Year 5 Yearly Overview
National Curriculum Links to Ready to Progress Criteria and small steps teaching.

Number – number and place value

Statutory requirements

Pupils should be taught to:

- 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.

Small Steps: Place Value

- Recap: 100s, 100s, 10s and 1s.
- Numbers to 10,000
- Recap: rounding to the nearest 10
- Recap: rounding to the nearest 100.
- Rounding to 10,100 and 1000.
- Numbers to 100,000
- Compare and order numbers to 100,000.
- Round numbers within 100,000
- Numbers to a million
- Counting in 10s,100s,1000s,10,000s and 100,000s.
- Compare and order numbers to one million.
- Negative numbers.
- Roman numerals.

Number – addition and subtraction

Statutory requirements

Pupils should be taught to:

- 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.

Small Steps
Addition and subtraction

- Recap: add two 4-digit numbers-one exchange
- Recap: add two 4-digit numbers- more than one exchange.
- Add whole numbers with more than 4 digits.
- Recap: subtract two 4-digit numbers- on exchange
- Recap: subtract two 4-digit numbers- more than one exchange.
- Subtract whole numbers with more than 4-digits.
- Round to estimate and approximate.
- Inverse operations.
- Multi-step addition and subtraction problems.

Number – multiplication and division

Statutory requirements

Pupils should be taught to:

- 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

Statutory requirements

- 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.

Small Steps: Multiplication and division (1)

- Multiples
- Factors
- Common factors
- Prime numbers
- Square numbers
- Cube numbers
- Recap: multiply by 10 and 100.
- Multiply by 10,100 and 1000
- Recap: divide by 10 and 100
- Divide by 10,100 and 1000
- Multiples of 10,100 and 1000.

5MD-1: Multiply and divide numbers by 10 and 100.
5MD-2: Find factors and multiples of positive whole numbers.
5NF-1: Secure fluency in multiplication table facts and corresponding division facts through continued practice.

Number – multiplication and division

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- 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
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- solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
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Small Steps: Multiplication and division (2)

- Recap: multiply 2-digits by 1-digit.
- Recap: multiply 3-digits by 1-digit.
- Multiply 4-digits by 1-digit.
- Multiply 2 digits (area model)
- Multiply 2-digits by 2-digits.
- Multiply 3-digits by 2-digits.
- Multiply 4-digits by 2 digits.
- Recap: divide 2-digits by 1-digit.
- Recap: divide 3-digits by 1-digit.
- Divide 4-digits by 1-digit.
- Divide with remainders.

5MD-3: Multiply any whole number with up to 4 digits by any one-digit number using a formal method.

5MD-4: Divide a number with up to 4 digits using a formal written method and interpret remainders.

Number – fractions (including decimals and percentages)

Statutory requirements

Pupils should 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, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$]
- 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, $0.71 = \frac{71}{100}$]
- 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 $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.

5F-1: Find non-unit fraction of quantities.
5F-2: Find equivalent fractions and understand that they have the same value and same position in the linear number system.
5F-3:Recall decimal fraction equivalents for ½, ¼, 1/5 and 1/10.

Small Steps: Fractions

- Recap: what is a fraction?
- Equivalent fractions
- Recap: fractions greater than 1.
- Improper fractions to mixed numbers.
- Mixed numbers to improper fractions.
- Number sequences
- Compare and order fractions less than 1.
- Add and subtract fractions.
- Add fractions within 1.
- Add 3 or more fractions.
- Add fractions.
- Add mixed numbers.
- Subtract fractions
- Subtract mixed numbers
- Multiply unit fractions by an integer.
- Multiply non-unit fractions by integers.
- Multiply mixed numbers by integers.
- Recap: calculate fractions of a quantity.
- Fractions of an amount
- Using fractions as operators.

Number – fractions (including decimals and percentages)

Statutory requirements

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- 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, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$]
- 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, $0.71 = \frac{71}{100}$]
- 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 $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.

Small Steps: Decimals and percentages

- Adding decimals within 1.
- Subtracting decimals within 1.
- Complements to 1.
- Adding decimals – crossing the whole.
- Adding decimals with the same number of decimal places.
- Subtracting decimals with the same number of decimal places.
- Adding decimals with a different number of decimal places.
- Subtracting decimals with a different number of decimal places.
- Adding and subtracting whole and decimals.
- Decimal sequences.
- Multiplying decimals by 10, 100 and 1000.
- Dividing decimals by 10, 100 and 1,000.

- 5NPV–1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.
- 5NPV–2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning.
- 5NPV–3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.

Measurement

Statutory requirements

Pupils should 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), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes
- estimate volume [for example, using 1 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.

5NVP-5:Convert between units of measure, including using common decimals and fractions.

Small Steps: Converting units

- Kilograms and kilometres.
- Milligrams and millilitres.
- Metric units.
- Imperial units.
- Converting units of time.
- Timetables.

- What is volume?
- Compare volume.
- Estimate volume.
- Estimate capacity.

Measurement

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- 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), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes
- estimate volume [for example, using 1 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.

5G-2: Compare areas and calculate the areas of rectangles (including squares) using standard units.

Small Steps: Perimeter and area

- Measure perimeter
- Recap: perimeter on a grid
- Recap: perimeter of rectangles
- Recap: perimeter of rectilinear shapes.
- Calculate perimeter
- Counting squares
- Area of rectangles
- Area of compound shapes
- Area of irregular shapes.

Geometry – properties of shapes

Statutory requirements

Pupils should 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 one whole turn (total 360°)
  - angles at a point on a straight line and $\frac{1}{2}$ 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.

- **5G–1** Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.

Small Steps: Shapes

- Recap: identify angles
- Recap: compare and order angles
- Measuring angles in degrees
- Measuring with a protractor.
- Drawing lines and angles accurately.
- Calculating angles on a straight line.
- Calculating angles around a point.
- Recap: triangles
- Recap: quadrilaterals
- Calculating lengths and angles in shapes.
- Regular and irregular polygons.
- Reasoning about 3D shapes.

Geometry – position and direction

Statutory requirements

Pupils should 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.

- **5G–2** Compare areas and calculate the area of rectangles (including squares) using standard units.

Small Steps
Position and direction

- Recap: describe position
- Recap: draw on a grid
- Position in the first quadrant
- Translation
- Translation with co-ordinates
- Recap: Line of symmetry
- Recap: complete a symmetrical figure.
- Reflection
- Reflection with co-ordinates

Statistics

Statutory requirements

Pupils should 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.

5NVP-4: Divide 1 into 2,4,5 and 10 equal parts and read scales marked in units of 1 with 2,4,5 and 10 equal parts.

Small Steps: Statistics

- Recap: interpret charts
- Comparison, sum and difference
- Introduce line graphs
- Read and interpret line graphs
- Draw line graphs
- Use line graphs to solve problems
- Read and interpret tables
- Two way tables
- Timetables