School Vision : To be best prepared to live life in all its fullness

Subject Intent: ***To best prepare children for the next stage in their journey, ensure all children are competent at Maths, enjoy Maths, and that mathematical skills are not a barrier to their learning and life experiences.***.

The Gospel offers forgiveness of the past, new life in the present and hope for the future.

Past - Our curriculum is progressive with a blend of mastery principles and a spiral curriculum – it builds on previous knowledge. It gives lower attainers the opportunities to revisit and reinforce learning as well as giving higher attainers opportunities for mastery and depth.

Present – CPA approach develops conceptual understanding, activities are scaffolded, lesson structure is similar throughout the school to lower cognitive overload, retrieval practice is used to support retention and interleaving, keep up interventions and pre teaching are used to ensure progress by all children, instant and responsive feedback means all children make progress.

Future – Children will have a appositive attitude towards Maths knowing it will be important as we move on in our life journey, we will gave options for future career paths, we will be able to solve problems, scrutinise and reason our ideas coherently and eloquently.

At Reepham, we follow the White Rose Small Steps to take children on their 'journey to mastery'. This means that, in their Maths lessons children acquire a deep, long term and secure understanding of the subject over time. White Rose states that to learn mathematics effectively, some things have to be learned before others, e.g. place value needs to be understood before working with addition and subtraction, addition needs to be learnt before looking at multiplication (as a model of repeated addition). Therefore we have an emphasis on number skills first in all year groups, followed by the four operations.

Our lessons are sequenced throughout a unit in small interconnected steps which gradually unfold a mathematical concept. These small steps are sequenced in order of difficulty and dependency. They provide access for all pupils, lead to a generalisation of the concept and give pupils the ability to apply this to a range of contexts. A mathematical concept or skill has been 'mastered' when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.

By using White Rose Small steps we can ensure children are on their 'journey to mastery' in Maths following the mastery principles. This also recognises that children will not always 'master' something the first time they see it, and that they need to see it again in different contexts and in different years to help them truly develop their understanding. Because of this, revisiting and reinforcing features of a spiral curricula are also applied.

How are lessons structured and why do we do it that way?

Reception - Children receive one 'extended' and three shorter Maths inputs per week following the updated White Rose scheme of learning and the use of story books. Lessons start with mathematical talk, counting and subitising activities. New learning is modelled by the teacher using 'my turn, your turn'. Children access their fluency activities through small, adult led group work with their teacher. All children receive a step up as part of this adult led group where their reasoning skills are developed as well as problem solving using concrete manipulatives.

Maths opportunities are always available in the continuous provision and these are reflective of the inputs the children have been exposed to in that week. Over the week, pupils have a series of challenge boxes to complete which are related to concepts they have learned during their teacher-led inputs. There are always Maths games and iPad activities available.

In **Key Stage One and Two**, Maths is taught daily in all classes with an 'extended starter' in all Key stage 2 lessons to develop fluency in arithmetic as this is key to reducing cognitive load (Rosenshine – *Principles of Instruction)*

Typical structure of a lesson at Reepham (based on NCETM 5 big ideas for teaching mastery 2017 and White Rose Maths '

- **Retrieval practice** (e.g. Flashback 4) to support interleaving and retention

- **Teacher input** – children are introduced to their small step with varied fluency. These alternate small sections of teaching with opportunities for children to do examples themselves e.g. teacher modelling – guided practice – independent practice. Informal reasoning will run throughout this. A variety of representations and models are used as well as high level vocabulary.

Adults in the classroom will 'mark in the moment' and offer instant support and/or individualised 'step ups' for each child

- **Feed forward/Plenary –** e.g. True/ False questions to further develop reasoning and support retention.

Throughout all lessons across the school, high level mathematical vocabulary will be used by both adults and children.

EYFS Maths Pathway (WRM)

Getting to know you

Opportunities for settling in, introducing the areas of provision and getting to know the children.

Key times of day, class routines. Exploring the continuous provision inside and out. Where do things belong? Positional language.

Just Like Me

- Number
- Match and sort
  Compare amounts
- Measure, Shape and Spatial Thinking
- Compare size, mass & capacity
  Exploring pattern

It's Me 1, 2, 3

- Representing 1, 2 & 3
  Comparing 1, 2 & 3
  Composition of 1, 2 & 3
- Circles and triangles
  Positional language

Light and Dark

- Representing numbers to 5.
  One more and less.
- Shapes with 4 sides.
  Time

Alive in 5

- Introducing Zero
  Comparing Numbers to 5
  Composition of 4 & 5
- Compare Mass (2)
  Compare Capacity (2)

Growing 6, 7, 8

- 6, 7 & 8
  Making Pairs
  Combining 2 Groups
- Length & Height
  Time

Building 9 and 10

- 9 & 10
  Comparing Numbers to 10
  Bonds to 10
- 3d-Shape
  Pattern (2)

To 20 and beyond!

