Curriculum: Mathematics

EYFS

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Mastering Number Weeks 1- 10 **Number and Numerical Pattern**– • identify when a set can be subitised and when counting is needed • subitise different arrangements, both unstructured and structured • make different arrangements of numbers within 5 and talk about what they can see, to develop their conceptual subitising skills • spot smaller numbers 'hiding' inside larger numbers • connect quantities and numbers to finger patterns and explore different ways of representing numbers on their fingers • hear and join in with the counting, sequence, and connect this to the 'staircase' pattern of the counting numbers, seeing that each number is made of one more than the previous number • develop counting skills and knowledge, including: that the last number in the count tells us 'how many' (cardinality); to be accurate in counting, each thing must be counted once and once only and in any order; the need for 1:1 correspondence; understanding that anything can be counted, including actions and sounds • compare sets of objects by matching • begin to develop the language of 'whole' when talking about objects which have parts **Measure Shape and Spatial** – Patterns, Mass and Size, Circles and triangles/Positional Language, Shapes with 4 Sides/Time		**Mastering Number Weeks 11- 20** **Number and Numerical Pattern-** • continue to develop their subitising skills for numbers within and beyond 5, and increasingly connect quantities to numerals • begin to identify missing parts for numbers within 5 • explore the structure of the numbers 6 and 7 as '5 and a bit' and connect this to finger patterns and the Hungarian number frame • focus on equal and unequal groups when comparing numbers understand that two equal groups can be called a 'double' and connect this to finger patterns • sort odd and even numbers according to their 'shape' • continue to develop their understanding of the counting sequence and link cardinality and ordinality through the 'staircase' pattern • order numbers and play track games • join in with verbal counts beyond 20, hearing the repeated pattern within the counting numbers **Measure Shape and Spatial** – Comparing mass and capacity, Length, Height and Time, 3D shapes and patterns		**Mastering Number Weeks 21- 26 and review weeks** **Number and Numerical Pattern-** • continue to develop their counting skills, counting larger sets as well as counting actions and sounds • explore a range of representations of numbers, including the 10-frame, and see how doubles can be arranged in a 10-frame • compare quantities and numbers, including sets of objects which have different attributes • continue to develop a sense of magnitude, e.g. knowing that 8 is quite a lot more than 2, but 4 is only a little bit more than 2 • begin to generalise about 'one more than' and 'one less than' numbers within 10 • continue to identify when sets can be subitised and when counting is necessary • develop conceptual subitising skills including when using a rekenrek **Measure Shape and Spatial** – Spatial Reasoning, Match, Rotate and Manipulate, Compose and Decompose Visualise and Build, Mapping	

YEAR 1

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value (Within 10), Addition and Subtraction (Within 10) **Geometry** - Shape **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number** – Place Value (within 20), Addition and Subtraction (within 20), Place Value (within 50) **Measurement** – Length and Height, Mass and Volume **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Multiplication and Division, Fractions, Place Value (within 100) **Geometry –** Position and Direction **Measurement –** Money and Time **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

YEAR 2

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction **Geometry –** Shape **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division **Measurement –** Money, Length and Height and Mass, Capacity and Temperature **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Fractions **Measurements –** Time **Geometry –** Position and Direction **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

YEAR 3

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions **Measurement –** Length and Perimeter, Mass and Capacity **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Fractions **Measurements –** Money, Time **Geometry –** Shape **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

YEAR 4

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division **Measurement –** Area **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions, Decimals **Measurement –** Length and Perimeter **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Decimals **Measurements –** Money, Time **Geometry –** Shape, Position and Direction **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

YEAR 5

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division, Fractions **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions, Decimals and Percentages **Measurement –** Statistics **Geometry –** Perimeter and Area **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Shape –** Position and Direction **Number–** Decimals, Negative Numbers **Measurements –** Converting Units and Volume **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

YEAR 6

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, 4 Operations, Fractions **Measurements –** Converting Units		**Number –** Ratio, Algebra, Decimals, Fractions, Decimals and Percentages		**Shape –** Position and Direction Assessments	

Problem Solving Foci: Visualising, Reasoning Logically and Working Backwards	**Measurements –** Area, Perimeter and Volume **Geometry –** Statistics **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	Themed Projects **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement

Curriculum Vision: Mathematics

The Maths curriculum at Sandgate Primary is thoughtfully designed to build knowledge progressively through small steps, guiding pupils through a carefully sequenced journey of essential concepts that connect to prior learning. With a focus on Mastery, our curriculum uses whole-class interactive teaching to reinforce our belief that everyone can enjoy and succeed in mathematics. We aim for our pupils to be mathematically observant, able to make connections between ideas, and to confidently communicate as mathematicians.

