Mathematics Planning

National Curriculum

2014

Year 2

Lancashire County Council

How to Use the Medium Term Planning

This planning document is intended to provide support for schools in adapting their curriculum to meet the statutory requirements of the new National Curriculum 2014 and to aid teachers in planning a progressive learning journey for children within Year 2.

National Curriculum Overview

The new National Curriculum is more similar in structure to the Framework for Mathematics than the National Curriculum 2000. To support schools and teachers in identifying elements of the curriculum that have remained the same and elements that have changed, objectives have been highlighted in the following way:

Objectives highlighted in blue are ones that are found in the Framework for Mathematics but not in National Curriculum 2000.

Objectives highlighted in yellow are ones that have moved down from a higher year group in the Framework for Mathematics.

Objectives highlighted in green are ones that are not in the Framework for Mathematics or in National Curriculum 2000.

Objectives that are not highlighted are in the same year group in the new National Curriculum as they are in the Framework for Mathematics.

Objectives that are in *italics* have been added by the Lancashire Mathematics Team, to support progression and enable children to develop a secure understanding of the mathematical concepts they are learning. Some of these objectives are consolidation of ones from the previous year.

Overview Document

The planning starts with an overview document. This identifies six half termly blocks of six weeks with focus areas of mathematics for each week. The units are designed to be cohesive and allow for application of learning and skills across the mathematics curriculum. The assess and review weeks can be used to gain information for teacher assessments or can be used to pick up elements that need further support. It is not designed to be used as an entire week of testing with no teaching. This is a suggested layout and teachers should adapt to meet the needs of their class as required.

Half Termly Planning Documents

The half termly planning documents have been compiled to the following principles:

- Each half term is predominantly learning about number.
- Almost all weeks are focused on one area of mathematics, giving children time to focus on a single area for a longer amount of time.
- The 'rationale' justifies why the objectives have been put together and how to enhance the teaching and learning during that week, e.g. number work is often given a context of data, measures, money or problem solving.
- The objectives are the end of year expectations and it is the decision of teachers whether to visit the whole objective more than once throughout the year or to organise progression within each objective.
- Every objective is covered at least twice within the year.
- The learning within each week are NOT in a prescribed order and teachers should use their discretion when organising progression within the unit.

The 'Starter' suggestions begin with consolidation of the previous year's work and develop over time to consolidate learning within the given year group. It is important that children have the opportunity to regularly revisit learning from all aspects of the mathematics curriculum, and the 'Starter' is an effective time in which this can occur.

Differentiation

The objectives are based on age related expectations. For purposes of differentiation, the National Curriculum 2014 suggests:

'Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.'

National Curriculum Documentation

At the end of this document is the National Curriculum 2014 programme of study for Year 2. This contains the objectives for Year 2 along with the non-statutory guidance to help with interpretation.

Year 2 Mathematics Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Week 1	Number and Place value	Counting, multiplication and sorting	Number and Place value	Length and Mass/weight	Number and Place value and statistics	Time
Week 2	Number and Place value	Statistics	Mass/weight	Addition and subtraction	Addition and subtraction	Multiplication and division
Week 3	Length and Mass/weight	Fractions Capacity and volume	2-D and 3-D Shape	Fractions	Capacity and volume and temperature	Statistics including finding the difference
Week 4	Addition and subtraction	Money	Counting and money	Position and direction	Fractions	Measurement
Week 5	Addition and subtraction	Time	Multiplication	Time	Position and direction Time	Sorting
Week 6	2-D and 3-D shape	Assess and review week	Division	Assess and review week	2-D and 3-D shape	Assess and review week

Year 2 Autumn 1

Starter suggestions for Number

- Read and write numbers to 100 in figures and words.
- Count on and back in 1s from any one or two-digit number.
- Count on and back in multiples of 2, 5 and 10.
- Order a set of random numbers to 100.
- Recall addition and subtraction facts for each number up to 20.
- Recall doubles of simple 2-digit numbers i.e. numbers in which the ones total less than 10.
- Recall halves of simple even numbers i.e. numbers in which the tens are even.
- Add a single digit number to any 2-digit number.
- Take away a single digit number from 2-digit number.
- Identify number patterns on number lines and hundred squares.

Starter suggestions for Measurement, Geometry and Statistics

- Identify 2-D shapes in different orientations and begin to describe them.
- Identify 3-D shapes in different orientations and begin to describe them.
- Compare and sort common 2-D and 3-D shapes and everyday objects.
- Order and arrange combinations of mathematical objects in patterns and sequences.
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.
- Estimate the length and height of familiar items using standard units.
- Tell the time using o'clock, half past, quarter past and quarter to.
- Recognise and count amounts of money.