- Building Numbers Beyond 10
  Counting Patterns Beyond 10
- Spatial Reasoning (1)
  Match, Rotate, Manipulate

First, then, now

- Adding More
  Taking Away
- Spatial Reasoning (2)
  Compose and Decompose

Find my pattern

- Doubling
  Sharing & Grouping
  Even and Odd
- Spatial Reasoning (3)
  Visualise and Build

On the move

- Deepening Understanding
  Patterns and Relationships
- Spatial Reasoning (4)
  Mapping

New

Number and Place Value	Addition and Subtraction	Multiplication and Division	Measure	Geometry (position and direction)	Geometry (Properties of shape)	Fractions	General/problem solving.
Number One, two, three to twenty and beyond. None Count on/up/to/from/down Before, after More, less, many, few, fewer, fewest, smaller, smallest Equal to, the same as Odd, even Digit Numeral Compare Order Size Value Between, halfway between	Number line Add, more, plus, make, sum, total, altogether Double Half, halve Equals, is the same (including equals sign) How many more to make…? How many more is,,, then,,,? How much more is…? Subtract, take away, minus.	Odd, even Double, halve Share, share equally Group in pairs Equal groups of Divide	Full, half, empty Holds Container Weigh, weighs, balance Heavy, heavier, heaviest, light, lighter, lightest Scales Time Days of the week: Monday, Tuesday etc. Seasons: Spring, Summer, Autumn, Winter Days, week, month, year, weekend Birthday, holiday Morning, afternoon, evening, night Bedtime,	Over, under, underneath, above, below, top, bottom, side On, in, outside, inside In front, behind Front, back Before, after Beside, next to Middle Up, down, forwards, backwards. Sideways Close, far Through Towards, away from Side, roll, turn	Sort Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square Shape Flat, curved, straight, round Solid Corner Face, side Make, build, draw	Whole Equal One half	Listen, join in Say, think, imagine, remember Start from Look at, point to Put What comes next? Find, use, make, build Tell me, describe, pick out, talk about, explain, show me Read, write Tick, draw a line, ring Cost Count, work out Number line, number track, number square, number cards

Year 1 Pathway Autumn

Autumn	Number **Place value (within 10)**	Number **Addition and subtraction (within 10)**	Geometry **Shape**

Place Value

Count to and across 100, forwards and backwards, beginning with zero or 1, or from any given number

Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least

Compare numbers using **<**, **>** and **=** signs

Read and write numbers from 1 to 20 in numerals and words

Assessment:
Test:

Addition and Subtraction

Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer)

Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs

Represent and use number bonds and related subtraction facts within 20

Add and subtract 1-digit and 2-digit numbers to 20, including zero

Assessment:
Test:

Shape

Recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]; 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]

Assessment:
Test:

Number and Place value	Addition and Subtraction	Multiplication and division	Measure	Position and direction	Shape	Fractions	Problem solving
Zero, one, two, three to twenty and beyond None Count on/up/to/down/ From Before/less Many, fewer, least, smallest, greatest, Equal to, same as Odd, even Units, ones, tens Compare Value	Number bonds, number line Add, more, plus, make, sum, total, altogether Inverse Equals Difference between, How many more make…? How much more is…? Subtract, take away, minus How many fewer is…? How much less is…?	Odd, even How many times Lots of, groups of Multiply, multiple of Repeated addition, Array, row Double, halve Share, share equally Equal groups of Divide, divided by, left over	Full, half, empty Holds Container Weigh, balances Heavy, heavier, heaviest Light, lighter, lightest Days of the week Seasons Day, week ,month, year, weekend Morning, afternoon, evening Hour, o clock, half past	Over, under, underneath, above, below, top, bottom On, in, outside, inside Around, in front, behind Front, back, before, after Beside, next to, opposite, apart Left, right, up, down, forwards, backwards Along, through Slide, roll, turn, Whole turn, half turn	Group, sort Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square Shape Flat, curved, straight, round Hollow, solid Corner Face, side, edge	Whole Equal Parts Four equal parts One half, two halves A quarter Two quarters	Say Think Start from, start with Look at, point to, place Arrange, rearrange What comes next? Carry on, continue, repeat Find, choose, collect Shade, colour, record Describe Explain Prove it

Year 2 Pathway Autumn

Number **Place value**	Number **Addition and subtraction**	Geometry **Shape**

Place Value

Read and write numbers from 1 to 20 in numerals and words (Y1)

Read and write numbers to at least 100 in numerals and in words

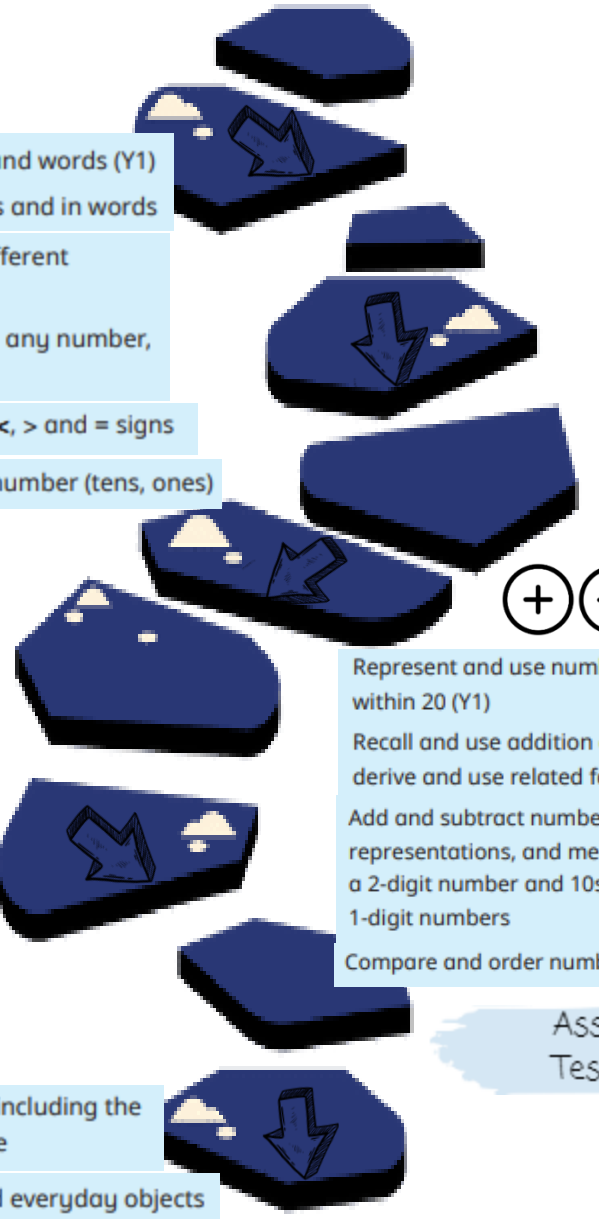
Identify, represent and estimate numbers using different representations, including the number line