Our curriculum promotes equity by offering every pupil an entry point through thoughtfully selected tasks and visual representations, allowing for flexible adaptation to support all learners in building a solid understanding and keeping pace with their peers. When a pupil encounters challenges with a concept or skill, formative assessments help identify and address any gaps promptly, ensuring they remain on track with the rest of the class.

Through regular opportunities for review and retrieval, alongside guided and independent practice, pupils develop a deep, enduring understanding of mathematical concepts. Core number facts are practiced to automaticity, while other key mathematical ideas are mastered and reinforced over time.

Curriculum Threads Maths: Mathematical Concepts

Each concept within the Maths curriculum is designed to ensure that all pupils become fluent in the fundamentals of mathematics giving them the ability to reason mathematically and to solve problems. Children will be taught concepts, representations and associated vocabulary for each of the key concepts (Declarative Knowledge). They will practise and use efficient and accurate methods (Procedural Knowledge) for each of the key concepts and be given the opportunity to use combinations of taught and rehearsed facts and methods to solve problems (Conditional Knowledge). The key areas of learning are-

· **Number** - Place Value, Addition and Subtraction, Multiplication and Division, Fractions,
Decimals, Percentages, Ratio and Algebra.

· **Geometry**- Shape and Position and Direction

· **Measurement**- Length and Height, Mass, Capacity and Volume, Money, Time, Temperature, Area, Perimeter and Converting Units.

· **Statistics**

Curriculum Threads Maths: Teaching for Mastery

The curriculum, supported by the NCETM's Essence of Teaching for Mastery and the 5 Big Ideas, is designed around the following:

- **Coherence:** Interconnected small steps are used to enable a coherent learning progression through the curriculum, providing access for all pupils to develop a deep and connected understanding of mathematics that they can apply and communicate in a range of contexts.
- **Variation:** Variation draws closer attention to a key feature of a mathematical concept or structure through varying some elements while keeping others constant.
    - Conceptual variation involves varying how a concept is represented to draw attention to critical features.
    - Procedural variation considers how the student will 'proceed' through a learning sequence.
- **Representation and Structure:** Carefully selected representations of mathematics are used to expose mathematical structure. The intention is to support pupils in 'seeing' the mathematics, rather than using the representation as a tool to 'do' the mathematics.
- **Mathematical Thinking:** This is central to our children learning mathematics and includes looking for patterns and relationships, making connections, conjecturing, reasoning, and generalising. Pupils actively engage in mathematical thinking in all lessons.
- **Fluency:** Efficient, accurate recall of key number facts and procedures is essential for fluency, freeing pupils' minds to think deeply about concepts and problems, but fluency demands more than this. It requires pupils to have the flexibility to move between different contexts and representations of mathematics, to recognise relationships and make connections, to explain their ideas and to choose appropriate methods and strategies to solve problems.

EYFS

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Number

Term 1 Number

- To develop fast recognition of up to 5 objects, without having to count them individually ('subitising').
- To identify when a set can be subitised and when counting is needed.
- To represent quantities on their fingers in different ways.
- To represent a given number on their fingers without looking.
- To identify sub-groups of 1, 2 and 3 within larger arrangements.
- To count objects, actions and sounds.
- To link the number symbol (numeral) with its cardinal number value.
- To see that the last number in the count tells us 'how many altogether'.
- To hear and join in with the counting sequence to 5, including using songs and rhymes.
- To record the results of their count.

  To count each object, action or sound once and only once.

  To understand the make it, draw it, write it approach.

Term 1 Numerical Patterns

- To understand the 'one more than/one less than' relationship between consecutive numbers.
- To make and describe spatial patterns with 3 dots.
- To explore the composition of numbers to 10.
- To compare two small groups of up to five objects, saying when there are the same number of objects in each group.
- To compare quantities using language: 'more than', 'fewer than'.
- To identify when a small collection is rearranged or the quantity changed.