	Main learning	Rationale
Week 1 *Number and Place value* Links to Framework for Mathematics Y2 – A1, A2, A3 Y3 – A1, A2, A3	• Read and write numbers to at least 100 in numerals and in words. • Recognise the place value of each digit in a two-digit number (tens, ones). • Identify, represent and estimate numbers using different representations, including the number line. • Compare and order numbers from 0 up to 100; use <, > and = signs. • *Round numbers to at least 100 to the nearest 10.* • Use place value and number facts to solve problems.	Children develop their understanding of the number system to include numbers up to and beyond 100. They should use practical equipment, familiar items and pictures to represent the numbers they are working with – children should understand the notion of grouping in tens i.e. 10 ones is the same as 1 ten and that in two-digit number the first digit refers to the number of groups of ten. Children should experience numbers in different ways to support other place value understanding e.g. ordering numbers on a number line to support comparing and rounding numbers, and also make links between the number line and measuring scales and scales on a graph.
Week 2 *Number and Place value* Links to Framework for Mathematics Y2 – A1, A2, A3, B1, B2, B3, E1, E2, E3 Y3 – A1, A2, A3, E3	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. • *Find 1 or 10 more or less than a given number.* • *Partition numbers in different ways (for example, 23 = 20 + 3 and 23 = 10 + 13).* • Identify, represent and estimate numbers using different representations, including the number line. • Use place value and number facts to solve problems.	Children build on their understanding of numbers from the previous week, including using place value to identify numbers 1 and 10 more or less than a given number. At this stage, children should discover for themselves the structure of a 100 square by counting on or back 10 from a given number and realising where they finish. When counting, children should be encouraged to identify patterns in the sequences and reason as to why these patterns emerge. Partitioning numbers in different ways helps children understand the flexibility of how numbers can be made, and that thinking of numbers in different ways is useful when calculating in different contexts e.g. when adding 36 and 7, it is useful to think of 7 as 4 + 3 to help bridge through 40.
Week 3 *Measurement - length and mass* Links to Framework for Mathematics Y2 – C1, C2, C3, D1, D2, D3 Y3 – C1, C2, C3, D1, D2, D3	• Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit using rulers. • Compare and order lengths and record the results using >, < and =. • Choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit using scales. • Compare and order mass and record the results using >, < and =.	Children should use the term mass instead of weight. Children should work practically to measure length and height, recognising that both are measurements of distance. Children should use standard units and then consolidate their place value knowledge by comparing and ordering lengths and masses. The understanding of positioning numbers on a number line is applied to measuring scales and identifying lengths and masses of familiar items.
Week 4 *Addition and subtraction* Links to Framework for Mathematics Y2 – A1, A2, A3, D1, D2, D3, E1, E2, E3 Y3 – A1, A2, A3, D1, D2, D3, E3	• Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. • 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 ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers. • 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.	Children should use familiar items to create number stories e.g. 24 children in the class and 7 more come in, how many children are in the class now? This gives rise to the number sentence 24 + 7 = ? Continuing the theme of number stories can give rise to other number sentences such as 24 + ? = 31. This could be explained as, there are 24 children in the class. How many more children come into the class if in the end there are 31 children in class? The use of physical objects to tell a number story and the creation of numbers sentences helps children to understand the relationship between addition and subtraction. Children should also use practical models and visual images to support the place value understanding when calculating with 2-digit numbers.

	Main learning	Rationale
Week 5 *Addition and subtraction* Links to Framework for Mathematics Y2 – A1, A2, A3, D1, D2, D3, E1, E2, E3 Y3 – A1, A2, A3, D1, D2, D3, E3	• 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 ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers. • 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. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. • *Understand subtraction as take away and difference (how many more, how many less/fewer).*	This week is a continuation of last week. Children are introduced to 'difference' in the summer term of Year 1. This understanding should be made more secure and the term difference should be used by children. Children should also learn the term sum and how this applies to addition. Children should also use knowledge of number bonds for each number up to 20 in calculations involving larger numbers e.g. knowing that 8 + 7 = 15 can support children answering questions such as 28 + 7, 58 + 7 and 38 + 47.
Week 6 *Shape* *Links to Framework for Mathematics* Y2 – B1, B2, B3 Y3 – B1, B2, B3, B2, C1, C2	• Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid). • Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. • Compare and sort common 2-D and 3-D shapes and everyday objects.	When learning about shapes, children should handle them, name them and begin to describe them. Children should recognise shapes in different orientations and also in different sizes, and know that some shapes can look differently to other shapes with the same name. When describing 2-D shapes, it is useful for children to consistently use the terms side and corner. When describing 3-D shapes, it is useful for children to consistently use the terms face, edge and vertex (vertices). When sorting shapes in different ways, children should use various diagrams including sorting tables, Venn and Carroll diagrams.

Year 2 Autumn 2

Starter suggestions for Number

- Read and write numbers to 100 in figures and words.
- Count on and back in 1s from any one or two-digit number.
- Count on and back in multiples of 2, 5 and 10.
- Order a set of random numbers to 100.
- Recall addition and subtraction facts for each number up to 20.
- Recall doubles of simple 2-digit numbers i.e. numbers in which the ones total less than 10.
- Recall halves of simple even numbers i.e. numbers in which the tens are even.
- Add a single digit number to any 2-digit number.
- Take away a single digit number from 2-digit number.
- Identify number patterns on number lines and hundred squares.

Starter suggestions for Measurement, Geometry and Statistics

- Identify 2-D shapes in different orientations and begin to describe them.
- Identify 3-D shapes in different orientations and begin to describe them.
- Compare and sort common 2-D and 3-D shapes and everyday objects.
- Order and arrange combinations of mathematical objects in patterns and sequences.
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.
- Estimate the length and height of familiar items using standard units.
- Tell the time using o'clock, half past, quarter past and quarter to.
- Recognise and count amounts of money.

