

Key Learning in Mathematics – Year 4

Number – number and place value

- Count in multiples of 6, 7, 9, 25 and 1000
- Count backwards through zero to include negative numbers
- Count up and down in hundredths
- Read and write numbers to at least 10 000
- Read and write numbers with up to two decimal places
- Recognise the place value of each digit in a four-digit number
- Identify the value of each digit to two decimal places
- Partition numbers in different ways (e.g. $2.3 = 2 + 0.3$ & $1 + 1.3$)
- Identify, represent and estimate numbers using different representations (including the number line)
- Order and compare numbers beyond 1000
- Order and compare numbers with the same number of decimal places up to two decimal places
- Find 0.1, 1, 10, 100 or 1000 more or less than a given number
- Round any number to the nearest 10, 100 or 1000
- Round decimals (one decimal place) to the nearest whole number
- Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer
- Describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps
- Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value
- Solve number and practical problems that involve all of the above and with increasingly large positive numbers

Number – fractions and decimals

- Understand that a fraction is one whole number divided by another (e.g. $\frac{3}{4}$ can be interpreted as $3 \div 4$)
- Recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators
- Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten
- Count on and back in steps of unit fractions
- Compare and order unit fractions and fractions with the same denominators (including on a number line)
- Recognise and show, using diagrams, families of common equivalent fractions
- Recognise and write decimal equivalents of any number of tenths or hundredths
- Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$
- Add and subtract fractions with the same denominator (using diagrams)
- Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
- Solve simple measure and money problems involving fractions and decimals to two decimal places

Number – addition and subtraction

- Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
- Select a mental strategy appropriate for the numbers involved in the calculation
- Recall and use addition and subtraction facts for 100
- Recall and use $+/ -$ facts for multiples of 100 totalling 1000
- Derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)
- Add and subtract mentally combinations of two and three digit numbers and decimals to one decimal place
- Add and subtract numbers with up to 4 digits and decimals with one decimal place using the formal written methods of columnar addition and subtraction where appropriate
- Estimate; use inverse operations to check answers to a calculation
- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why
- Solve addition and subtraction problems involving missing numbers

Geometry – properties of shapes

- Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- Identify lines of symmetry in 2-D shapes presented in different orientations
- Complete a simple symmetric figure with respect to a specific line of symmetry
- Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines
- Identify acute and obtuse angles and compare and order angles up to two right angles by size

Geometry – position and direction

- Describe positions on a 2-D grid as coordinates in the first quadrant
- Plot specified points and draw sides to complete a given polygon
- Describe movements between positions as translations of a given unit to the left/right and up/down

Statistics

- Use a variety of sorting diagrams to compare and classify numbers and geometric shapes based on their properties and sizes
- Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts, time graphs
- Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Number – multiplication and division

- Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
- Recognise and use factor pairs and commutativity in mental calculations
- Recall multiplication and division facts for multiplication tables up to 12×12
- Use partitioning to double or halve any number, including decimals to one decimal place
- Use place value, known and derived facts to multiply and divide mentally, including:
 - multiplying by 0 and 1
 - dividing by 1
 - multiplying together three numbers
- Multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- Divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
- Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, division (including interpreting remainders), integer scaling problems and harder correspondence problems such as n objects are connected to m objects

Measurement

- Estimate, compare and calculate different measures, including money in pounds and pence
- Order temperatures including those below 0°C
- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- Know area is a measure of surface within a given boundary
- Find the area of rectilinear shapes by counting squares
- Convert between different units of measure [e.g. kilometre to metre; hour to minute]
- Read, write and convert time between analogue and digital 12- and 24-hour clocks
- Write amounts of money using decimal notation
- Recognise that one hundred 1p coins equal £1 and that each coin is $\frac{1}{100}$ of £1
- Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days and problems involving money and measures