Count in steps of 2, 3 and 5 from 0, and in 10s from any number, forward and backward

Compare and order numbers from 0 up to 100; use <, > and = signs

Recognise the place value of each digit in a 2-digit number (tens, ones)

Assessment:
Test:



Addition and Subtraction

Represent and use number bonds and related subtraction facts within 20 (Y1)

Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100

Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a 2-digit number and 1s, a 2-digit number and 10s, two 2-digit numbers and adding three 1-digit numbers

Compare and order numbers from 0 up to 100; use <, > and = signs

Assessment:
Test:

Shape

Identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line

Compare and sort common 2-D and 3-D shapes and everyday objects

Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces

Identify 2-D shapes on the surface of 3-D shapes

Assessment:
Test:

Number and Place value	Addition and Subtraction	Multiplication and division	Measure	Position and direction	Shape	Fractions	Problem solving
Numbers to 100 Hundreds Partition Recombine Hundred more, less Equal to, same as Odd, even Units, ones, tens Compare Value	Number bonds, number line Add, more, plus, make, sum, total, altogether Inverse Equals Difference between, How many more make…? How much more is…? Subtract, take away, minus How many fewer is…? How much less is…?	Odd, even How many times Lots of, groups of Multiply, multiple of Repeated addition, Array, row Double, halve Share, share equally Equal groups of Divide, divided by, left over	Quarter past Quarter to Km, m Kg, g Ml, l Temperature degrees Holds Container Weigh, balances Heavy, heavier, heaviest	Rotation Clockwise Anti clockwise Straight line Ninety degree turn Right angle	Size Bigger, smaller, larger Symmetrical, line of symmetry Fold Match Mirror line, reflection, Pattern, repeating pattern,	Three quarters One third, a third Equivalence Equivalent to	Predict Describe the pattern Describe the rule Find, find all Investigate Describe Explain Prove it

Year 3 Pathway Autumn

Autumn	Number **Place value**	Number **Addition and subtraction**	Number **Multiplication and division A**

Place Value

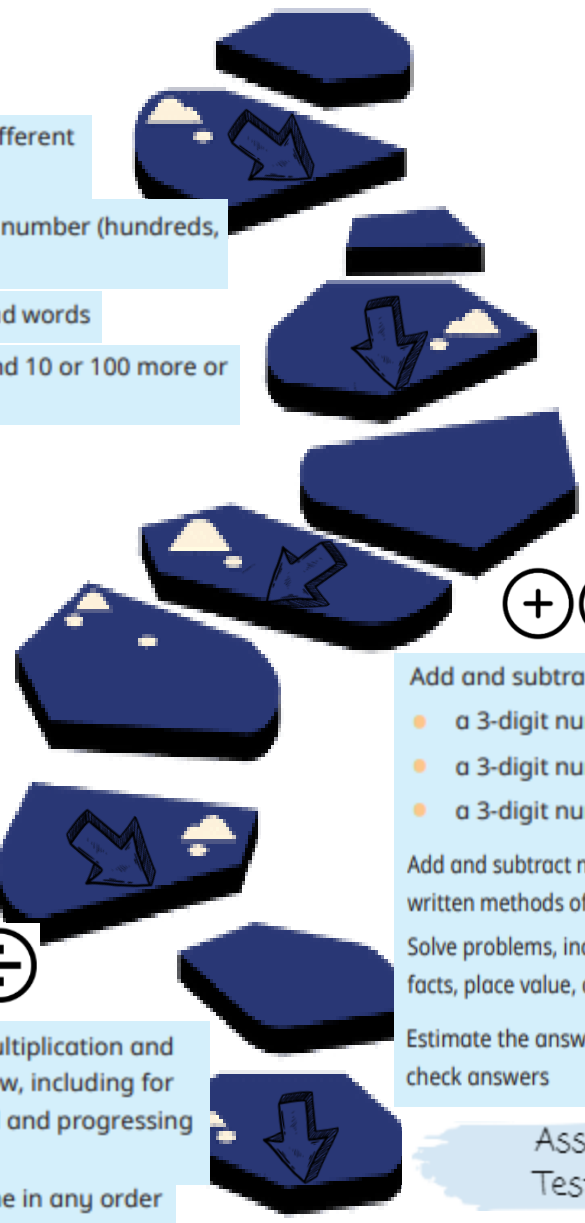
Identify, represent and estimate numbers using different representations

Recognise the place value of each digit in a 3-digit number (hundreds, tens, ones)

