

Guardian Angels Mathematics Report - Step Progress Information



This booklet outlines the **KEY** learning content for the learning steps in Mathematics across the school.

Key skills for learning progression are indicated in red for each year group.

Year 6

Number and place value

- ◆ Round any whole number to a required degree of accuracy.
- ◆ Use negative numbers in context, and calculate intervals across zero.

Addition, Subtraction, Multiplication and Division

- ◆ Multiply multi-digit numbers up to 4 digits by a two-digit whole number.
- ◆ Divide numbers up to 4 digits by a two-digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.
- ◆ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- ◆ Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Fractions (including decimals and %)

- ◆ Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
- ◆ Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
- ◆ Use written division methods in cases where the answer has up to two decimal places.
- ◆ Solve problems which require answers to be rounded to specified degrees of accuracy.
- ◆ Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Ratio and proportion

- ◆ Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison.
- ◆ Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Algebra

- ◆ Use simple formulae.

Measurement

- ◆ Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.

Properties of Shapes

- ◆ Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.

Position & Direction

- ◆ Describe positions on the full coordinate grid (all four quadrants).

Statistics

- ◆ Interpret pie charts and line graphs and use these to solve problems.
- ◆ Calculate and interpret the mean as an average.

Year 5

Number and place value

- ◆ Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.
- ◆ Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.

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.

Multiplication and division

- ◆ Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.
- ◆ Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes.
- ◆ Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.
- ◆ Use formal methods to multiply and divide with numbers of up to 4 digits.

Fractions (including decimals)

- ◆ Compare and order fractions whose denominators are all multiples of the same number.
- ◆ Read and write decimal numbers as fractions .
- ◆ Read, write, order and compare numbers with up to three decimal places.
- ◆ Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.

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).
- ◆ Measure and calculate perimeter and area .
- ◆ Use all four operations to solve problems involving measure .

Geometry

- ◆ Draw given angles, and measure them in degrees.
- ◆ Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
- ◆ Identify, describe and represent the position of a shape following a reflection or translation.

Statistics

- ◆ Interpret pie charts and line graphs and use these to solve problems.
- ◆ Calculate and interpret the mean as an average.

EYFS

Number and place value

- ◆ Recognise some numerals of personal significance.
- ◆ Recognise numerals 1 to 5.
- ◆ Count up to three or four objects by saying one number name for each item.
- ◆ Count actions or objects which cannot be moved.
- ◆ Count objects to 10, and begin to count beyond 10.
- ◆ Count out up to six objects from a larger group.
- ◆ Select the correct numeral to represent objects: 1 to 5; 1 to 10.
- ◆ Count an irregular arrangement of up to ten objects.
- ◆ Estimate how many objects they can see and check by counting them.
- ◆ With numbers from one to 20: Place them in order and say which number is one more or one less than a given number.
- ◆ Use everyday language to compare quantities and objects and to solve problems.

Calculation

- ◆ Use the language of 'more' and 'fewer' to compare two sets of objects.
- ◆ Find the total number of items in two groups by counting all of them.
- ◆ Say the number that is one more than a given number.
- ◆ Find one more or one less from a group of: up to five objects; up to ten objects.
- ◆ In practical activities and discussion, begin to use the vocabulary involved in adding and subtracting.
- ◆ Record, using marks that they can interpret and explain.
- ◆ Begin to identify own mathematical problems based on own interests.
- ◆ Use quantities and objects to add and subtract two single-digit numbers and count on or back to find the answers.

Measurement

- ◆ Use everyday language related to time.
- ◆ Begin to use everyday language related to money.
- ◆ Order and sequence familiar events.
- ◆ Measure short periods of time in simple ways.
- ◆ Order two or three items by length, height, weight, capacity.
- ◆ Children use everyday language to talk about and solve problems relating to size and weight.

Geometry

- ◆ Begin to use mathematical names for solid 3-D shapes and flat 2-D shapes.
- ◆ Use mathematical terms to describe shapes.
- ◆ Select a particular named shape.
- ◆ Use familiar objects and common shapes to create and recreate patterns and build models.
- ◆ Use everyday language to talk about size, to compare objects and to solve problems.
- ◆ Describe their relative position such as 'behind' or 'next to'.
- ◆ Talk about position.

Year 1

Number and place value

- ◆ Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.
- ◆ Count, read and write numbers to 100 in numerals.
- ◆ Count in multiples of twos, fives and tens.
- ◆ Given a number, identify one more and one less up to 100.

