

MATHS – YEAR 5**AUTUMN TERM**

Pupils will have the opportunity to develop the following skills:

Number – Place Value

- Read, write, order and compare numbers to at least 1000000 and determine the value of each digit.
- Count forwards or backwards in steps of powers of 10 for any given number up to 1000000.
- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero.
- Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000
- Solve number problems and practical problems that involve all of the above.
- Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

Number- Addition and Subtraction

- Add and subtract numbers mentally with increasingly large numbers.
- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Statistics

- Solve comparison, sum and difference problems using information presented in a line graph.
- Complete, read and interpret information in tables including timetables.

Number – multiplication and division

- Multiply and divide numbers mentally drawing upon known facts.
- Multiply and divide whole numbers by 10, 100 and 1000.
- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.

Pupils will have the opportunity to develop their knowledge about:

Number – Place Value –:

- Know the place value of numbers up to 1,000,000
- Understand the concept of negative numbers
- Recognise Roman Numerals

Number- Addition and Subtraction

- Know strategies for adding and subtracting mentally
- Know strategies for adding and subtracting numbers with more than 4 digits

Statistics

- Recognise data in different representations.

Number – multiplication and division

- Know factors and multiples of numbers.
- Recognise square numbers and cube numbers and the notation for squared (2) and cubed (3)
- Identify prime numbers - Establish whether a number up to 100 is prime and recall prime numbers up to 19

Perimeter and Area

- Understand the terms perimeter and area

- Recognise and use square numbers and cube numbers and the notation for squared (2) and cubed (3)
- Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.
- Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
- Establish whether a number up to 100 is prime and recall prime numbers up to 19

Perimeter and Area

- Measure and calculate the perimeter of composite rectilinear shapes in cm and m.

Calculate and compare the area of rectangles (including squares), and including using standard units, cm², m² estimate the area of irregular shapes.

SPRING TERM

Number (Multiplication and Division) – pupils will have the opportunity to develop the following skills:

- Multiplying and dividing numbers mentally drawing upon known facts
- Multiplying numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 digit numbers
- Dividing numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainders appropriately for the context
- Solving problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign

Number (Fractions) – pupils will have the opportunity to develop the following skills:

- Compare and order fractions whose denominators are multiples of the same number.
- Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths.
- Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number [for example $25 \div 45 = 65 = 1 \frac{15}{45}$]
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number.

Number (Multiplication and Division) – pupils will have the opportunity to develop their knowledge about:

- Strategies for multiplying and dividing mentally
- Strategies for multiplying up to 4 digits by a one or two digit number and dividing numbers with more than 4 digits by a 1 digit number

Number (Fractions) - pupils will have the opportunity to develop their knowledge about:

- Recognising equivalent fractions
- Strategies for ordering and comparing fractions
- Strategies for calculating with fractions (simple adding/subtracting, multiplying by whole numbers)
- Links between fractions and decimals

- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.
- Read and write decimal numbers as fractions [for example $0.71 = \frac{71}{100}$]
- Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

Number (Decimals and Percentages) - pupils will have the opportunity to develop the following skills:

- Read, write, order and compare numbers with up to three decimal places.
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
- Round decimals with two decimal places to the nearest whole number and to one decimal place.
- Solve problems involving number up to three decimal places.
- Solve problems which require knowing percentage and decimal equivalents of 12, 14, 15, 25, 45 and those fractions with a denominator

Number (Decimals and Percentages) - pupils will have the opportunity to develop their knowledge about:

- Place value in numbers with 3 decimal places
- The per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.

SUMMER TERM

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

Number: Decimals

- Solve problems involving number up to three decimal places.
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
- Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

Geometry- Properties of Shapes and Angles

- Identify 3D shapes, including cubes and other cuboids, from 2D representations.
- Use the properties of rectangles to deduce related facts and find missing lengths and angles.
- Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
- Draw given angles, and measure them in degrees (o)

Geometry- position and direction

- Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

Pupils will have the opportunity to develop their knowledge about:

Number: Decimals

- Know strategies for calculating with decimals

Geometry- Properties of Shapes and Angles

- Recognise and describe 3D shapes
- Understand angles - Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Identify: angles at a point and one whole turn (total 360o), angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180o) other multiples of 90o

Geometry- position and direction

- Know the vocabulary of shape position

Measurement- converting units

- Know metric and imperial units

Measurement- converting units

- Convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml]
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.
- Solve problems involving converting between units of time.

Measures: Volume

- Estimate volume [for example using 1cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]

Use all four operations to solve problems involving measure.

Measures: Volume

- Understand the concept of volume