

## **Maths Overview**

Children will be given opportunities to apply their mathematical skills in a range of subjects across the curriculum. They will be given opportunities to develop a deep understanding of key concepts through access to sophisticated problems. Pupils will also be given opportunities to consolidate key skills before moving on to learn further content.

### **Key Stage One**

#### **Year 1**

##### **Year 1 Autumn**

Counting, partitioning and calculating:

- Count on and back in ones, twos, fives and tens.
- Know that addition is the total of 2 or more sets. Know that subtraction is 'taking away' and finding out how many are left.
- Record work using mathematical symbols e.g.  $+$   $-$   $=$

Securing number facts

- Read, write and order numbers to at least 10.
- Know 1 more and one less than given number. Know odd and even numbers.
- Know most number bonds to 10.

Understanding shape

- Recognise and describe common 2D shapes and 3D shapes.
- Continue a repeating pattern.
- Recognise symmetrical patterns.

Measuring

- Identify tallest/shortest in a range of objects. Put objects into height order and weight order.
- Use standard and non- standard units of measure.

## **Year 1 Spring**

### Counting, partitioning and calculating

- Count in twos, fives and tens.
- Understand the value of different numbers (tens and units).
- Partition when working out addition and subtraction calculations.
- Use a range of methods to work out addition and subtraction calculations including mental methods.
- Know how to divide and multiply using the method taught.

### Securing number facts

- Know all number bonds to 10.
- Know that a 2 digit number is made up of tens and units.
- Halve even numbers to at least 10.

### Understanding shape

- Identify and know the difference between 2D and 3D shapes.
- Identify the properties of 2D and 3D shapes.

### Measuring

- Measure a range of objects using cm and m.
- Work out the capacity of different containers.
- Measure using ml and l.
- Recap O'clock and half past.
- Know how many minutes in an hour, hours in a day.

## **Year 1 Summer**

### Counting, partitioning and calculating

- Read, write and order numbers to at least 20.
- Count on in twos, fives and tens.
- Use a range of methods to work out addition and subtraction calculations.
- Use a range of methods to work out division and multiplication calculations.

### Measuring

- Know O'clock and half past.
- Know what quarter past and quarter to look like on an analogue clock.
- Measure using mm, cm and m, ml and l.

### Understanding shape

- Recognise and identify 2D shapes by counting the sides and corners.
- Name properties of 3D shapes.
- Draw 2D shapes.

### Securing number facts

- Read, write, count and order numbers up to 100.
- Know addition and subtraction facts to 10.
- Know the value of different digits in a two digit number.

## Year 2

### Year 2 Autumn

#### Number & Place Value

- Reading, writing, counting and ordering numbers to 100.
- Place value. Understanding the value of each digit in a 2 digit number.
- Partitioning
- $<$   $>$  signs
- Counting in 1's, 2's, 10's and 5's and using these skills to put objects into groups for counting larger amounts.
- Rounding 2 digit numbers to the nearest 10.
- Odd and even numbers and simple number sequences.

#### Calculation – Addition & Subtraction

- Number bonds to 10, 20 and 100 and the relationships between them.
- Adding/subtracting 2 numbers less than 20 using apparatus, written methods and number lines.
- Putting a number 'in their head' and counting on/back from it.
- Addition of 2 digit numbers using Base 10 apparatus and tens and units.
- Difference between
- Introduction of number lines to solve subtraction sums.
- Adding and subtracting multiples of 10

#### Calculation – Multiplication & Division

- Understanding multiplication as repeated addition, arrays and groups of.
- Understanding division as sharing out.
- Using their fingers to work out 2s, 5s, 10s, multiplication facts.

#### Measurement

- The relationship between seconds, minutes, hours, days, weeks, months, years.
- An understanding of passage of time and the length of a second and minute.
- Tell the time to o'clock, half past, quarter past and quarter to.
- An understanding of the times of events during a day.
- Weighing in non-standard units.
- Weighing with grams and kilograms and measuring in cms and half cms.
- Recognising British coins and using them to make amounts adding amounts.
- Being able to read amounts in £:p

#### Geometry – Properties Of Shapes

- Recognise 2D and 3D shapes.
- Identify the properties of shapes including edges, faces, vertices and corners.
- Symmetry

#### Statistics

- Collecting and collating information in tally charts and tables.
- Interpreting a pictogram
- Sorting information in Venn & Carroll Diagrams.

## Year 2 Spring

### Number & Place Value

- Reading, writing, counting and ordering numbers to 100 and beyond.
- Place value. Understanding the value of each digit in a 3 digit number.
- Partitioning
- Counting in 3's and 5's. Number sequences.

### Calculation – Addition & Subtraction

- Number bonds to 10, 20 and 100 and the relationships between them.
- Counting on and partitioning to add
- Using number lines to solve subtraction sums.
- Adding and subtracting multiples of 10 to any given number.