Read and write numbers up to 1,000 in numerals and words

Count from zero in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number

Assessment:
Test:



Addition and Subtraction

Add and subtract numbers mentally, including:

- a 3-digit number and ones
- a 3-digit number and tens
- a 3-digit number and hundreds

Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction

Estimate the answer to a calculation and use inverse operations to check answers

Assessment:
Test:

Multiplication and Division A

Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods

Show that multiplication of two numbers can be done in any order (commutative) and division on one number by another cannot (Y2)

Count in steps of 2, 3 and 5 from 0, and in 10s from any number, forward and backward (Y2)

Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers (Y2)

Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables

Assessment:
Test:

Number and Place value	Addition and Subtraction	Multiplication and division	Measure	Position and direction	Shape	Fractions	Data/Statistics
Numbers to 1000 Partition Recombine Hundred more, less Equal to, same as Odd, even Compare Value	Column addition, Column subtraction, Inverse Equals Difference between, How many more make…? How much more is…? Subtract, take away, minus How many fewer is…? How much less is…?	Product Multiples of… Scale up Multiply, multiple of Repeated addition, Array, row Share, share equally Equal groups of Divide, divided by, left over	Twelve/twenty four hour clock Am, pm Roman numerals I to XIII	Greater, less than Ninety degrees Orientation, Same orientation Different orientation	Horizontal, Vertical Perpendicular lines Parallel lines	Numerator Denominator Unit fraction, non unit fraction Compare and order Tenths	Chart Bar chart Frequency table Carroll diagram Venn diagram Axis Diagram

Year 4 Pathway Autumn

Autumn	Number **Place value**	Number **Addition and subtraction**	Measurement **Area**	Number **Multiplication and division A**

Place Value

Read and write numbers up to 1,000 in numerals and words (Y3)

Identify, represent and estimate numbers using different representations

Recognise the place value of each digit in a 3-digit number (hundreds, tens, ones) (Y3)

Count in multiples of 6, 7, 9, 25 and 1,000

Recognise the place value of each digit in a 4-digit number (thousands, hundreds, tens and ones)

Find 1,000 more or less than a given number

Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value

Assessment:
Test:

Addition and Subtraction

Add and subtract numbers with up to four digits using the formal written methods of columnar addition and subtraction where appropriate

Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

Estimate and use inverse operations to check answers to a calculation

Assessment:
Test:

Area

Find the area of rectilinear shapes by counting squares

Assessment:
Test:

Multiplication and Division A

Recall multiplication and division facts for multiplication tables up to 12 × 12

Recognise and use factor pairs and commutativity in mental calculations

Count in multiples of 6, 7, 9, 25 and 1,000

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

Assessment:
Test:

Number and Place value	Multiplication and division	Measure	Position and direction	Shape	Fractions	Data/Statistics
Tenths, hundredths, decimal places Round (to nearest) Thousand more, thousand less Negative integers Count through zero Roman Numerals (I to C)	Multiplication facts (up to 12 x 12) Division facts Inverse Derive	Convert	Co-ordinates Translation Quadrant X axis Y axis Perimeter and area	Quadrilaterals Triangles Right angle Acute and obtuse angles	Equivalent decimals and fractions	Continuous data Line graph

Year 5 Pathway Autumn

Autumn	Number **Place value**	Number **Addition and subtraction**	Number **Multiplication and division A**	Number **Fractions A**

Place Value

Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals

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

Solve number problems and practical problems involving the above

Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000

Assessment:
Test:

Addition and Subtraction

Add and subtract numbers mentally with increasingly large numbers

Add and subtract whole numbers with more than four digits, including using formal written methods (columnar addition and subtraction)

Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000

Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

Assessment:
Test:

Multiplication and Division A

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

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})

Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000

Multiply and divide numbers mentally, drawing upon known facts

Assessment:
Test:

Fractions A

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

Compare and order fractions whose denominators are all multiples of the same number

Add and subtract fractions with the same denominator, and denominators that are multiples of the same number

Assessment:
Test:

Number and Place value	Multiplication and division	Measure	Position and direction	Shape	Fractions
Powers of ten	Efficient written method Factor pairs Composite, prime, prime factor, square numbers, cubed numbers Formal written method	Volume Imperial measures/units Metric measures/units	Reflex angles Dimensions	Regular and irregular polygons	Proper fraction, improper fractions, mixed numbers Percentage Half Quarter Fifths Ratio and proportion

Year 6 Pathway Autumn

Autumn	Number **Place value**	Number **Addition, subtraction, multiplication and division**	Number **Fractions A**	Number **Fractions B**	Measurement **Converting units**

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 the above

Round any whole number to a required degree of accuracy

Use negative numbers in context, and calculate intervals across zero

Assessment:
Test:

Addition and Subtraction

Multiplication and division

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, an appropriate degree of accuracy

Identify common factors, common multiples and prime numbers

Multiply multi-digit numbers up to four digits by a 2-digit whole number using the formal written method of long multiplication

Perform mental calculations, including with mixed operations and large numbers

Divide numbers up to four digits by a 2-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context

Use their knowledge of the order of operations to carry out calculations involving the four operations

Assessment:
Test:

Fractions A

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

Identify common factors, common multiples and prime numbers

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

Assessment:
Test:

Fractions B

Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams (Y5)

Multiply simple pairs of proper fractions, writing the answer in its simplest form

