

Block by block Yearly Overview

Year 6

TERM 1

Using and Applying

- Solve multi-step problems involving whole numbers, fractions, decimals and percentages, ratios, proportions, perimeters, areas and volumes
- Represent a problem by identifying and recording the calculations needed
- Explain reasoning and present conclusions, using available mathematical tools including algebraic symbols where appropriate, recognising when and how they can support precision and fluency

Block A Term 1

Place Value

- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000

Addition and Subtraction, Multiplication and Division

- 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.
- 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
- 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.

Measurement

- convert between different units of metric measure focusing on LENGTH

- Use imperial measurements of inches and feet
- calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes
- solve problems involving converting between units of time

Statistics

- complete read and interpret information in tables, including timetables.

Block B Term 1

Place Value

- count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000

Fractions

- 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 (e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$)
- multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$)
- 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

Geometry (properties of shape)

- 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.

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.

Block C Term 1

Place Value

- interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero
- Read Roman numerals to 1000 (M) and recognise years written in Roman numerals

Addition and Subtraction, Multiplication and Division

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- perform mental calculations, including with mixed operations and large numbers.
- 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
- recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
- Solve problems involving addition, subtraction, multiplication and division including using their knowledge of factors and multiples, squares and cubes

Measurement

- solve problems involving the calculation and conversion of units of length and TIME, using decimal notation up to three decimal places where appropriate

- use, read, write and convert between standard units of measuring LENGTH and TIME from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- convert between miles and kilometres
- recognise that shapes with the same areas can have different perimeters and vice versa
- **measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres**
- **use all four operations to solve problems involving measure (focus on length, time and money)) using decimal notation including scaling.**

Statistics

- **solve comparison, sum and difference problems using information presented in a line graph**
- interpret and construct line graphs and use these to solve problems

Block D Term 1

Place Value

- **solve number problems and practical problems that involve all of the above**

Algebra

- use simple formulae
- generate and describe linear number sequences

Fractions

- multiply one-digit numbers with up to two decimal places by whole numbers
- use written division methods in cases where the answer has up to two decimal places
- identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
- associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) #
- compare and order fractions, including fractions >1
- **add and subtract fractions with the same denominator and multiples of the same number**
- **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 hundred, and as a decimal fraction**
- **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 with a denominator of a multiple of 10 or**

25.

Ratio and Proportion

- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison

Geometry (position and direction)

- identify, describe and represent the position of a shape following a reflection or translation,
- draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

TERM 2

Using and Applying

- Solve multi-step problems involving whole numbers, fractions, decimals and percentages, ratios, proportions, perimeters, areas and volumes
- Represent a problem by identifying and recording the calculations needed
- Explain reasoning and present conclusions, using available mathematical tools including algebraic symbols where appropriate, recognising when and how they can support precision and fluency

Block A Term 2

Place Value

- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- solve number and practical problems that involve all of the above.

Addition and Subtraction, Multiplication and Division

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- perform mental calculations, including with mixed operations and large numbers.
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Measurement

- solve problems involving the calculation and conversion of units of MASS, using decimal notation up to three decimal places where appropriate
([remind of imperial measurements of pounds and stones](#))
- use, read, write and convert between standard units, converting measurements of mass from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- recognise that shapes with the same areas can have different perimeters and vice versa

Geometry (position and direction)

- describe positions on the full coordinate grid (all four quadrants)

Statistics

- interpret line graphs and use these to solve problems
- calculate and interpret the mean as an average.

