# The National Curriculum for Mathematics in Year 5

## Number & Place Value

Our children will be taught to:

o read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit

o count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000

o interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0

o round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000

o solve number problems and practical problems that involve all of the above

o read Roman numerals to 1,000 (M) and recognise years written in Roman numerals.

## Addition & Subtraction

Our children will be taught to:

o add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)

o add and subtract numbers mentally with increasingly large numbers

o use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

o solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

## Multiplication & Division

Our children will be taught to:

o identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.

o know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers

o establish whether a number up to 100 is prime and recall prime numbers up to 19

o multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers

o multiply and divide numbers mentally drawing upon known facts

o divide 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

- multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000
- 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
- solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

## Fractions (decimals & percentages)

Our children will be taught to:

- compare and order fractions whose denominators are all 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 2/5 + 4/5 = 6/5 = 1 1/5]
- add and subtract fractions with the same denominator and denominators that are multiples of the same number
- 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 = 71/100]
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- round decimals with 2 decimal places to the nearest whole number and to 1 decimal place
- read, write, order and compare numbers with up to 3 decimal places
- solve problems involving number up to 3 decimal places
- recognise the per cent symbol (%) and understand that per cent relates to "number of parts per 100", and write percentages as a fraction with denominator 100, and as a decimal fraction
- solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and fractions with a denominator of a multiple of 10 or 25.

## Measurement

Our children will be taught to:

- convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre]

- understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- calculate and compare the area of rectangles (including squares) including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes
- estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]
- solve problems involving converting between units of time
- use all four operations to solve problems involving measure using decimal notation including scaling [for example, length, mass, volume, money].

## Properties of Shape

Our children will be taught to:

- identify 3-D shapes, including cubes and other cuboids, from 2-D representations
- know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- draw given angles, and measure them in degrees (°)
- identify:
- angles at a point and 1 whole turn (total 360°)
- angles at a point on a straight line and half a turn (total 180°)
- other multiples of 90°
- 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.

## Position & Direction

Our children will be taught to:

- 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.

## Statistics

Our children will be taught to:

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