	Main learning	Rationale
Week 1 *Counting, Multiplication and Sorting* Links to Framework for Mathematics Y2 – B1, B2, B3, E1, E2, E3, A2, A3, C1, C2, C3 Y3 – B1, B2, A2, A3, E1, E2, E3, C1, C2	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. • *Understand multiplication as repeated addition.* • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. • 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 *(using repeated addition)* within the multiplication tables and write them using the multiplication (×),and equals (=) signs. • *Compare and sort numbers according to their properties.*	When counting, children should be encouraged to identify patterns in the sequences and reason as to why these patterns emerge. Rote counting should be linked to repeated addition and the creation of arrays. Children should learn that multiplication is a convenient way of repeatedly adding a number to itself e.g. 2+2+2+2+2+2 can be said as 2x6 (2 added to itself 6 times). The array created can then be used to demonstrate commutativity i.e. that 2x6 is the same as 6x2. Children should make links to real life application of multiplication as repeated addition. Children should begin to relate counting in steps of 2, 3, 5 and 10 to the multiplication tables. The 2x table and counting in 2s from different starting points should be used alongside practical equipment to enable children to understand even and odd numbers. Children's work on sorting can be used to consolidate understanding of the properties of numbers, including comparing numbers, odd and even and sequences.
Week 2 *Statistics* Links to Framework for Mathematics Y2 – C1, C2, C3 Y3 – C1, C2, C3	• Interpret and construct simple pictograms, tally charts, block diagrams and simple 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. • *Understand subtraction as take away and difference (how many more, how many less/fewer).*	Children apply their knowledge of counting in equal steps to work with scales on graphs and charts that count in steps of 2, 5 or 10 or to pictograms in which each symbol is worth more than 1. They also apply their knowledge of place value and calculation to the context of statistics, with a particular focus on difference '*How many more…?*' and *'How many fewer/less…?*
Week 3 *Fractions* *Measurement – capacity and volume* *Links to Framework for Mathematics* Y2 – E1, E2, E3, C1, C2, C3, D1, D2, D3 Y3 – B2, B3, E2, E3, D1, D2, D3	• *Understand and use the terms numerator and denominator.* • *Understand that a fraction can describe part of a set.* • *Understand that the larger the denominator is, the more pieces it is split into and therefore the smaller each part will be.* • 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. • *Count on and back in steps of* $\frac{1}{2}$ *and* $\frac{1}{4}$. • Choose and use appropriate standard units to estimate and measure capacity and volume (litres/ml) to the nearest appropriate unit using measuring vessels. • Compare and order volume/capacity and record the results using >, < and =.	Children's knowledge and understanding of fractions develops to include the names of each number in a written fraction and what each number represents. Practical and visual approaches should be used to allow children to see what the numerator and denominator are and how they go together to form a fraction of a shape or quantity. Children are introduced to $\frac{2}{4}$ and $\frac{3}{4}$ as the first examples of non-unit fractions. Children also count in fraction steps and see these on a number line, understanding how many halves, quarters and thirds make one whole one/unit. Children learn about liquid volume and use standard units to measure volume and capacity. Place value knowledge is applied in this context when ordering volumes and capacities. The fraction understanding can also be applied to volume and capacity, finding out that it takes four cupfuls to fill the jug, therefore one cupful is $\frac{1}{4}$ of the capacity of the jug and using this information to estimate when the jug is three-quarters full. This should be extended to thirds.
Week 4 *Money* Links to Framework for Mathematics Y2 – B1 Y3 – D1, B2	• 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. • Add and subtract money of the same unit, including giving change. • Solve simple problems in a practical context involving addition and subtraction of money.	Children should become fluent in recognising the values of different coins. Children continue to understand how many pennies each coin is worth and exchange between pennies and 2p, 5p, 10p and 20p coins. This could be done in a Bank role play area. Shop role play could be used when teaching about paying for amounts exactly. This is a good opportunity for children to experience finding all possibilities problems. Combining coins to make given amounts should be linked to addition and number sentences e.g. how many ways can you pay exactly for an item costing 14p? At this stage, children should record £ and p separately. Formal recording of money using decimal places occurs in Year 4.

	Main learning	Rationale
Week 5 *Time* Links to Framework for Mathematics Y2 – D1, D2, D3 Y3 – D1, D3, C2	• 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. • Compare and sequence intervals of time.	When teaching time, links need to be made with fractions half and quarter, and also counting in 5s. Children should experience geared analogue clocks to recognise how the hour hand moves as the minute hand moves around the clock. The idea of minutes past the hour and minutes to the next hour can be explored and linked to rounding numbers and also number bonds of multiples of 5 to 60. Children should explore how long certain activities take and also how many times certain things can be done in a given time period e.g. one minute.
Week 6 Assess and review	Assess and review week	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.

Year 2 Spring 1

Starter suggestions for Number

- Read and write numbers to 100 in figures and words.
- Count on and back in 1s from any one or two-digit number.
- Count on and back in steps of 2, 3 and 5 from 0.
- Count on and back in 10s from any number.
- Recall multiplication facts for the 2x, 5x and 10x tables.
- Recognise odd and even numbers.
- Order a set of random numbers to 100.
- Recall addition and subtraction facts for each number up to 20, and related facts up to 100.
- Recall doubles of simple 2-digit numbers i.e. numbers in which the ones total less than 10.
- Recall halves of simple even numbers i.e. numbers in which the tens are even.
- Add a single digit number to any 2-digit number.
- Take away a single digit number from 2-digit number.
- Identify number patterns on number lines and hundred squares.