Divide proper fractions by whole numbers

Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

Solve problems involving addition, subtraction, multiplication and division

Associate a fraction with division and calculate decimal fraction equivalents

Assessment:
Test:

Converting Units

Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 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 3 decimal places

Assessment:
Test:

Number and Place value	Addition, subtraction, multiplication and division	Geometry (position and direction and properties of shape)	Fractions, decimals and percentages	Algebra	Data/Statistics
Numbers to 10 million	Order of Operations Bidmas Common factors Common multiples	Four quadrants Vertically opposite (angles) Circumference Radius Diameter	Degree of accuracy Simplify	Linear number Sequence Substitute Variables Symbol Known values	Mean Pie chart Construct

Year 1 Spring Pathway

Spring term

Number	Number	Number	Measurement	Measurement
Place value (within 20)	**Addition and subtraction** (within 20)	**Place value** (within 50)	**Length and height**	**Mass and volume**
VIEW	VIEW	VIEW	VIEW	VIEW

Place value within 20

- Count to and across 100, forwards and backwards, beginning with zero or 1, or from any given number
- Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s
- Read and write numbers from 1 to 20 in numerals and words
- Given a number, identify 1 more and 1 less

Assessment:
Test:

Addition and Subtraction

- Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs
- Add and subtract 1-digit and 2-digit numbers to 20, including zero
- Represent and use number bonds and related subtraction facts within 20
- Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? – 9

Assessment:
Test:

Place value within 50

- Count to and across 100, forwards and backwards, beginning with zero or 1, or from any given number
- Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s
- Given a number, identify 1 more and 1 less

Assessment:
Test:

Measures

- Compare, describe and solve practical problems for: lengths and height; mass/weight; capacity and volume; time
- Measure and begin to record the following: lengths and heights; mass/weight; capacity and volume; time

Assessment:
Test:

Number and Place value	Addition and Subtraction	Multiplication and division	Measure	Position and direction	Shape	Fractions	Problem solving
Zero, one, two, three to twenty and beyond None Count on/up/to/down/ From Before/less Many, fewer, least, smallest, greatest, Equal to, same as Odd, even Units, ones, tens Compare Value	Number bonds, number line Add, more, plus, make, sum, total, altogether Inverse Equals Difference between, How many more make…? How much more is…? Subtract, take away, minus How many fewer is…? How much less is…?	Odd, even How many times Lots of, groups of Multiply, multiple of Repeated addition, Array, row Double, halve Share, share equally Equal groups of Divide, divided by, left over	Full, half, empty Holds Container Weigh, balances Heavy, heavier, heaviest Light, lighter, lightest Days of the week Seasons Day, week, month, year, weekend Morning, afternoon, evening Hour, o clock, half past	Over, under, underneath, above, below, top, bottom On, in, outside, inside Around, in front, behind Front, back, before, after Beside, next to, opposite, apart Left, right, up, down, forwards, backwards Along, through Slide, roll, turn, Whole turn, half turn	Group, sort Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square Shape Flat, curved, straight, round Hollow, solid Corner Face, side, edge	Whole Equal Parts Four equal parts One half, two halves A quarter Two quarters	Say Think Start from, start with Look at, point to, place Arrange, rearrange What comes next? Carry on, continue, repeat Find, choose, collect Shade, colour, record Describe Explain Prove it

Year 2 Spring Pathway

Spring term

Measurement	Number	Measurement	Measurement
Money	**Multiplication and division**	**Length and height**	**Mass, capacity and temperature**
VIEW	VIEW	VIEW	VIEW

Money

Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value

Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change

Assessment:
Test:

Multiplication and division

Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs

Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot

Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Assessment:
Test:

Measures-Length and height

Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels

Compare and order lengths, mass, volume/capacity and record the results using >, < and =

Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures

Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

Assessment:
Test:

Measures-Mass, capacity and temperature

Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels

Compare and order lengths, mass, volume/capacity and record the results using >, < and =

Number and Place value	Addition and Subtraction	Multiplication and division	Measure	Position and direction	Shape	Fractions	Problem solving
Numbers to 100 Hundreds Partition Recombine Hundred more, less Equal to, same as Odd, even Units, ones, tens Compare Value	Number bonds, number line Add, more, plus, make, sum, total, altogether Inverse Equals Difference between, How many more make…? How much more is…? Subtract, take away, minus How many fewer is…? How much less is…?	Odd, even How many times Lots of, groups of Multiply, multiple of Repeated addition, Array, row Double, halve Share, share equally Equal groups of Divide, divided by, left over	Quarter past Quarter to Km, m Kg, g Ml, l Temperature degrees Holds Container Weigh, balances Heavy, heavier, heaviest	Rotation Clockwise Anti clockwise Straight line Ninety degree turn Right angle	Size Bigger, smaller, larger Symmetrical, line of symmetry Fold Match Mirror line, reflection, Pattern, repeating pattern,	Three quarters One third, a third Equivalence Equivalent to	Predict Describe the pattern Describe the rule Find, find all Investigate Describe Explain Prove it

Year 3 Spring Pathway

Spring term

Number	Measurement	Number	Measurement
Multiplication and division B	**Length and perimeter**	**Fractions A**	**Mass and capacity**
VIEW	VIEW	VIEW	VIEW

Multiplication and division

Recall and use multiplication facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers (Y2)

Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods

Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects

Assessment:
Test:

Measures-Length and Perimeter

Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

Measure the perimeter of simple 2-D shapes

Assessment:
Test:

Fractions

Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators

Compare and order unit fractions, and fractions with the same denominators

Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators

Recognise and show, using diagrams, equivalent fractions with small denominators

Assessment:
Test:

Measures-Mass and Capacity

Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

Assessment:
Test:

Number and Place value	Addition and Subtraction	Multiplication and division	Measure	Position and direction	Shape	Fractions	Data/Statistics
Numbers to 1000 Partition Recombine Hundred more, less Equal to, same as Odd, even Compare Value	Column addition, Column subtraction, Inverse Equals Difference between, How many more make…? How much more is…? Subtract, take away, minus How many fewer is…? How much less is…?	Product Multiples of… Scale up Multiply, multiple of Repeated addition, Array, row Share, share equally Equal groups of Divide, divided by, left over	Twelve/twenty four hour clock Am, pm Roman numerals I to XIII	Greater, less than Ninety degrees Orientation, Same orientation Different orientation	Horizontal, Vertical Perpendicular lines Parallel lines	Numerator Denominator Unit fraction, non unit fraction Compare and order Tenths	Chart Bar chart Frequency table Carroll diagram Venn diagram Axis Diagram

Year 4 Spring Pathway

Spring term

Number	Measurement	Number	Number
Multiplication and division B	**Length and perimeter**	**Fractions**	**Decimals A**
VIEW	VIEW	VIEW	VIEW

Multiplication and division

Recognise and use factor pairs and commutativity in mental calculations

Recall multiplication and division facts for multiplication tables up to 12 × 12

Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 (Y5)

Solve problems involving multiplying and adding, including using the distributive law to multiply 2-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout

Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers

Assessment:
Test:

Measures-Length and Perimeter

Convert between different units of measure [for example, kilometre to metre; hour to minute]

Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres

Assessment:
Test:

Fractions

Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators (Y3)

Recognise and show, using diagrams, families of common equivalent fractions

Add and subtract fractions with the same denominator

Assessment:
Test:

Decimals

Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing 1-digit numbers or quantities by 10 (Y3)

Recognise and write decimal equivalents of any number of tenths or hundredths

Compare numbers with the same number of decimal places up to 2 decimal places

Find the effect of dividing a 1- or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths

Assessment:
Test:

Recognise and show, using diagrams, families of common equivalent fractions

Number and Place value	Multiplication and division	Measure	Position and direction	Shape	Fractions	Data/Statistics
Tenths, hundredths, decimal places Round (to nearest) Thousand more, thousand less Negative integers Count through zero Roman Numerals (I to C)	Multiplication facts (up to 12 x 12) Division facts Inverse Derive	Convert	Co-ordinates Translation Quadrant X axis Y axis Perimeter and area	Quadrilaterals Triangles Right angle Acute and obtuse angles	Equivalent decimals and fractions	Continuous data Line graph

Year 5 Spring Pathway

Spring term	Number	Number	Number	Measurement	Statistics
	Multiplication and division B	Fractions B	Decimals and percentages	Perimeter and area	
	VIEW	VIEW	VIEW	VIEW	VIEW

Multiplication and division

Multiply numbers up to four digits by a 1- or 2-digit number using a formal written method, including long multiplication for 2-digit numbers

Divide up to four digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context

Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes

Assessment:
Test:

Fractions

Multiply proper fractions and mixed numbers by whole numbers, supported by materials and 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 (Y4)

Assessment:
Test:

Decimals and Percentages

Read, write, order and compare numbers with up to 3 decimal places

Read and write decimal numbers as fractions

Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths

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

Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

Solve problems involving numbers up to 3 decimal places

Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place

Recognise the per cent symbol (%) and understand that per cent relates to "number of parts per 100", and write percentages as a fraction with denominator 100, and as a decimal fraction

Assessment:
Test:

Perimeter and Area

Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres

Calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2), and estimate the area of irregular shapes

Assessment:
Test:

Statistics

Solve comparison, sum and difference problems using information presented in a line graph

Complete, read and interpret information in tables, including timetables

Assessment:
Test:

Number and Place value	Multiplication and division	Measure	Position and direction	Shape	Fractions
Powers of ten	Efficient written method Factor pairs Composite, prime, prime factor, square numbers, cubed numbers Formal written method	Volume Imperial measures/units Metric measures/units	Reflex angles Dimensions	Regular and irregular polygons	Proper fraction, improper fractions, mixed numbers Percentage Half Quarter Fifths Ratio and proportion

Year 6 Spring Pathway

Spring term	Number **Ratio** VIEW	Number **Algebra** VIEW	Number **Decimals** VIEW	Number **Fractions decimals and percentages** VIEW	Measurement **Area, perimeter and volume** VIEW	**Statistics** VIEW

Ratio :

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 unequal sharing and grouping using knowledge of fractions and multiples

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

Assessment:
Test:

Decimals o

Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places

Solve problems which require answers to be rounded to specified degrees of accuracy

Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Multiply 1-digit numbers with up to 2 decimal places by whole numbers

Use written division methods in cases where the answer has up to 2 decimal places

Solve problems involving addition, subtraction, multiplication and division

Assessment:
Test:

Statistics

Interpret and construct pie charts and line graphs and use these to solve problems

Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs (Year 4)

Calculate and interpret the mean as an average

Assessment:
Test:

Algebra f(x)

Use simple formulae

Generate and describe linear number sequences

Find pairs of numbers that satisfy an equation with two unknowns

Enumerate possibilities of combinations of two variables

Express missing number problems algebraically

Assessment:
Test:

F, D, P %

Use common factors to simplify fractions; use common multiples to express fractions in the same denomination

Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction

Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Compare and order fractions, including fractions >1

Solve problems involving the calculation of percentages and the use of percentages for comparison

Assessment:
Test:

Area, Perimeter and Volume

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 cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units

Assessment:
Test:

Number and Place value	Addition, subtraction, multiplication and division	Geometry (position and direction and properties of shape)	Fractions, decimals and percentages	Algebra	Data/Statistics
Numbers to 10 million	Order of Operations Bidmas Common factors Common multiples	Four quadrants Vertically opposite (angles) Circumference Radius Diameter	Degree of accuracy Simplify	Linear number Sequence Substitute Variables Symbol Known values	Mean Pie chart Construct

Year 1 Summer Pathway

Number	Number	Geometry	Number	Measurement	Measurement	
Multiplication and division	**Fractions**	**Position and direction**	**Place value** (within 100)	**Money**	**Time**	Consolidation
VIEW	VIEW	VIEW	VIEW	VIEW	VIEW	

Multiplication and Division

Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s

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

Assessment:
Test:

Fractions

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

Assessment:
Test:

Position and Direction

Describe position, direction and movement, including whole, half, quarter and three-quarter turns

Use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside (non-statutory guidance)

Practise counting (1, 2, 3...), ordering (for example, 1st, 2nd, 3rd ...) (non-statutory guidance)

Assessment:
Test:

Place Value (within 100)

Count to and across 100, forwards and backwards, beginning with zero or 1, or from any given number

Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s

Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least

Assessment:
Test:

Money

Recognise and know the value of different denominations of coins and notes

Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s

Assessment:
Test:

Time

Sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening)

Recognise and use language relating to dates, including days of the week, weeks, months and years

Compare, describe and solve practical problems for time
Measure and begin to record time (hours, minutes, seconds)

Tell the time to the hour and half past the hour and draw the hands on a clockface to show these times

Assessment:
Test:

Year 2 Summer Pathway

Number **Fractions**	Measurement **Time**	**Statistics**	Geometry **Position and direction**	**Consolidation**

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

Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Assessment:
Test:

Time

Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clockface to show these times

Know the number of minutes in an hour and the number of hours in a day

Assessment:
Test:

Statistics

Interpret and construct simple pictograms, tally charts, block diagrams and simple tables

Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity

Ask and answer questions about totalling and comparing categorical data

Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Assessment:
Test:

Position and Direction

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 (clockwise and anticlockwise)

Assessment:
Test:

Number and Place value	Addition and Subtraction	Multiplication and division	Measure	Position and direction	Shape	Fractions	Problem solving
Numbers to 100 Hundreds Partition Recombine Hundred more, less Equal to, same as Odd, even Units, ones, tens Compare Value	Number bonds, number line Add, more, plus, make, sum, total, altogether Inverse Equals Difference between, How many more make…? How much more is…? Subtract, take away, minus How many fewer is…? How much less is…?	Odd, even How many times Lots of, groups of Multiply, multiple of Repeated addition, Array, row Double, halve Share, share equally Equal groups of Divide, divided by, left over	Quarter past Quarter to Km, m Kg, g Ml, l Temperature degrees Holds Container Weigh, balances Heavy, heavier, heaviest	Rotation Clockwise Anti clockwise Straight line Ninety degree turn Right angle	Size Bigger, smaller, larger Symmetrical, line of symmetry Fold Match Mirror line, reflection, Pattern, repeating pattern,	Three quarters One third, a third Equivalence Equivalent to	Predict Describe the pattern Describe the rule Find, find all Investigate Describe Explain Prove it

Year 3 Summer Pathway

Number	Measurement	Measurement	Geometry	Statistics	
Fractions B	**Money**	**Time**	**Shape**		Consolidation
VIEW	VIEW	VIEW	VIEW	VIEW	

Fractions B

Add and subtract fractions with the same denominator within one whole

Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators

Assessment:
Test:

Money

Add and subtract amounts of money to give change, using both £ and p in practical contexts

Assessment:
Test:

Time

Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks

Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight

Know the number of seconds in a minute and the number of days in each month, year and leap year

Compare durations of events

Assessment:
Test:

Shape

Recognise angles as a property of shape or a description of a turn

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

Measure the perimeter of simple 2-D shapes

Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them

Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

Identify horizontal and vertical lines and pairs of perpendicular and parallel lines

Assessment:
Test:

Statistics

Interpret and present data using bar charts, pictograms and tables

Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables

Assessment:
Test:

Number and Place value	Addition and Subtraction	Multiplication and division	Measure	Position and direction	Shape	Fractions	Data/Statistics
Numbers to 1000 Partition Recombine Hundred more, less Equal to, same as Odd, even Compare Value	Column addition, Column subtraction, Inverse Equals Difference between, How many more make…? How much more is…? Subtract, take away, minus How many fewer is…? How much less is…?	Product Multiples of… Scale up Multiply, multiple of Repeated addition, Array, row Share, share equally Equal groups of Divide, divided by, left over	Twelve/twenty four hour clock Am, pm Roman numerals I to XIII	Greater, less than Ninety degrees Orientation, Same orientation Different orientation	Horizontal, Vertical Perpendicular lines Parallel lines	Numerator Denominator Unit fraction, non unit fraction Compare and order Tenths	Chart Bar chart Frequency table Carroll diagram Venn diagram Axis Diagram