Term 2 Number

- To develop fast recognition of up to 5 objects, without having to count them individually ('subitising').
- To identify when a set can be subitised and when counting is needed.
- To practise counting each object, action or sound once.
- To hear and join in with the counting sequence to 10.
- To tag each object with 1 number word (1:1 correspondence)
- To say and make numbers to 10 on their fingers.
- To use a die frame to represent 5.
- To count 5 and 5 to make 10 altogether.
- To match different representations of quantities to 5 with amounts shown on their fingers.
- To begin to recognise numerals to 5
- To "identify the 'whole' when shown 1 part of a familiar object
- To hear the language of 'whole' and 'parts' and identify parts of their own body.
- To recognise that some whole objects have parts that cannot be removed. To investigate ways to compose and de-compose numbers to 5.

Term 2 Numerical Patterns

- To make collections of 5 in different ways.
- To revisit 'more than' or 'fewer than' by looking.
- To compare groups of up to 3 objects by matching them 1:1
- To say when they have an equal number and to develop their understanding of equal amounts.
- To say when there is an equal number, too many or not enough.
- To begin to understand that when a set of objects is rearranged, its quantity remains the same.
- To represent quantities in more abstract ways, such as by clapping or jumping.
- To discuss their daily routine and use language associated with this.
- To describe using positional language such as under, above, beside and in between for routes and locations.

Measure, Shape and Spatial Thinking

- To talk about and explore 2D and 3D shapes.
- To use informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'.
- To select shapes appropriately: flat surfaces for building, a triangular prisms for a roof, etc.
- To combine shapes to make new ones – an arch, a bigger triangle, etc."
- Circles and Triangles:
- To identify and name circles and triangles.
- To compare circles and triangles.
- To notice and identify shapes in the environment.
- To describe the position of shapes.

- Shapes with 4 sides:
- To identify and name shapes with 4 sides.
- To combine shapes with 4 sides.
- To notice and identify shapes in the environment.

EYFS

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Number

Term 3 Number

- To continue to subitise to 5.
- To compose and decompose numbers.
- To explore verbal counting to numbers larger than 20.
- To develop their understanding of equal amounts.
- To begin to develop their conceptual subitising skills with linear and paired arrangements of up to 5 dots.
- To recognise die patterns to 6.
- To understand how to partition 5.
- To see the staircase pattern and recognise that each number is 1 more.
- To consider what zero means and link the numeral 0 to its amount.
- To begin to combine two amounts.

Term 3 Numerical Patterns

- The relationship of one more and one less for consecutive numbers.
- To separate a group of three or four objects in different ways, beginning to recognise that the total is still the same (composition).
- To compare quantities when discussing capacity.
- To compare the length, height and weight of objects.

Term 4 Number

• practise counting aloud
• revisit the principles of counting.
• use generalised statements to describe the '5 and a bit' composition of the numbers 6–8.
• investigate the '1 more/1 less' pattern of the base-10 counting system
• begin to order numbers between 1 and 10, noticing the '5 and a bit' structure.
• describe the '1 more/1 less' relationship of numbers to 10
• work together to order numbers between 1 and 10, noticing the '5 and a bit' structure.

Term 4 Numerical Patterns

- practise identifying when 2 sets are equal in number.
- identify when a double is shown and explain why.
- identify when a double is shown and explain why
- say what the whole is when there are 2 equal parts.
- say what the whole is when there are 2 equal parts
- use objects to make doubles patterns and describe what they can see.
- show doubles patterns on their fingers in response to being given the whole
- use positional language to describe spatial arrangements of objects
- visualise doubles patterns to 5 and 5.
- say what the whole is when there are 2 equal parts
- recognise and talk about ways in which objects are similar to or different from each other (colour, size, function, shape, etc.)
- sort objects according to attributes described by an adult.
- say what the whole is when there are 2 equal parts
- describe attributes that they notice for a group of objects
- sort and re-sort objects according to their own attributes.
- say what the whole is when there are 2 equal parts
- describe attributes of the Numberblocks
- sort the Numberblocks using the criteria 'odd blocks' or 'even tops'.
- say what the whole is when there are 2 equal parts
- describe attributes of the Numberblocks
- investigate patterns of doubles.