Starter suggestions for Measurement, Geometry and Statistics

- Identify 2-D shapes in different orientations and begin to describe them.
- Identify 3-D shapes in different orientations and begin to describe them.
- Compare and sort common 2-D and 3-D shapes and everyday objects.
- Order and arrange combinations of mathematical objects in patterns and sequences.
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.
- Estimate the length and height of familiar items using standard units.
- Estimate mass and capacity of familiar items using standard units.
- Tell the time to the nearest five minutes on an analogue clock.
- Know the number of minutes in an hour and the number of hours in a day.
- Recognise and count amounts of money.
- Interpret simple pictograms, tally charts, block diagrams and tables.

	Main learning	Rationale
Week 1 *Number, place value and measures* *Links to Framework for Mathematics* Y2 – A1, A2, A3, B1, B2, B3, E1, E2, E3 Y3 – A1, A2, A3, E3	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. • Read and write numbers to at least 100 in numerals. • Recognise the place value of each digit in a two-digit number (tens, ones). • Identify, represent and estimate numbers using different representations, including the number line. • Compare and order numbers from 0 up to 100; use <, > and = signs. • *Find 1 or 10 more or less than a given number.* • *Round numbers to at least 100 to the nearest 10.*	Children's understanding of the number system should now include numbers up to and beyond 100. They should use practical equipment, familiar items and pictures to represent the numbers they are working with – children should understand the notion of grouping in tens i.e. 10 ones is the same as 1 ten and that in two-digit number the first digit refers to the number of groups of ten. Children should experience numbers in different ways to support other place value understanding e.g. ordering numbers on a number line to support comparing and rounding numbers, and also make links between the number line and measuring scales. All of the place value objectives in this week should be presented in the context of measurement.
Week 2 *Measurement - mass* Links to Framework for Mathematics Y2 – C1, C2, C3, D1, D2, D3 Y3 – C1, C2, C3, D1, D2, D3	• Choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit using scales. • Compare and order mass and record the results using >, < and =. • Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.	Children should use the term mass instead of weight. Children should work practically to measure the mass of different items. They should use standard units and then consolidate their place value knowledge by comparing and ordering masses. The understanding of positioning numbers on a number line is applied to measuring scales and estimating and identifying masses of familiar items. Children should use measuring scales that use increments of 1, 2, 3, 5 or 10 and should be using numbers up to and beyond 100.
Week 3 *Shape* Links to Framework for Mathematics Y2 – B1, B2, B3 Y3 – B1, B2, B3, B2, C1, C2	• Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid). • Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. • Compare and sort common 2-D and 3-D shapes and everyday objects.	When learning about shapes, children should handle, name and describe them. Children should recognise shapes in different orientations and also in different sizes, and know that some shapes can look differently to other shapes with the same name. When describing 2-D shapes, it is useful for children to consistently use the terms side and corner. When describing 3-D shapes, it is useful for children to consistently use the terms face, edge and vertex (vertices). When sorting shapes in different ways, children should use various diagrams including sorting tables, Venn and Carroll diagrams.
Week 4 *Counting and money* Links to Framework for Mathematics Y2 – B1 Y3 – D1, B2	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. • 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. • Add and subtract money of the same unit, including giving change. • Solve simple problems in a practical context involving addition and subtraction of money.	Children should become fluent in recognising the values of different coins. Children continue to understand how many pennies each coin is worth and exchange between pennies and 2p, 5p, 10p and 20p coins. This could be done in a Bank role play area. Children should apply their skill of counting in 2s, 5s and 10s to counting coins of these values. Shop role play could be used when teaching about paying for amounts exactly. This is a good opportunity for children to experience finding all possibilities problems. Combining coins to make given amounts should be linked to addition and number sentences e.g. how many ways can you pay exactly for an item costing 14p? At this stage, children should record £ and p separately. Formal recording of money using decimal places occurs in Year 4.

	Main learning	Rationale
Week 5 *Multiplication – problem solving* Links to Framework for Mathematics Y2 – B1, B2, B3, E1, E2, E3, A2, A3, C1, C2, C3 Y3 – B1, B2, A2, A3, E1, E2, E3, C1, C2	• *Understand multiplication as repeated addition.* • Show that multiplication of two numbers can be done in any order (commutative). • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. • *Understand the connection between the 10 multiplication table and place value.* • Calculate mathematical statements for multiplication *(using repeated addition)* within the multiplication tables and write them using the multiplication (×) and equals (=) signs. • Solve problems involving multiplication, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	When counting, children should be encouraged to identify patterns in the sequences and reason as to why these patterns emerge. Rote counting should be linked to repeated addition and the creation of arrays. Children should learn that multiplication is a convenient way of repeatedly adding a number to itself e.g. 2+2+2+2+2+2 can be said as 2x6 (2 added to itself 6 times). The array created can then be used to demonstrate commutativity i.e. that 2x6 is the same as 6x2. Children should make links to real life application of multiplication as repeated addition. Children should begin to relate counting in steps of 2, 3, 5 and 10 to the multiplication tables. The 2x table and counting in 2s from different starting points should be used alongside practical equipment to enable children to understand even and odd numbers.
Week 6 *Division – problem solving* Links to Framework for Mathematics Y2 – B1, B2, B3, E1, E2, E3, A2, A3, C1, C2, C3 Y3 – B1, B2, A2, A3, E1, E2, E3, C1, C2	• *Understand division as sharing and grouping.* • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. • 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 division within the multiplication tables and write them using the division (÷) and equals (=) signs. • Solve problems involving division, using materials, arrays, *repeated subtraction and sharing*, mental methods, and multiplication and division facts, including problems in contexts.	Children should be introduced to division using contexts that involve sharing. Division as grouping should also be explored practically and linked to the arrays from the previous week. This helps children see the inverse relationship between multiplication and division by exploring 'How many groups of… are there in…? The contexts for grouping should be ones children can relate to, for example making teams of equal size from a given number of children; putting 5 sweets in each bag and finding how many bags can be filled using 47 sweets? These real life scenarios support children in understanding that some numbers do not divide equally and this gives rise to remainders.