Addition and subtraction

- ◆ Represent and use number bonds and related subtraction facts within 20.
- ◆ Add and subtract one-digit and two-digit numbers to 20, including zero.
- ◆ Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations.

Multiplication and division

- ◆ Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Fractions

- ◆ Recognise, find and name a half as one of two equal parts of an object, shape or quantity.

Measurement

- ◆ Solve practical problems with length, weight, capacity and time.
- ◆ Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

Geometry

- ◆ Recognise and name common 2-D and 3-D shapes.
- ◆ Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Year 4

Number and place value

- ◆ Count in multiples of 6, 7, 9, 25 and 1000.
- ◆ Count backwards through zero to include negative numbers.
- ◆ Order and compare numbers beyond 1000.
- ◆ Round any number to the nearest 10, 100 or 1000.

Addition and Subtraction

- ◆ Add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate.
- ◆ Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Multiplication and division

- ◆ Recall multiplication and division facts for multiplication tables up to 12 x 12.
- ◆ Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.
- ◆ Solve problems, including those involving scaling.

Fractions (including decimals)

- ◆ Recognise and show, using diagrams, families of common equivalent fractions.
- ◆ Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- ◆ Round decimals with one decimal place to the nearest whole number.
- ◆ Solve simple measure and money problems involving fractions and decimals to two decimal places.
- ◆ Add and subtract fractions with the same denominator.
- ◆ Recognise and write decimal equivalents of any number of tenths or hundredths, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$.

Measurement

- ◆ Convert between different units of measure [for example, kilometre to metre; hour to minute].
- ◆ Measure and calculate the perimeter of a shape.
- ◆ Estimate, compare and calculate different measures, including money in pounds and pence.
- ◆ Read, write and convert time between analogue and digital 12- and 24-hour clocks.

Geometry

- ◆ Compare and classify geometric shapes, including quadrilaterals.
- ◆ 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.
- ◆ Plot specified points and draw sides to complete a given polygon.

Statistics

- ◆ Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

Year 3

Number and place value

- ◆ Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.
- ◆ Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
- ◆ Read and write numbers up to 1000 in numerals and in words.
- ◆ Solve number problems and practical problems involving these ideas.

Addition and Subtraction

- ◆ Add and subtract numbers mentally, including:
 - A three-digit number and ones
 - A three-digit number and tens
 - A three-digit number and hundreds
- ◆ Add and subtract numbers with up to three digits, using formal written methods of column addition and subtraction.
- ◆ Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Multiplication and division

- ◆ Recall and use multiplication and division facts for the multiplication tables: X3, X4, X8
- ◆ Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.
- ◆ Solve problems, including missing number problems.

Fractions

- ◆ Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.
- ◆ Recognise, find and write fractions of a discrete set of objects.
- ◆ Recognise and show, using diagrams, equivalent fractions with small denominators.

Measurement

- ◆ Measure, compare, add and subtract: lengths, mass, volume, capacity.
- ◆ Add and subtract amounts of money.
- ◆ Tell and write the time from an analogue clock and 12-hour and 24-hour clocks.
- ◆ Estimate and read time with increasing accuracy to the nearest minute.

Geometry

- ◆ Identify right angles - recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn.
- ◆ Identify whether angles are greater than or less than a right angle.

Statistics

- ◆ Interpret and present data using bar charts, pictograms and tables.

Year 2

Number and place value

- ◆ Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.
- ◆ Compare and order numbers from 0 up to 100; use <, > and = signs.
- ◆ Use place value and number facts to solve problems.

Addition and Subtraction

- ◆ Solve problems with addition and subtraction:
 - Using concrete objects and pictorial representations, including those involving numbers, quantities and measures.
 - Applying their increasing knowledge of mental and written methods.
- ◆ Recall and use addition and subtraction facts to 20 and 100:
- ◆ Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
 - A two-digit number and ones;
 - A two-digit number and tens;
 - Two two-digit numbers;
 - Adding three one-digit numbers.
- ◆ Know that addition of two numbers can be done in any order and subtraction of one number from another cannot.

Multiplication and division

- ◆ Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
- ◆ Solve problems involving multiplication and division.
- ◆ Show that multiplication of two numbers can be done in any order and division of one number by another cannot.

Fractions

- ◆ Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, and $\frac{3}{4}$ of a length, shape, set of objects or quantity.

Measurement

- ◆ With length, mass, temperature and capacity: Choose and use appropriate standard units to estimate and measure to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.
- ◆ Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

Geometry

- ◆ Compare and sort common 2-D and 3-D shapes and everyday objects.
- ◆ Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns.

Statistics

- ◆ Ask and answer questions about totalling and comparing data.