EYFS

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Number

Term 5 Number

- Counting – larger sets and things that cannot be seen (sounds) or are moving, making amounts, counting on from a given number
- Subitising – to 6, including in structured arrangements and recognise doubles without counting
- Composition – '5 and a bit' (use fingers), identify missing parts of 5, 5 and not 5,
- Composition - of 10, 5 and 5 makes 10, match numerals to quantities, solve problems involving composition of 10, pairs of numbers that make 10, identify missing part of 10.
- Comparison – linked to ordinality, count back from 5 to 1, identify and position numbers on a number track

Term 5 Numerical Patterns

- Explore and represent patterns within numbers up to 10, including odds and evens, double facts and how quantities can be distributed equally.

Term 5 Measure, Shape and Spatial Reasoning

- Combine shapes to make new ones – an arch, a bigger triangle, etc.
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
- To select and rotate shapes, using positional language to describe them and combine them to make new shapes.

Term 6 Number

- Subitise to 5 using standard/non-standard dice/line/dot patterns, Introduce the rekenrek and push beads with one finger, explore one fewer using beads
- Automatic recall of bonds to 5, make amounts on rekenrek, subitise and check using counting 1:1, count to 10 and stop at end of set, count 20 objects, practise counting to 100, count larger groups.
- Composition of numbers to 10, partition 5 in different ways (including using dice frame), use spatial language to describe arrangements, visualise and describe doubles patterns up to '5 and 5'
- Comparison – subitise to 5, compare and identify sets with more, use fingers to show 'more than' numbers to 10, rekenrek to push amounts that are equal to, more then and fewer, recognise 1 more pattern in towers, use fingers to show '1 more', order numbers to 10.
- Counting - doubles facts, represent the composition of 5 on die frames, explore the commutativity of addition facts, composition of 5 on rekenrek, fingers, dice, tens frames to represent '5 and a bit' up to 10, fingers to represent '1 more' and '1 less', find missing numbers to 10

Term 6 Numerical Patterns

- Number patterns – understand equivalence, make and describe doubles on fingers, equal and unequal groups, sorting into doubles and not double, use fingers to make doubles, make and describe doubles on a rekenrek, recognise odd and even in doubles patterns, sort models into odd and even numbers of cubes.

Term 6 Measure, Shape and Spatial Reasoning

- Visualise, Build and Map
- To select and rotate shapes, using positional language to describe them and combine them to make new shapes.
- Explore relationships between patterns and shapes, creating repeating patterns and symmetrical constructions.

YEAR 1

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Arithmetic

Fluency - Mastering Number
Pupils will have an opportunity to consolidate the Early Learning Goals and continue to explore the composition of numbers within 10, and the position of these numbers in the linear number system.
Pupils learn to:

- subitise within 5, including when using a rekenrek, and re-cap the composition of 5
- develop their understanding of the numbers 6 to 9 using the '5 and a bit' structure
- compare numbers within 10 and use precise mathematical language when doing so
- re-cap the order of numbers within 10 and connect this to '1 more' and '1 less' than a given number

Number

Term 1
Number: Place Value (within 10)

- Count to ten, forwards and backwards, beginning with 0 or 1, or from any given number.
- Count, read and write numbers to 10 in numerals and words.
- Given a number, identify one more or one less.
- 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.

Term 1 and 2
Number: Addition and Subtraction (within 10)

- Represent and use number bonds and related subtraction facts within 10
- Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.
- Add and subtract one digit numbers to 10, including zero.

Geometry

Term 2
Geometry: Shape

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

YEAR 1

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Arithmetic

Fluency- Mastering Number

Pupils will continue to explore the composition of numbers within 10 and explore addition and subtraction structures and the related language (without the use of symbols).

- Explore the composition of each of the numbers 7 and 9.
- Explore the composition of odd and even numbers, seeing that even numbers can be made of two odd or two even parts, and that odd numbers can be composed of one odd part and one even part.
- Identify the number that is two more or two less than a given odd or even number, identifying that two more/ less than an odd number is the next/ previous odd number, and two more/ less than an even number is the next/ previous even number.
- Explore the aggregation and partitioning structures of addition and subtraction through systematically partitioning and re-combining numbers within 10 and connecting this to the part-part-whole diagram, including using the language of parts and wholes.
- Explore the augmentation and reduction structures of addition and reduction using number stories, including introducing the 'first, then, now' language structure.