### Calculation – Multiplication & Division

- Understanding multiplication as repeated addition, arrays and groups of.
- Understanding division as sharing out.
- Learn the 2x and 10x tables by heart.
- Start to use multiplication tables to solve simple calculations.
- Word puzzles – add, subtract, divide and multiply

### Measurement

- Tell and write the time to 5 minute intervals.
- Word puzzles with the passage of time.
- Capacity – millilitres and litres
- Reading the temperature on a thermometer in °C
- Making amounts with coins
- Reading amounts in £:p and combining these to calculate totals.
- Working out change

### Geometry – Position & Direction

- Right angles
- Pattern and sequence
- Co-ordinates

### Fractions

- Halves and quarters of shapes and amounts.
- Equivalent fractions. E.g.  $\frac{1}{2} = \frac{2}{4}$

### Statistics

- Collecting and collating information in tables.
- Block graphs including where the scale on y axis is greater than 1.

## Year 2 Summer

### Number & Place Value

- Reading, writing, counting and ordering numbers to 1000.
- Place value. Understanding the value of each digit in a 3 digit number.
- Counting in 3's and 5's. Number sequences.
- Rounding 3 digit numbers to the nearest 10.

### Calculation – Addition & Subtraction

- Addition of 2 digit numbers using partitioning and introducing the column method
- Number lines and partitioning to solve subtraction sums.
- Adding and subtracting multiples of 10 to any given number and sometimes 3 digit numbers.
- Word puzzles and some 2 step problems.

### Calculation – Multiplication & Division

- Learn the 5x table by heart.
- Use multiplication tables to solve calculations.
- Introduction of division with remainders.
- Introduction of multiplying 2 digit numbers by a single digit.

### Measurement

- Tell and write the time to 5 minute intervals.
- Word puzzles, some 2 step problems.
- Introduction of digital time.
- Measuring in metres and centimetres
- Comparing measures using vocabulary such as 'twice as tall as'.
- Adding and subtracting amounts and working out change.
- Understanding of money in their everyday life (Money Week).

### Geometry

- Revision of 2D & 3D shapes and their properties including irregular 2D shapes
- Symmetry and right angles in shapes
- Directions – forwards, backwards, left, right, north, south, east, west
- Turns – half turn, quarter turn, three-quarter turn, right angle, two right angles, 90°, 180°, clockwise, anti-clockwise. Programming the floor robots

### Fractions

- $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ , of amounts.
- Equivalent fractions
- Placing fractions on a number line.

### Statistics

- Interpreting information in charts and tables where ratios are more than one.
- Interpret block graphs where the scale on the y axis is greater than 2

## Key Stage 2 Maths Overview

### Year 3

#### Year 3 Autumn

- Read, write, partition and order numbers to 1000.
- Solve puzzles and word problems.
- Recall addition and subtraction facts to 20.
- Add and subtract mentally and using written methods.
- Use Roman numerals.
- Identify patterns with numbers and shapes.
- Calculate doubles and halves.
- Recognise, describe and draw 2d and 3d shapes
- Identify horizontal, vertical, perpendicular and parallel lines.
- Interpret and present data using bar charts, pictograms and tables.
- Statistics - use Venn and Carroll diagrams.
- Know the relationship between km, m, cm and mm, kg, and g, l and ml and use this to read and compare scales.
- Find fractions of numbers and quantities
- Compare and order fractions
- Read the 12 and 24 hour clocks and use these to work out time intervals

#### Year 3 Spring

- Add and subtract using money in the context of word problems.
- Round numbers and use estimates for addition and subtraction.
- Multiply numbers by 10 and 100.
- Recall multiplication facts for the 2,3,4,5,6,8 and 10 times tables
- Know the corresponding division facts.
- Read and write fractions and use this to solve problems.
- Count in tenths.
- Draw and complete shapes with reflective symmetry.
- Estimate and measure using the appropriate units.
- Read the time on the 12 hr and 24 hr clock.
- Record the time.
- Statistics - sort information on Venn and Carroll diagrams with more than one criterion.
- Use correct notation when solving a problem.
- Round up or down after division.
- Draw the reflection of a shape.

### **Year 3 Summer**

- Solve one and two step problems.
- Develop written methods for addition and subtraction of 2 and 3 digit numbers.
- Recognise and count in multiples of 2,5 and 10.
- Recall times tables to 10 x 10
- Divide 2 digit numbers using recall of times tables.
- Know equivalent fractions.
- Add and subtract fractions with the same denominator.
- Find fractions using division.
- Use short multiplication and division.
- Recognise angles in half, quarter and full turns.
- Describe properties of shapes.
- Use a set square to draw and measure right angles.
- Interpret and organise information in a range of ways including tables and charts
- Answer a question by collecting and presenting data using ICT.
- Compare durations of events.

## Year 4

### Year 4 Autumn

- Place value and rounding
- Add and subtract up to 4 digits using column method,
- Problem solving to 2 steps.
- Times Tables to 10 x 10.
- Use recall of times tables to divide mentally.
- Read and write Roman numerals.
- Properties of 2d and 3d shapes
- Perimeter.
- Co-ordinates.
- Polygons including comparing geometric shapes
- Angles - acute and obtuse angles.
- Symmetry – identifying lines of symmetry.
- Time: read, write and convert time between analogue and digital clocks.
- Fractions: Decimals and equivalent fractions
- Fractions of numbers, quantities and shape.
- Statistics: present data using charts,
- Reading information from pictograms and creating pictograms.
- Tables and other graphs.