Year 4 Summer Pathway

Number	Measurement	Measurement	Consolidation	Geometry	Statistics	Geometry
Decimals B	**Money**	**Time**		**Shape**		**Position and direction**
VIEW	VIEW	VIEW		VIEW	VIEW	VIEW

Decimals B

Recognise and write decimal equivalents of any number of tenths or hundredths

Solve simple measure and money problems involving fractions and decimals to 2 decimal places

Compare numbers with the same number of decimal places up to 2 decimal places

Round decimals with 1 decimal place to the nearest whole number

Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$

Assessment:
Test:

Money

Estimate, compare and calculate different measures, including money in pounds and pence

Assessment:
Test:

Time

Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days

Read, write and convert time between analogue and digital 12- and 24-hour clocks

Assessment:
Test:

Shape

Recognise angles as a property of shape or a description of a turn (Y3)

Identify acute and obtuse angles and compare and order angles up to two right angles by size

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

Assessment:
Test:

Statistics

Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs

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

Assessment:
Test:

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

Assessment:
Test:

Year 5 Summer Pathway

Geometry	Geometry	Number	Number	Measurement	Measurement
Shape	**Position and direction**	**Decimals**	**Negative numbers**	**Converting units**	**Volume**
VIEW	VIEW	VIEW	VIEW	VIEW	VIEW

Shape

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 1 whole turn (total 360°)

Use the properties of rectangles to deduce related facts and find missing lengths and angles

Identify: angles at a point and 1 whole turn (total 360°); angles at a

Distinguish between regular and irregular polygons based on reasoning about equal sides and angles

Identify 3-D shapes, including cubes and other cuboids, from 2-D representations

Assessment:
Test:

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

Assessment:
Test:

Decimals

Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

Solve problems involving number up to 3 decimal places

Read, write, order and compare numbers with up to 3 decimal places

Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000

Assessment:
Test:

Negative Numbers

Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero

Assessment:
Test:

Converting units

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

Solve problems involving converting between units of time

Assessment:
Test:

Volume

Estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity

Estimate volume and capacity [for example, using water]

Assessment:
Test:

Year 6 Summer Pathway

Geometry

Shape

VIEW

Geometry | **Position and direction**

VIEW

Themed projects, consolidation and problem solving

VIEW

Shape

Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

Draw given angles, and measure them in degrees (°) (Y5)

Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles (Y5)

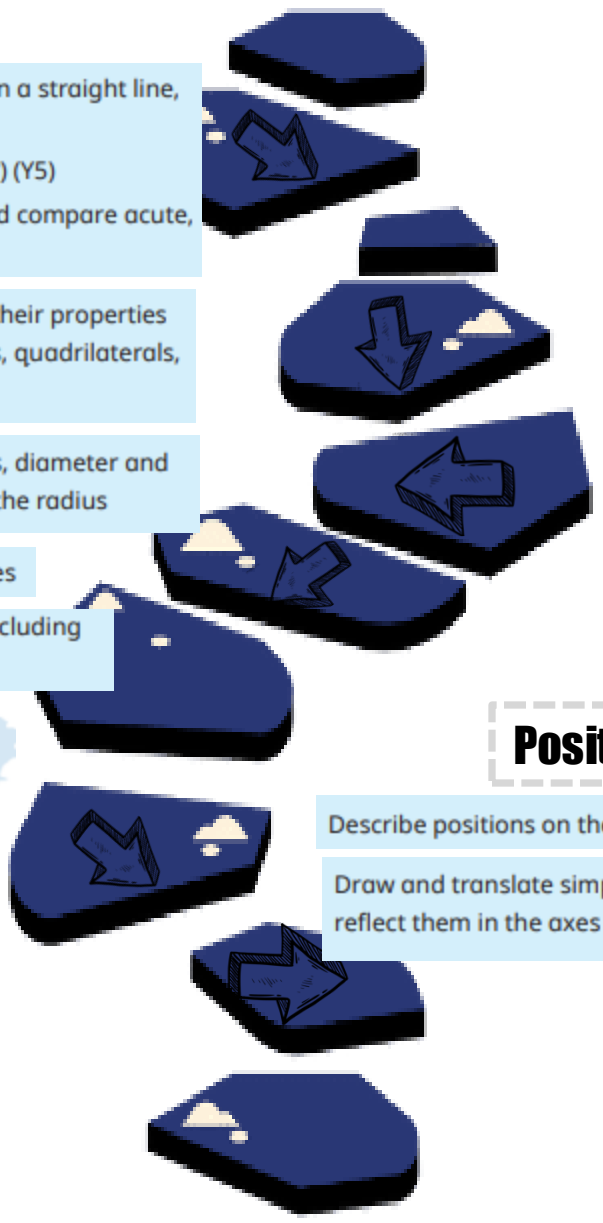
Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons

Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

Draw 2-D shapes using given dimensions and angles

Recognise, describe and build simple 3-D shapes, including making nets

Assessment:
Test:



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

Assessment:
Test:

Number and Place value	Addition, subtraction, multiplication and division	Geometry (position and direction and properties of shape)	Fractions, decimals and percentages	Algebra	Data/Statistics
Numbers to 10 million	Order of Operations Bidmas Common factors Common multiples	Four quadrants Vertically opposite (angles) Circumference Radius Diameter	Degree of accuracy Simplify	Linear number Sequence Substitute Variables Symbol Known values	Mean Pie chart Construct