Number

Term 3

Number: Place Value (Within 20)

- Count to twenty, forwards and backwards, beginning with 0 or 1, or from any given number.
- Count, read and write numbers to 20 in numerals and words.
- Given a number, identify one more or one less.
- 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.

Term 3

Number: Addition and Subtraction (within 20)

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

Term 4

Number: Place Value (Within 50)

Multiples of 2, 5 & 10

- Count to 50 forwards and backwards, beginning with 0 or 1, or from any number.
- Count, read and write numbers to 50 in numerals.
- Given a number, identify one more or one less.
- 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.

Measurement

Term 4

Measurement: Length & Height

- Measurement: Length and Height
- Measure and begin to record lengths and heights.
- Compare, describe and solve practical problems for: lengths and heights (for
- example, long/short, longer/shorter, tall/short, double/half)

Term 4

Measurement: Mass & Volume

- Measurement: Weight and Volume
- Measure and begin to record
- mass/weight, capacity and volume.

YEAR 1

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value (Within 10), Addition and Subtraction (Within 10) **Geometry** - Shape **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number** – Place Value (within 20), Addition and Subtraction (within 20), Place Value (within 50) **Measurement** – Length and Height, Mass and Volume **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Multiplication and Division, Fractions, Place Value (within 100) **Geometry –** Position and Direction **Measurement –** Money and Time **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

Arithmetic

Fluency- Mastering Number

- explore the composition of the numbers 11 to 19 as '10 and a bit' and compare numbers within 20
- connect the composition of the numbers 11 to 19 to their position in the linear number system, including identifying the midpoints of 5, 10 and 15
- compare numbers within 20
- understand how addition and subtraction equations can represent previously explored structures of addition and subtraction (aggregation/ partitioning/augmentation/ reduction)
- practise retrieving previously taught facts and reason about these

Number

Term 5
Number: Multiplication and Division
Reinforce multiples of 2,5 and 10

- Count in multiples of twos, fives and tens.
- 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.

Term 5
Number: Fractions

- Recognise, find and name a half as one of two equal parts of an object, shape or quantity.
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.
- Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)
- Compare, describe and solve practical problems for: mass/weight [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]

Term 6
Number: Place Value (within 100)

- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.
- Count, read and write numbers to 100 in numerals.
- Given a number, identify one more and one less.
- Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than, most, least.

Geometry

Term 5
Geometry: Position & Direction

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

Measurement

Term 6
Measurement: Money

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

Term 6
Measurement: 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.
- Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.
- Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later]
- Measure and begin to record time (hours, minutes, seconds)

YEAR 2

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction **Geometry –** Shape **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division **Measurement –** Money, Length and Height and Mass, Capacity and Temperature **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Fractions **Measurements –** Time **Geometry –** Position and Direction **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

Arithmetic

- Review the composition of the numbers 6 to 9 as '5 and a bit'.
- Compare numbers using the language of comparison and use the symbols < > =.
- Review the structure of even numbers (including exploring how even numbers can be composed of two odd parts or two even parts) and the composition of each of 6, 8 and 10.
- Review the structure of odd numbers (including exploring how odd numbers can be composed of one odd part and one even part) and the composition of each of 7 and 9.
- Consolidate their understanding of the numbers 10 and 20 as '10 and a bit'.
- Consolidate their understanding of the linear number system to 20 and reason about midpoints.

Number

Term 1

Number: Place Value

- Read and write numbers to at least 100 in numerals and in words.
- Recognise the place value of each digit in a two digit number (tens, ones)
- Identify, represent and estimate numbers using different representations including the number line.
- Compare and order numbers from 0 up to 100; use <, > and = signs.
- Use place value and number facts to solve problems.
- Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward.

Term 1

Number: Addition and Subtraction

- 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 two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers.
- Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.
- Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods.

Term 2

Number: Addition and Subtraction continued

- 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 two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers.
- Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.
- Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods.

Geometry

Term 2

Geometry: Properties of Shapes

- Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.
- 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, [for example, a circle on a cylinder and a triangle on a pyramid.]