Year 2 Spring 2

Starter suggestions for Number

- Read and write numbers to 100 in figures and words.
- Count on and back in 1s from any one or two-digit number.
- Count on and back in steps of 2, 3 and 5 from 0.
- Count on and back in 10s from any number.
- Recall multiplication facts for the 2x, 5x and 10x tables.
- Recognise odd and even numbers.
- Order a set of random numbers to 100.
- Recall addition and subtraction facts for each number up to 20, and related facts up to 100.
- Recall doubles of simple 2-digit numbers i.e. numbers in which the ones total less than 10.
- Recall halves of simple even numbers i.e. numbers in which the tens are even.
- Add a single digit number to any 2-digit number.
- Take away a single digit number from 2-digit number.
- Identify number patterns on number lines and hundred squares.

Starter suggestions for Measurement, Geometry and Statistics

- Identify 2-D shapes in different orientations and begin to describe them.
- Identify 3-D shapes in different orientations and begin to describe them.
- Compare and sort common 2-D and 3-D shapes and everyday objects.
- Order and arrange combinations of mathematical objects in patterns and sequences.
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.
- Estimate the length and height of familiar items using standard units.
- Estimate mass and capacity of familiar items using standard units.
- Tell the time to the nearest five minutes on an analogue clock.
- Know the number of minutes in an hour and the number of hours in a day.
- Recognise and count amounts of money.
- Interpret simple pictograms, tally charts, block diagrams and tables.

	Main learning	Rationale
Week 1 *Measurement – length and height, mass/weight* Links to Framework for Mathematics Y2 – C1, C2, C3, D1, D2, D3 Y3 – C1, C2, C3, D1, D2, D3	• Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit using rulers. • Compare and order lengths and record the results using >, < and =. • Choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit using scales. • Compare and order mass and record the results using >, < and =.	Children should use the term mass instead of weight. Children should work practically to measure length and height, recognising that both are measurements of distance. Children should use standard units and then consolidate their place value knowledge by comparing and ordering lengths and masses. The understanding of positioning numbers on a number line is applied to measuring scales and identifying lengths and masses of familiar items.
Week 2 *Mental addition and subtraction facts in context of measurement* Links to Framework for Mathematics Y2 – A1, A2, A3, D1, D2, D3, E1, E2, E3 Y3 – A1, A2, A3, D1, D2, D3, E3	• Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. • 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 ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers. • 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.	Children should use measures from the previous week to create number stories e.g. How much longer is Alice's foot than Freya's if Alice is 116cm tall and Freya is 98cm tall? This gives rise to the number sentence 24 + 7 = ? Continuing the theme of number stories can give rise to other number sentences such as 24 + ? = 31. This could be explained as, there are 24 children in the class. How many more children come into the class if in the end there are 31 children in class? The use of physical objects to tell a number story and the creation of numbers sentences helps children to understand the relationship between addition and subtraction. Children should also use practical models and visual images to support the place value understanding when calculating with 2-digit numbers.
Week 3 *Fractions* Links to Framework for Mathematics Y2 – E1, E2, E3, D1, D2, D3 Y3 – B2, B3, E2, E3, D1, D2, D3	• *Understand and use the terms numerator and denominator.* • *Understand that a fraction can describe part of a set.* • *Understand that the larger the denominator is, the more pieces it is split into and therefore the smaller each part will be.* • 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. • *Count on and back in steps of* $\frac{1}{2}$ *and* $\frac{1}{4}$. • Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.	Children's knowledge and understanding of fractions develops to include the names of each number in a written fraction and what each number represents. Practical and visual approaches should be used to allow children to see what the numerator and denominator are and how they go together to form a fraction of a shape or quantity. Children are introduced to $\frac{2}{4}$ and $\frac{3}{4}$ as the first examples of non-unit fractions. Using shapes, practical and pictorial representations, children understand the concept of equivalent fractions e.g. $\frac{2}{4}$ and $\frac{1}{2}$ Children should understand the connection between finding a fraction of an amount and division by sharing. This can be supported by using shapes divided into equal fractions and sharing real items equally on to each fraction part.
Week 4 *Position and direction* Links to Framework for Mathematics Y2 – B1, B3, D1, D2, D3 Y3 – D2	• 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).	Children identify and create sequences and patterns using mathematical objects. They develop their skills in reasoning and communicating by describing how they know what will come next and where certain shapes always appear in the sequence. Children's understanding of position and direction is developed through practical work describing routes and relating turns to the movement of the hands on a clock.