### Year 4 Spring

- Place value, order and compare numbers beyond 1000,
- Estimating.
- Practical problem-solving.
- Multiplying 2 and 3 digit numbers using formal methods.
- Add and subtract using 4 digits using column method.
- Problem solving with 2 steps in a range of contexts
- Times tables to 12x 12
- Use recall of times tables to divide mentally.
- Fractions and their decimal equivalents.
- Properties of polygons.
- Classify geometric shapes including quadrilaterals and triangles
- Find area and perimeter of shapes.
- Acute and obtuse angles
- Symmetry.
- Measuring: convert units of measurement.
- Problem solving including measures.
- Statistics: present data using charts, pictograms, tables and other graphs.

## Year 4 Summer

- Count in multiples, place value, order and compare numbers beyond 1000.
- Work with a range of numbers to solve practical problems.
- Multiply 2 and 3 digit numbers by one digit using formal methods.
- Add and subtract using 4 digits using column method.
- Problem solving to 2 steps.
- Times tables up to  $12 \times 12$ .
- Use recall of times tables to divide mentally and extend to 3 digit numbers
- Fractions: Equivalent fractions, fraction problems.
- Add and subtract fraction.
- Consolidate decimal equivalents to fraction.
- Shape: polygons, classify geometric shapes including quadrilaterals and triangles.
- Identify and draw acute and obtuse angles.
- Symmetry.
- Area and perimeter.
- Co-ordinates.
- Translating shapes.
- Measuring: Convert units of measurements, problem solving including measures.
- Handling data: Interpret discrete and continuous data including bar charts and line graphs.

## Year 5

### Year 5 Autumn

- Count in whole numbers and decimals
- Explain what each digit represents in whole numbers and decimal numbers
- Add and subtract whole numbers and decimal numbers
- Multiply and divide whole and decimal numbers by 10, 100 and 1000
- Multiply two and three digit by one digit numbers
- Use rounding and place value to estimate and check calculations
- Identify pairs of factors of two-digit whole numbers and find common multiples
- Recall multiplication facts up to  $12 \times 12$
- Solve addition and subtraction multi-step problems
- Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D shapes
- Construct frequency tables, pictograms and bar and line graphs
- Find the mode of a set of data
- Measure and calculate perimeter
- Read and plot coordinates in the first quadrant
- Find fractions using division

### Year 5 Spring

- Use a calculator to solve problems
- Interpret and count forwards and backwards with positive and negative whole numbers, including through zero
- Multiply and divide numbers mentally drawing upon known facts
- divide numbers up to 4 digits by a one-digit number
- Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.
- Add and subtract numbers mentally with increasingly large numbers
- multiply 4 digit numbers by a one or two digit number
- Complete patterns with up to two lines of symmetry
- draw the position of a shape after a reflection or translation
- calculate and compare the area of rectangles (including squares)
- Estimate, draw and measure acute and obtuse angles
- Draw and measure lines to the nearest millimetre
- Understand percentage

## **Year 5 Summer**

- Understand numbers up to 10,000
- Add and subtract whole numbers with more than 4 digits
- Use a calculator to solve problems, including those involving decimals or fractions
- Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
- Explore mathematical patterns
- Find prime numbers
- Divide 4 digit numbers by one or two digit numbers
- Distinguish between regular and irregular polygons
- Know angles are measured in degrees
- Estimate and measure weight, and length
- Read and plot coordinates in all four quadrants
- Multiply proper fractions and mixed numbers by whole numbers
- Read and write decimal numbers as fractions

## Year 6

### Year 6 Autumn

- Read write, order and compare numbers paying close attention to value of digits.
- Work with numbers to 1,000,000.
- Round whole numbers.
- Negative numbers.
- Learning and consolidating secure written methods for all 4 operations including short division.
- Finding common multiples and factors of numbers.
- Identify prime, square and triangular numbers.
- Solving word problems with 2 or more steps in a variety of contexts including measure questions.
- Properties of 2d and 3 d shapes.
- Collecting and interpreting data,
- Construct pie charts.
- Interpret and construct line and bar charts
- Solve problems involving statistics
- Calculating area and perimeter

### Year 6 Spring

- Compare and order fractions, decimals and percentages
- Find percentages of numbers
- Solving word problems with 2 or more steps in a range of contexts.
- Comparing shapes and finding unknown angles of triangles, regular polygons and quadrilaterals
- Build simple 3-D shapes including making nets
- Draw, reflect and translate shapes
- Describe positions on a full coordinate grid
- Converting measure
- Using measures in practical contexts
- Use simple formulae
- Generate and describe linear number sequences
- Simplify fractions
- Add, subtract, multiply fractions

## **Year 6 Summer**

- Solving problems involving all operations, fractions, decimals and percentages.
- Statistics - collecting data and presenting it in a range of graphs and charts
- Interpret data.
- Name parts of a circle, including radius, diameter and circumference.
- Draw, reflect and translate shapes
- Perform mental calculations, including with mixed operations and large numbers
- Solve practical problems involving all of the above