



Mathematics: Year 4

I. NUMBERS AND THE NUMBER SYSTEM

A. WHOLE NUMBERS

- Read and write numbers to at least 10 000 in figures and words.
- Recognise and extend number sequences formed by counting on or back from any number in steps of constant size.
- Identify Roman numerals from 1 to 20 (I - XX).
- Recognise odd and even numbers to at least 1000.
- Recognise the place value of each digit in any four-digit number, and partition four-digit numbers into multiples of 1000, 100, 10 and 1.
- Compare numbers to at least 10 000 using the $<$, $>$, and $=$ signs.
- Order a set of numbers to at least 10 000.
- Round numbers to at least 10 000 to the nearest 10, 100 or 1000.
- Understand what negative numbers are in relation to familiar uses (such as temperatures below zero).
- Position positive and negative numbers on a number line.

B. FRACTIONS

- Recognise unit fractions to $\frac{1}{10}$ and fractions whose denominator is 10 or 100.
- Compare fractions with like denominators, using the signs $<$, $>$, and $=$.
- Interpret mixed numbers, e.g. $2\frac{1}{2}$.
- Recognise the equivalence of simple fractions, e.g. $\frac{1}{2} = \frac{3}{6}$.
- Find fractions of shapes, numbers or quantities, e.g. $\frac{1}{3}$ of 12, $\frac{2}{3}$ of 18.

C. DECIMALS

- Understand decimal notation and place value for tenths and hundredths, and use it in context.
- Compare and order decimals, and position decimals on a number line.
- Recognise the equivalence between the decimal and fraction forms of one half, quarters, tenths and hundredths.

II. NUMBER OPERATIONS AND CALCULATIONS

A. ADDITION AND SUBTRACTION

- Understand and use the principles (but not the names) of the commutative and associative laws as they apply to addition.
- Consolidate recall of all addition and subtraction facts for each number to 20.
- Add more than two one-digit or two-digit numbers, e.g. $13 + 8 + 22$
- Use known number facts and place value to mentally:
 - derive sums and differences of multiples of 10, 100 and 1000, e.g. $40 + 80$, $300 + 500$
 - add or subtract pairs of two-digit numbers, e.g. $35 + 68$, $74 - 46$
- Use written methods to:
 - add or subtract pairs of three-digit or four-digit numbers, e.g. $1982 + 726$, $2846 + 1427$, $746 - 317$, $4298 - 2784$
 - add more than two numbers, e.g. $376 + 716 + 123$
 - add or subtract calculations involving money, e.g. $£5.58 + £7.84$, $£9.32 - £4.77$

B. MULTIPLICATION AND DIVISION

- Use the principles (but not the names) of the commutative, associative and distributive laws as they apply to multiplication:
 - example of commutative law: $8 \times 24 = 24 \times 8$
 - example of associative law: $8 \times 24 = 8 \times (6 \times 4) = (8 \times 6) \times 4 = 48 \times 4 = 192$
 - example of distributive law: $9 \times 26 = 9 \times (20 + 6) = (9 \times 20) + (9 \times 6) = 180 + 54 = 234$
- Recall multiplication facts up to 10×10 and the corresponding division facts.
- Recognise multiples of numbers to 10 up to the tenth multiple.
- Recall doubles of all two-digit numbers, multiples of 10 and 100, and the corresponding halves.
- Multiply and divide whole numbers to 1000 by 0, 1, 10 or 100, and understand the effect.
- Use written methods to:
 - multiply a two-digit or three-digit number by a one-digit number, e.g. 472×6
 - divide a two-digit or three-digit number by a one-digit number, including division with remainders, rounding up or down depending on the context, e.g. $263 \div 8$

C. MIXED OPERATIONS

- Use knowledge of rounding, number operations and inverse relationships to estimate and check calculations.

III. MEASUREMENT**A. LENGTH, MASS, CAPACITY AND TEMPERATURE**

- Estimate, measure and record lengths, masses, capacities and temperatures using standard units (km, m, cm, mm, kg, g, l, ml, °C).
- Convert between different units of measure, e.g. km to m, m to cm, cm to mm, kg to g, l to ml or vice versa.
- Begin to use decimal notation to record and convert measurements, e.g. $2.3 \text{ kg} = 2300 \text{ g}$, or vice versa.
- Read and interpret intervals and divisions on partially numbered scales.
- Use a ruler to measure and draw lengths to the nearest millimetre.

B. TIME

- Read a simple timetable.
- Calculate time intervals from clocks, calendars and simple timetables.
- Read the time to the nearest minute on an analogue clock and 12-hour digital clock.
- Use am and pm and 12-hour clock notation, e.g. 5:24.

C. MONEY

- Add and subtract amounts of money to find totals and give change, using £.p notation.

D. PERIMETER AND AREA

- Measure and calculate the perimeter of a rectilinear shape.
- Measure and calculate the area of rectangles and related compound shapes using counting methods and the standard unit cm^2 .

IV. GEOMETRY**A. 2-D AND 3-D SHAPES**

- Draw polygons and classify them using criteria such as the number of right angles, whether or not they are regular, and their symmetrical properties.
- Visualise 3-D solids and objects from 2-D drawings.

B. POSITION, DIRECTION AND MOVEMENT

- Read and plot coordinates in the first quadrant.
- Recognise and use the eight compass directions. [Cross-curricular connection with Geography: Year 4]
- Know that angles are measured in degrees and that:
 - one whole turn is 360° (four right angles);
 - a half turn is 180° (two right angles or a straight line);
 - a quarter turn is 90° (or one right angle);
 - half a right angle is 45° .
- Compare and order angles less than 180° .

C. SYMMETRY

- Draw the reflection of a shape or pattern in a mirror line parallel to one side, where all sides of the shape or pattern are parallel or perpendicular to the mirror line.

V. DATA

- Collect, process, represent, interpret and discuss data in a tally chart, frequency table, pictogram or bar chart.
- Read, interpret and represent data:
 - where symbols represent more than one unit, e.g. 2, 5, 10 or 20;
 - where scales have intervals of differing step size, e.g. axis labelled in 2s, 5s, 10s or 20s.

VI. PROBLEM SOLVING AND REASONING

- Identify, describe and use numerical and symbolic patterns and relationships.
- Solve mathematical problems and puzzles involving numbers or shapes.
- Investigate a general statement involving numbers or shapes.
- Solve one-step and two-step problems involving addition, subtraction, multiplication and division in the context of numbers or measurements, including money and time.