	Main learning	Rationale
Week 5 *Measurement - time* Links to Framework for Mathematics Y2 – D1, D2, D3 Y3 – D1, D3, C2	• 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. • Compare and sequence intervals of time.	When teaching time, links need to be made with fractions half and quarter, and also counting in 5s. Children should experience geared analogue clocks to recognise how the hour hand moves as the minute hand moves around the clock. The idea of minutes past the hour and minutes to the next hour can be explored and linked to rounding numbers and also number bonds of multiples of 5 to 60. Children should explore how long certain activities take and also how many times certain things can be done in a given time period e.g. one minute.
Week 6 Assess and review	Assess and review week	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.

Year 2 Summer 1

Starter suggestions for Number

- Read and write numbers to 100 in figures and words.
- Count on and back in 1s from any one or two-digit number.
- Count on and back in steps of 2, 3 and 5 from 0.
- Count on and back in 10s from any number.
- Recall multiplication facts for the 2x, 5x and 10x tables.
- Recognise odd and even numbers.
- Order a set of random numbers to 100.
- Recall addition and subtraction facts for each number up to 20, and related facts up to 100.
- Recall doubles of simple 2-digit numbers i.e. numbers in which the ones total less than 10.
- Recall halves of simple even numbers i.e. numbers in which the tens are even.
- Add a single digit number to any 2-digit number.
- Take away a single digit number from 2-digit number.
- Identify number patterns on number lines and hundred squares.

Starter suggestions for Measurement, Geometry and Statistics

- Identify 2-D shapes in different orientations and begin to describe them.
- Identify 3-D shapes in different orientations and begin to describe them.
- Compare and sort common 2-D and 3-D shapes and everyday objects.
- Order and arrange combinations of mathematical objects in patterns and sequences.
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.
- Estimate the length and height of familiar items using standard units.
- Estimate mass and capacity of familiar items using standard units.
- Tell the time to the nearest five minutes on an analogue clock.
- Know the number of minutes in an hour and the number of hours in a day.
- Recognise and count amounts of money.
- Interpret simple pictograms, tally charts, block diagrams and tables.

	Main learning	Rationale
Week 1 *Number and place value and statistics* Links to Framework for Mathematics Y2 – A1, A2, A3, B1, B2, B3, E1, E2, E3 Y3 – A1, A2, A3, E3	• Recognise the place value of each digit in a two-digit number (tens, ones). • Identify, represent and estimate numbers using different representations, including the number line. • Compare and order numbers from 0 up to 100; use <, > and = signs. • *Round numbers to at least 100 to the nearest 10.* • Use place value and number facts to solve problems. • Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. • *Find 1 or 10 more or less than a given number.* • *Partition numbers in different ways (for example, 23 = 20 + 3 and 23 = 10 + 13).*	Children develop their understanding of the number system to include numbers up to and beyond 100. They should use practical equipment, familiar items and pictures to represent the numbers they are working with – children should understand the notion of grouping in tens i.e. 10 ones is the same as 1 ten and that in two-digit number the first digit refers to the number of groups of ten. Children should experience numbers in different ways to support other place value understanding e.g. ordering numbers on a number line to support comparing and rounding numbers, and also make links between the number line and measuring scales and scales on a graph. These scales should go up to 100 and use intervals of 2, 3, 5 or 10. When counting, children should be encouraged to identify patterns in the sequences and reason as to why these patterns emerge. Partitioning numbers in different ways helps children understand the flexibility of how numbers can be made, and that thinking of numbers in different ways is useful when calculating in different contexts e.g. when adding 36 and 7, it is useful to think of 7 as 4 + 3 to help bridge through 40.
Week 2 *Addition and subtraction* Links to Framework for Mathematics Y2 – A1, A2, A3, D1, D2, D3, E1, E2, E3 Y3 – A1, A2, A3, D1, D2, D3, E3	• Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. • 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 ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers. • 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.	Children should use familiar items to create number stories e.g. 24 children in the class and 7 more come in, how many children are in the class now? This gives rise to the number sentence 24 + 7 = ? Continuing the theme of number stories can give rise to other number sentences such as 24 + ? = 31. This could be explained as, there are 24 children in the class. How many more children come into the class if in the end there are 31 children in class? The use of physical objects to tell a number story and the creation of numbers sentences helps children to understand the relationship between addition and subtraction. Children should also use practical models and visual images to support the place value understanding when calculating with 2-digit numbers. Children should confidently use the terms difference and sum. Children should also use knowledge of number bonds for each number up to 20 in calculations involving larger numbers e.g. knowing that 8 + 7 = 15 can support children answering questions such as 28 + 7, 58 + 7 and 38 + 47.
Week 3 *Measurement – capacity/volume and temperature* Links to Framework for Mathematics Y2 – C1, C2, C3, D1, D2, D3 Y3 – B2, B3, C2, D1, D2, D3	• Choose and use appropriate standard units to estimate and measure capacity and volume (litres/ml) to the nearest appropriate unit using measuring vessels. • Compare and order volume/capacity and record the results using >, < and =. • Choose and use appropriate standard units to estimate and measure temperature to the nearest degree (°C) using thermometers.	Children learn about liquid volume and use standard units to measure volume and capacity. Place value knowledge is applied in this context when ordering volumes and capacities and reading scales. Children are introduced to temperature in the summer term, where they can sense differences in temperature between inside and outside and in the shade and in the sunshine. They learn that temperature is measured in degrees Celsius (°C) and we use thermometers to measure temperature. Measuring different temperatures allows children to understand that the average room temperature is approximately 20°C.

