000.



Big picture thinking

The ability to work with big ideas and holistic concepts

Measurement: Converting Units

To calculate metric and imperial measures.



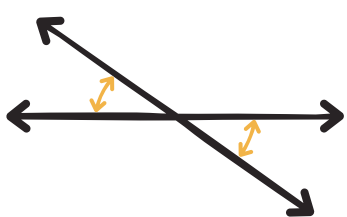
Measurement: Area, Perimeter and Volume.

Can the children use simple formulae to calculate the area or volume of a shape?

Percentages

Pupils will learn to recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. They will learn to solve problems involving the calculation of percentages and the use of percentages for comparison

Geometry



To draw, compose and decompose shapes according to their properties, dimensions, angles and area. To find unknown angles.

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