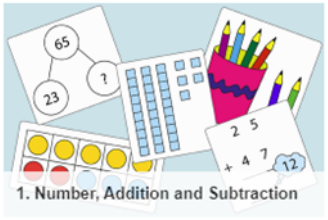
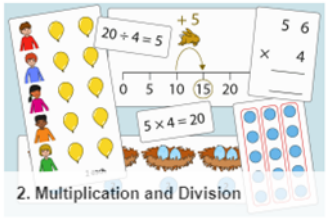
Stapleford Community Primary School

Ambitious Caring Excellence

Year 2 Maths

White Rose Scheme of learning and the NCETM PD materials





This document includes our long term plan for the Year which is aligned with the White Rose Scheme of Learning and the NCETM PD materials. At Stapleford we follow teaching for mastery and these materials and tools are used to guide our planning to ensure lessons build gradually and demonstrate coherence. We use progression documents to help us ensure learning follows on from what has come before and aim to develop cross curricular links with other subjects and across math topics (such as incorporating shape into other areas) to deepen learning. We also use Nrich regularly to reinforce learning and promote fluency of number and problem solving and reasoning.

The NCETM and DFE Maths guidance Year 2 gives guidance as to the progression through areas of study.

Year 2

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week10	Week 11	Week 12
AUTUMN	White Rose Number :Place Value NCETM (see Year 1 and notes from addition and subtraction too)			White Rose Number : Addition and Subtraction NCETM 1 . 1 1 Addition and subtraction: bridging 10 1 . 1 2 Subtraction as difference 1 . 1 3 Addition and subtraction: two-digit and single-digit numbers 1 . 1 4 Addition and subtraction: two-digit numbers and multiples of ten 1 . 1 5 Addition: two-digit and two-digit numbers 1 . 1 6 two-digit and two-digit numbers				White Rose Measurement: Money		White Rose Number : Multiplication and Division NCETM 2 . 2 Structures: multiplication representing equal groups 2 . 3 Times tables: groups of 2 and commutativity (part 1) 2 . 4 Times tables: groups of 10 and of 5, and factors of 0 and 1 2. 5 (some) Commutativity (part 2), doubling and halving	

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week10	Week 11	Week 12
SPRING	White Rose Number : Multiplication and division NCETM 2. 5 (some) Commutativity (part 2), doubling and halving 2 . 6 Structures: quotative and partitive division				White Rose Number : Statistics		White Rose Geometry: properties of shape		White Rose Number : Fractions NCETM Guidance on the teaching of fractions in Key Stage 1			

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week10	Week 11	Week 12
SUMMER	White Rose Measurement: length and height		White Rose Geometry: position and direction		Problem solving and efficient methods		White Rose Measurement: Time		White Rose Measurement: Mass, capacity and temperature			CONSOLIDATION

Year 2 Maths - Programme of Study

Taken from the National Curriculum

Number - number and place value

Pupils should be taught to:

- 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)
- identify, represent and estimate numbers using different representations, including the number line
- compare and order numbers from 0 up to 100; use <, > and = signs
- read and write numbers to at least 100 in numerals and in words
- use place value and number facts to solve problems

Notes and guidance (non-statutory)

- Using materials and a range of representations, pupils practise counting, reading, writing and comparing numbers to at least 100 and solving a variety of related problems to develop fluency. They count in multiples of 3 to support their later understanding of a third
- As they become more confident with numbers up to 100, pupils are introduced to large numbers to develop further their recognition of patterns within the number system and represent them in different ways, including spatial representations.
- Pupils should partition numbers in different ways (for example, 23 = 20+3 and 23 = 10+13) to support subtractions, they become fluent and apply their knowledge of numbers to reason with, discuss and solve problems that emphasise the value of each digit in two-digit numbers, they begin to understand 0 as a place holder.

Number - addition and subtraction

Pupils should be taught to:

- solve problems with addition and subtraction:
    - using concrete objects and pictorial representations, including those involving numbers, quantities and measures
    - applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
    - a two-digit number and 1s
    - a two-digit number and 10s
    - 2 two-digit numbers
    - adding 3 one-digit numbers

- show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems

Notes and guidance (non-statutory)

- Pupils extend their understanding of the language of addition and subtraction to include sum and difference
- Pupils practice addition and subtraction to 20 to become increasingly fluent in deriving facts such as 3+7 = 10; 10-7=3 to calculate 30+70 = 100 and 100-70=30. They check their calculations including by adding to check subtraction and adding numbers in a different otter to check addition. This establishes commutativity and associativity of addition
- Recoding addition and subtraction in columns supports place value and prepares for formal written methods for large numbers

Number - multiplication and division

Pupils should be taught to:

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
- show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

Notes and guidance (non-statutory)

- Pupils use a variety of language to describe multiplication and division
- Pupils are introduced to the multiplication tables. They practise to become fluent in the 2, 5 and 10 multiplication tables and connect them to each other. They connect the 10 multiplication table to place value, and the 5 multiplication table to the divisions of the clock face. They begin to use other multiplication tables and recall multiplication facts, including ising related division facts to perform written and mental calculations
- Pupils work with a range of materials and contexts in which multiplication and division relate to the grouping and sharing of discrete and continuous quantities, to arrays and to repeated addition. They begin to relate these to fractions and measures. They use commutative and inverse relations to develop multiplicative reasoning.