	Main learning	Rationale
Week 4 *Fractions* Links to Framework for Mathematics Y2 – E1, E2, E3, D1, D2, D3 Y3 – B2, B3, E2, E3, D1, D2, D3	• *Understand and use the terms numerator and denominator.* • *Understand that a fraction can describe part of a set.* • *Understand that the larger the denominator is, the more pieces it is split into and therefore the smaller each part will be.* • 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. • *Count on and back in steps of* $\frac{1}{2}$ *and* $\frac{1}{4}$. • Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.	Children's knowledge and understanding of fractions develops to include the names of each number in a written fraction and what each number represents. Practical and visual approaches should be used to allow children to see what the numerator and denominator are and how they go together to form a fraction of a shape or quantity. Children are introduced to $\frac{2}{4}$ and $\frac{3}{4}$ as the first examples of non-unit fractions. Using shapes, practical and pictorial representations, children understand the concept of equivalent fractions e.g. $\frac{2}{4}$ and $\frac{1}{2}$ Children should understand the connection between finding a fraction of an amount and division by sharing. This can be supported by using shapes divided into equal fractions and sharing real items equally on to each fraction part.
Week 5 *Position, direction and time* Links to Framework for Mathematics Y2 – B1, B3, D1, D2, D3 Y3 – D1, D2, D3, C2	• 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). • 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. • Compare and sequence intervals of time.	Children's understanding of position and direction is developed through practical work describing routes and relating turns to the movement of the hands on a clock. When teaching time, links need to be made with fractions half and quarter, and also counting in 5s. Children should experience geared analogue clocks to recognise how the hour hand moves as the minute hand moves around the clock. The idea of minutes past the hour and minutes to the next hour can be explored and linked to rounding numbers and also number bonds of multiples of 5 to 60. Children should explore how long certain activities take and also how many times certain things can be done in a given time period e.g. one minute.
Week 6 *Shape* Links to Framework for Mathematics Y2 – B1, B2, B3 Y3 – B1, B2, B3, B2, C1, C2	• Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid). • Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. • Compare and sort common 2-D and 3-D shapes and everyday objects.	When learning about shapes, children should handle, name and describe them. Children should recognise shapes in different orientations and also in different sizes, and know that some shapes can look differently to other shapes with the same name. When describing 2-D shapes, it is useful for children to consistently use the terms side and corner. When describing 3-D shapes, it is useful for children to consistently use the terms face, edge and vertex (vertices). When sorting shapes in different ways, children should use various diagrams including sorting tables, Venn and Carroll diagrams.

Year 2 Summer 2

Starter suggestions for Number

- Read and write numbers to 100 in figures and words.
- Count on and back in 1s from any one or two-digit number.
- Count on and back in steps of 2, 3 and 5 from 0.
- Count on and back in 10s from any number.
- Recall multiplication facts for the 2x, 5x and 10x tables.
- Recognise odd and even numbers.
- Order a set of random numbers to 100.
- Recall addition and subtraction facts for each number up to 20, and related facts up to 100.
- Recall doubles of simple 2-digit numbers i.e. numbers in which the ones total less than 10.
- Recall halves of simple even numbers i.e. numbers in which the tens are even.
- Add a single digit number to any 2-digit number.
- Take away a single digit number from 2-digit number.
- Identify number patterns on number lines and hundred squares.

Starter suggestions for Measurement, Geometry and Statistics

- Identify 2-D shapes in different orientations and begin to describe them.
- Identify 3-D shapes in different orientations and begin to describe them.
- Compare and sort common 2-D and 3-D shapes and everyday objects.
- Order and arrange combinations of mathematical objects in patterns and sequences.
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.
- Estimate the length and height of familiar items using standard units.
- Estimate mass and capacity of familiar items using standard units.
- Tell the time to the nearest five minutes on an analogue clock.
- Know the number of minutes in an hour and the number of hours in a day.
- Recognise and count amounts of money.
- Interpret simple pictograms, tally charts, block diagrams and tables.