Block B Term 2

Algebra

- use simple formulae
- generate and describe linear number sequences
- express missing number problems algebraically
- find pairs of numbers that satisfy number sentences involving two unknowns

Fractions

- use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- compare and order fractions, including fractions >1
- add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)
- identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
- multiply one-digit numbers with up to two decimal places by whole numbers
- 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

Ratio and Proportion

- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- solve problems involving similar shapes where the scale factor is known or can be found

Geometry (properties of shape)

- draw 2-D shapes using given dimensions and angles
- recognise, describe and build simple 3-D shapes, including making nets
- compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
- illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

- recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
- recognise when it is possible to use formulae for area and volume of shapes
- calculate the area of parallelograms and triangles (also in measures objectives- choose most appropriate unit to cover)
- calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3 . (also in measures objectives)

Block C Term 2

Place Value

- round any whole number to a required degree of accuracy
- use negative numbers in context, and calculate intervals across zero
- solve number and practical problems that involve all of the above.

Addition and Subtraction, Multiplication and Division

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- perform mental calculations, including with mixed operations and large numbers.
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Measurement

- solve problems involving the calculation and conversion of units of VOLUME, using decimal notation up to three decimal places where appropriate
(Remind of imperial measurements of pints)
- 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
- recognise when it is possible to use formulae for area and volume of shapes
- calculate the area of parallelograms and triangles (also in shape objectives in block B)

- calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3 . (also in shape objectives in block B)

Statistics

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

Block D Term 2

Algebra

- use simple formulae
- generate and describe linear number sequences
- express missing number problems algebraically
- find pairs of numbers that satisfy number sentences involving two unknowns
- enumerate all possibilities of combinations of two variables.

Fractions

- use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- compare and order fractions, including fractions >1
- add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$)
- divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)
- associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)
- identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
- multiply one-digit numbers with up to two decimal places by whole numbers
- 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 (e.g. of measures) such as 15% of 360 and the use of percentages for comparison

- solve problems involving similar shapes where the scale factor is known or can be found

Geometry (position and direction)

- describe positions on the full coordinate grid (all four quadrants)
- draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

TERM 3

Using and Applying

- Solve multi-step problems involving whole numbers, fractions, decimals and percentages, ratios, proportions, perimeters, areas and volumes
- Represent a problem by identifying and recording the calculations needed
- Explain reasoning and present conclusions, using available mathematical tools including algebraic symbols where appropriate, recognising when and how they can support precision and fluency

Block A Term 3

Place Value

- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- solve number and practical problems that involve all of the above.

Addition and Subtraction, Multiplication and Division

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- perform mental calculations, including with mixed operations and large numbers.
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Measurement

(some repetition of objectives as revision for SATS)

- solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
- 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
- convert between miles and kilometres
- recognise that shapes with the same areas can have different perimeters and vice versa
- recognise when it is possible to use formulae for area and volume of shapes

- calculate the area of parallelograms and triangles
- calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3 .

Geometry (position and direction)

- draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Statistics

- interpret pie charts and line graphs (and revise interpreting from other types of graph) and use these to solve problems
- calculate and interpret the mean as an average.

Block B Term 3

Algebra

- generate and describe linear number sequences
- express missing number problems algebraically
- find pairs of numbers that satisfy number sentences involving two unknowns
- enumerate all possibilities of combinations of two variables.

Fractions

- use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- compare and order fractions, including fractions >1
- add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)
- identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
- multiply one-digit numbers with up to two decimal places by whole numbers
- 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
- multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$)
- divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)

- recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Ratio and Proportion

- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison
- solve problems involving similar shapes where the scale factor is known or can be found
- solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Block C Term 3

Place Value

- round any whole number to a required degree of accuracy
- use negative numbers in context, and calculate intervals across zero

Addition and Subtraction, Multiplication and Division

- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division

Measurement

- recognise when it is possible to use formulae for area and volume of shapes
- calculate the area of parallelograms and triangles
calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3 .

Shape (Properties of shape)

- illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
- recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

Block D Term 3

Algebra

- generate and describe linear number sequences
- express missing number problems algebraically

Ratio and Proportion

- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison
- solve problems involving similar shapes where the scale factor is known or can be found
- solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Statistics

- interpret and construct pie charts and line graphs and use these to solve problems