Number - fractions

Pupils should be taught to:

- recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

- write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Notes and guidance (non-statutory)

- Pupils use fractions as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. They connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes. They meet ¾ as the first example of a non-unit fraction
- Pupils should count in fractions up to 10, starting from any number and using the ½ and 2/4 equivalence on the numberline. This reinforces the concept of fractions as numbers and that they can add up to more than 1.

Measurement

Pupils should be taught to:

- choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- compare and order lengths, mass, volume/capacity and record the results using >, < and =
- recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- find different combinations of coins that equal the same amounts of money
- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- compare and sequence intervals of time
- 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
- know the number of minutes in an hour and the number of hours in a day

Notes and guidance (non-statutory)

- Pupils use standard units of measurement with increasing accuracy, using their knowledge of the number system. They use the appropriate language and record using standard abbreviations
- Comparing measures includes simple multiples such as 'half as high'; 'twice as wide'.
- Pupils become fluent in telling the time on analogue clocks and recording it.
- They become fluent in counting and recognising coins. They read and say the amount of money confidently and use the symbols £ and p accurately, recording pounds and pence separately.

Geometry - properties of shapes

Pupils should be taught to:

- identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line
- 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, [for example, a circle on a cylinder and a triangle on a pyramid]
- compare and sort common 2-D and 3-D shapes and everyday objects

Notes and guidance (non-statutory)

- Pupils handle and name a wide variety of common 2-D and 3-D shapes including: quadrilaterals and polygons and cuboids, prisms and cones, and identify the properties of each shape (for example, number of sides, number of faces). Pupils identify, compare and sort shapes on the basis of their properties and use vocabulary precisely, such as sides, edges, vertices and faces
- Pupils read and write names for shapes that are appropriate for their word reading and spelling
- Pupils draw lines and shapes using a straight edge

Geometry - position and direction

Pupils should be taught to:

- 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)

Notes and guidance (non-statutory)

- Pupils should work with patterns of shapes, including those in different orientations
- Pupils use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles)

Statistics

Pupils should be taught to:

- interpret and construct simple pictograms, tally charts, block diagrams and tables
- ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- ask-and-answer questions about totalling and comparing categorical data

Notes and guidance (non-statutory)

- Pupils record, interpret, collate, organise and compare information (for example, using many-to-one correspondence in pictograms and simple ratios 2, 5, 10)

Year 2 Maths - Cross curricular maths

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Music - Counting rhythms History - timelines/ ordering numbers Recording daily mile totals	DT - Weighing ingredients Science - measuring liquid Geography - comparing distances	Topic - counting Beatrix Potter stories Geography - Measurements of landmarks.	Science - measuring heights of plants	Science - Recording results in a table or graph Science/ P.E - timing activity and counting pulse	DT - Measuring material to size

Year 2 - Nrich

This is an approximate guide. More activities can be included but those listed below are the minimum.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Place Value Buzzy Bee * Five Steps to 50 * Next Domino * Domino Number Patterns ** Domino Sequences * 100 Square Jigsaw (I) * That Number Square! * Tug of War (G) * How Would We Count? * Count the Crayons * How Many? * 6 Beads ** Two-digit Targets * Snail One Hundred (G) * Digit Addition * I Like ... * Light the Lights (I) ** Largest Even * Round the Two Dice * **Addition and Subtraction**	Heads and Feet ** What's in a Name? * Eggs in Baskets ** The Brown Family *** Cuisenaire Counting (I) * Sitting Round the Party Tables * Half Time * Two Spinners * Number Round Up *** **Money** The Puzzling Sweet Shop ** Fruity Pairs * Five Coins **	**Multiplication and Division** Ring a Ring of Numbers ** More Numbers in the Ring *** Clapping Times * Even and Odd * How Odd ** Pairs of Legs ** Two Numbers Under the Microscope ** Odd Times Even *** Double or Halve? (G) * Always, Sometimes or Never? * I'm Eight * Secret Number ** How Many? * The Add and Take-away Path * What Was in the Box? * Doing and Undoing * Number Detective * Statistics What Shape and Colour? * Ladybird Count *	**Shape** Colouring Triangles ** Chain of Changes ** Complete the Square *** Inside Triangles (I) * Exploded Squares * Shapely Lines * Poly Plug Rectangles (I) * Paper Patchwork 1 * Paper Patchwork 2 * Seeing Squares (I) * Triangle or No Triangle? * Building with Solid Shapes * Skeleton Shapes ** Shadow Play *** Cubes Cut Into Four Pieces *** Matching Triangles * Data Shapes * Paper Partners * Let's Investigate Triangles *	**Length and Height** Making Longer, Making Shorter ** Order, Order! * **Position and Direction** Coloured Squares (I) ** Cover the Camel * Triangle Animals ** Turning Man (I) * En-counters * Walking Round a Triangle *	**Time** The Puzzling Sweet Shop ** Fruity Pairs * **Mass and Capacity** Compare the Cups * Little Man **

Strike it Out (G) * Jumping Squares ** Unit Differences * Dicey Addition (G) * Arranging Additions and Sorting Subtractions * Subtraction Slip * Secret Number ** How Many? * The Add and Take-away Path * What Was in the Box? * Doing and Undoing * Noah ** Birthday Cakes **		Sticky Data * Carroll Diagrams (I) ** Mixed-up Socks ** Sort the Street (I) * The Hair Colour Game ** Button-up * Beads and Bags * In the Playground ** Plants **			