	Main learning	Rationale
Week 1 *Time* Links to Framework for Mathematics Y2 – B1, B3, D1, D2, D3 Y3 – D1, D2, D3, C2	• 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. • Compare and sequence intervals of time.	When teaching time, links need to be made with fractions half and quarter, and also counting in 5s. Children should experience geared analogue clocks to recognise how the hour hand moves as the minute hand moves around the clock. The idea of minutes past the hour and minutes to the next hour can be explored and linked to rounding numbers and also number bonds of multiples of 5 to 60.
Week 2 *Multiplication and division* Links to Framework for Mathematics Y2 – B1, B2, B3, E1, E2, E3, A2, A3, C1, C2, C3 Y3 – B1, B2, A2, A3, E1, E2, E3, C1, C2	• *Understand multiplication as repeated addition.* • *Understand division as sharing and grouping.* • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. • *Understand the connection between the 10 multiplication table and place value.* • Calculate mathematical statements for multiplication *(using repeated addition)* and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	Rote counting should be linked to repeated addition and the creation of arrays. Children should learn that multiplication is a convenient way of repeatedly adding a number to itself e.g. 2+2+2+2+2+2 can be said as 2x6 (2 added to itself 6 times). The array created can then be used to demonstrate commutativity i.e. that 2x6 is the same as 6x2. Children should make links to real life application of multiplication as repeated addition. Children should begin to relate counting in steps of 2, 3, 5 and 10 to the multiplication tables. Children should be introduced to division using contexts that involve sharing. Division as grouping should also be explored practically and linked to the arrays created when learning about multiplication. This helps children see the inverse relationship between multiplication and division by exploring 'How many groups of… are there in…? The contexts for grouping should be ones children can relate to, for example making teams of equal size from a given number of children; putting 5 sweets in each bag and finding how many bags can be filled using 47 sweets? These real life scenarios support children in understanding that some numbers do not divide equally and this gives rise to remainders.
Week 3 *Statistics including subtraction (finding the difference)* Links to Framework for Mathematics Y2 – C1, C2, C3 Y3 – C1, C2, C3	• Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. • Ask and answer questions about totalling and comparing categorical data. • *Understand subtraction as take away and difference (how many more, how many less/fewer).* • 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 ones; a two-digit number and tens; two two-digit numbers. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Children apply their knowledge of counting in equal steps to work with scales on graphs and charts that count in steps of 2, 5 or 10 or to pictograms in which each symbol is worth more than 1. They also apply their knowledge of place value and calculation to the context of statistics, with a particular focus on difference '*How many more…?*' and *'How many fewer/less…?*

	Main learning	Rationale
Week 4 *Measurement* Links to Framework for Mathematics Y2 – C1, C2, C3, D1, D2, D3 Y3 – B1, B2, B3, C1, C2, C3, D1, D2, D3	• Choose and use appropriate standard units to estimate and measure capacity and volume (litres/ml) to the nearest appropriate unit using measuring vessels. • Compare and order volume/capacity and record the results using >, < and =. • Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit using rulers. • Compare and order lengths and record the results using >, < and =. • Choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit using scales. • Compare and order mass and record the results using >, < and =.	Children should use the term mass instead of weight. Children should work practically to measure length and height, recognising that both are measurements of distance. Children should use standard units and then consolidate their place value knowledge by comparing and ordering lengths and masses. The understanding of positioning numbers on a number line is applied to measuring scales and identifying lengths and masses of familiar items. Children can apply their measuring skills in PE lessons, when measuring how far they jump or throw.
Week 5 *Sorting* Links to Framework for Mathematics Y2 – B1, C1, C2, C3 Y3 – B3, C1, C2	• Compare and sort common 2-D and 3-D shapes and everyday objects. • Compare and sort numbers according to their properties.	Children's work on sorting can be used to consolidate understanding of the properties of numbers, including comparing numbers, odd and even and sequences.
Week 6 Assess and review	Assess and review week	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.

Year 2 programme of study

Number – number and place value

Statutory requirements

Pupils should be taught to:

- count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward; *(from Year 3)*
- recognise the place value of each digit in a two-digit number (tens, ones);
- 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. *(from Year 3)*

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 three to support their later understanding of a third.

As they become more confident with numbers up to 100, pupils are introduced to larger 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 subtraction. 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 zero as a place holder.

Number – addition and subtraction

Statutory requirements

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 ones;
  - a two-digit number and tens;
  - two two-digit numbers;
  - adding three one-digit numbers;
- show that addition of two numbers can be done in any order (commutative) and subtraction of one 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 practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using 3 + 7 = 10; 10 – 7 = 3 and 7 = 10 – 3 to calculate 30 + 70 = 100; 100 – 70 = 30 and 70 = 100 – 30. They check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (for example, 5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5). This establishes commutativity and associativity of addition.

Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers.

Number – multiplication and division

Statutory requirements

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 two numbers can be done in any order (commutative) and division of one 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 on the clock face. They begin to use other multiplication tables and recall multiplication facts, including using 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 grouping and sharing discrete and continuous quantities, to arrays and to repeated addition. They begin to relate these to fractions and measures (for example, 40 ÷ 2 = 20, 20 is a half of 40). They use commutativity and inverse relations to develop multiplicative reasoning (for example, 4 × 5 = 20 and 20 ÷ 5 = 4).

Number – fractions

Statutory requirements

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; *(from Year 3)*
- 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 $\frac{3}{4}$ as the first example of a non-unit fraction.

Pupils should count in fractions up to 10, starting from any number and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line (for example, $1\frac{1}{4}$, $1\frac{2}{4}$ (or $1\frac{1}{2}$), $1\frac{3}{4}$, 2). This reinforces the concept of fractions as numbers and that they can add up to more than one.

Measurement

Statutory requirements

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; *(from Year 3)*
- 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; *(from Year 3)*
- 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'.

They become fluent in telling the time on analogue clocks and recording it.
Pupils become fluent in counting and recognising coins. They read and say amounts of money confidently and use the symbols £ and p accurately, recording pounds and pence separately.

Geometry – properties of shapes

Statutory requirements

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

Statutory requirements

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

Statutory requirements

Pupils should be taught to:

- interpret and construct simple pictograms, tally charts, block diagrams and simple 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 with simple ratios 2, 5, 10).