

MATHS – YEAR 6

AUTUMN TERM

Pupils will have the opportunity to develop the following skills:

Number: Place Value

Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.

Round any whole number to a required degree of accuracy.

Use negative numbers in context, and calculate intervals across zero.

Solve number and practical problems that involve all of the above.

Number- addition subtraction, multiplication + division

- Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.
- Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication.
- Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding as appropriate for the context.
- Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to the context.
- Perform mental calculations, including with mixed operations and large numbers.
- Identify common factors, common multiples and prime numbers.
- Use their knowledge of the order of operations to carry out calculations involving the four operations.
- Solve problems involving addition, subtraction, multiplication and division.
- Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy.

Fractions

- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
- Compare and order fractions, including fractions > 1
- Generate and describe linear number sequences (with fractions)
- Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions.

Pupils will have the opportunity to develop their knowledge about:

Number: Place Value

- Know the place value of numbers up to 1,000,000

Number- addition subtraction, multiplication + division

- Know strategies for dividing numbers up to 4 digits by a 2-digit whole number
- Know how to interpret remainders
- Know Order of Operations

- Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example $14 \times 12 = 18$]
- Divide proper fractions by whole numbers [for example $13 \div 2 = 16$]
- Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example 38]
- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Geometry- Position and Direction

- Describe positions on the full coordinate grid (all four quadrants).
- Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Fractions

- Know strategies for simplifying fractions and comparing fractions greater than 1
- Understand fraction sequences
- Know strategies calculating with fractions (adding/subtracting with different denominators, multiplying fractions)
- Know equivalence between simple fractions, decimals and % (0.25, 0.5 and 0.75)

Geometry- Position and Direction

- Recognise coordinates in all 4 quadrants

SPRING TERM

Throughout the term pupils will have the opportunity to develop the following skills:

Number: Decimals

- Identify the value of each digit in numbers given to 3 decimal places and multiply numbers by 10, 100 and 1,000 giving answers up to 3 decimal places.
- Multiply one-digit numbers with up to 2 decimal places by whole numbers.
- Use written division methods in cases where the answer has up to 2 decimal places.
- Solve problems which require answers to be rounded to specified degrees of accuracy.

Pupils will have the opportunity to develop their knowledge about:

- **Number (Decimals)** - strategies for multiplying and dividing decimals by whole numbers; strategies for calculating percentages

Number: Percentages

- Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison.
- Recall and use equivalences between simple fractions, decimals and percentages including in different contexts.

Number: Algebra

- Use simple formulae
- Generate and describe linear number sequences.
- Express missing number problems algebraically.
- Find pairs of numbers that satisfy an equation with two unknowns.
- Enumerate possibilities of combinations of two variables.

Measurement Converting Units

- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.
- Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3dp.
- Convert between miles and kilometres.

Measurement: Perimeter, Area and Volume

- Recognise that shapes with the same areas can have different perimeters and vice versa.
- Recognise when it is possible to use formulae for area and volume of shapes.
- Calculate the area of parallelograms and triangles.
- Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm³, m³ and extending to other units (mm³, km³)

Number: Ratio

- Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.
- Solve problems involving similar shapes where the scale factor is known or can be found.
- Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

- **Number (Algebra)** - understand the concept of algebra; know how to find missing values using algebra
- **Measurement (Converting Units)** - measurements of length, mass, volume and time
- **Measurement (Perimeter, Area and Volume)** - know how to use formulae for finding area (rectangles, triangles and parallelograms) and volume
- **Number (Ratio)** - understand and use ratio with numbers and with scale factors for shape.

SUMMER TERM

Pupils will have the opportunity to develop the following skills:

Geometry: Properties of Shapes

- Draw 2-D shapes using given dimensions and angles.
- Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons.
- Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

Statistics

- Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.
- Interpret and construct pie charts and line graphs and use these to solve problems.

Calculate the mean as an average.

Pupils will have the opportunity to develop their knowledge about:

Geometry: Properties of Shapes

- Know the properties of 2D and 3D shapes
- Know the angle totals at a point and on a straight line

Statistics

Know the vocabulary for circles and pie charts.