



# Maths - UK

YEAR 5

Experience Level: **UPPER KEY-STAGE 2**Number of Classes: **VARIABLE**Age Range: **8 - 9 YEARS**

01

## Number – number and place value

- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.
- count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.
- interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.
- round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.
- 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.



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02

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## Number – addition and subtraction

- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).
- add and subtract numbers mentally with increasingly large numbers.
- 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.

03

## Number – multiplication and division

- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.
- 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.
- 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.
- multiply and divide numbers mentally drawing upon known facts.
- 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 1000.



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## Number – multiplication and division (Contd).

- 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.

04

## Number — fractions (including decimals and percentages)

- 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,  $2/5 + 4/5 = 6/5 = 1\frac{1}{5}$ ].
- add and subtract fractions with the same denominator and denominators that are multiples of the same number.



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## Number — fractions (including decimals and percentages) (Contd).

- 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 two decimal places to the nearest whole number and to one decimal place.
- read, write, order and compare numbers with up to three decimal places.
- solve problems involving number up to three decimal places.
- recognise 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.
- solve problems which require knowing percentage and decimal equivalents of  $1/2$ ,  $1/4$ ,  $1/5$ ,  $2/5$ ,  $4/5$  and those fractions with a denominator of a multiple of 10 or 25.

05

## Measurement

- 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



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## Measurement (Contd).

- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.
- calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres ( $\text{cm}^2$ ) and square metres ( $\text{m}^2$ ) and estimate the area of irregular shapes.
- estimate volume [for example, using  $1\text{ cm}^3$  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 [for example, length, mass, volume, money] using decimal notation, including scaling.

06

## Geometry — properties of shapes

- 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 ( $^\circ$ ).
- identify angles at a point and one whole turn (total  $360^\circ$ ), angles at a point on a straight line and  $1/2$  a turn (total  $180^\circ$ ), other multiples of  $90^\circ$ .
- 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.



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## 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.

08

## Statistics

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



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