YEAR 2

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction **Geometry –** Shape **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division **Measurement –** Money, Length and Height and Mass, Capacity and Temperature **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Fractions **Measurements –** Time **Geometry –** Position and Direction **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

Arithmetic

Arithmetic: Mastering Number

- explore how the numbers 6 to 9 can be doubled using the '5 and a bit' and '10 and a bit' structure
- use doubles to calculate near doubles
- use bonds of 10 to reason about bonds of 20, in which the given addend is greater than 10
- use known number bonds within 10 to calculate within 20, working within the 10-boundary
- use their knowledge of bonds of 10 to find three addends that sum to 10
- use their knowledge of the composition of numbers within 20 to add and subtract across the 10-boundary

Number

Term 3

Number: Multiplication and Division

Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers.
Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign.
Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.

Measurement

Term 3

Measurement: Money

Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.
Find different combinations of coins that equal the same amounts of money.
Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

Term 4

Measurement: Length & 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 =

Term 4

Measurement: 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

YEAR 2

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction **Geometry –** Shape **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division **Measurement –** Money, Length and Height and Mass, Capacity and Temperature **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Fractions **Measurements –** Time **Geometry –** Position and Direction **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

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Arithmetic

Arithmetic: Mastering Number
Problem Solving:
Pupils will have further opportunities to use their knowledge of the composition of numbers within 10 to calculate within 20 and to reason about equations and inequalities.
Pupils will:
• continue to explore a range of strategies to subtract across the 10-boundary
• review bonds of 20 in which the given addend is greater than 10, and reason about bonds of 20, in which the given addend is less than 10
• practise previously explored strategies to support their reasoning about inequalities and equations
• review doubles and near doubles and transform additions in which two addends are adjacent odd/ even numbers into doubles
• consolidate previously taught facts and strategies through continued, varied practice

Number

Term 5
Number: Fractions

- Recognise, find, name and write Fractions ½, 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity.
- Write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½

Measurement

Term 5
Measurement: Time

- Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
- Know the number of minutes in an hour and the number of hours in a day.
- Compare and sequence intervals of time.

Term 6
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.

Term 6
Geometry: Position & 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 anti-clockwise).
- Order and arrange combinations of mathematical objects in patterns and sequences

YEAR 3

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions **Measurement –** Length and Perimeter, Mass and Capacity **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Fractions **Measurements –** Money, Time **Geometry –** Shape **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

Arithmetic

Term 1

- To know how to count in steps of 2, 3 and 5, from 0, and in tens from any number, forward or backward
- To know the place value of each digit in a three-digit number (hundreds, tens, ones) and identify a missing part in standard partitioning (e.g. 100 + __ + 2 = 142)
- To know how to find 10 or 100 more or less than a given number
- To know how to add and subtract numbers mentally, including a three-digit number with ones, tens and hundreds
- To know and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems
- To know how to add and subtract numbers with up to three digits, using formal written methods of column addition and subtraction

Term 2

- To know how to add and subtract numbers mentally including a three-digit number with ones, tens and hundreds
- To know and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems
- To know how to add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- To know how to calculate mathematical statements for multiplication and division within the multiplication tables (2, 5 and 10s) and write them using the multiplication (×), division (÷) and equals (=) signs
- To know how to add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

Number

Term 1

Number: Place Value

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

Terms 1 and 2

Number: Addition and Subtraction

- Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three digit number and hundreds.
- Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.
- Estimate the answer to a calculation and use inverse operations to check answers.
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Term 2

Number: Multiplication and Division

- Count from 0 in multiples of 4, 8, 50 and 100
- Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
- Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.

YEAR 3					
TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions **Measurement –** Length and Perimeter, Mass and Capacity **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Fractions **Measurements –** Money, Time **Geometry –** Shape **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

Arithmetic

Term 3

To know how to count from 0 in multiples of 4, 8, 50 and 100
To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
To know how to write and calculate mathematical statements for multiplication and division using the multiplication tables that pupils know, including for two-digit numbers times one-digit numbers

Term 4

To know how to add and subtract fractions with the same denominator within one whole [e.g. 5/7 + 1/7 = 6/7]
To know how to add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
To know how to write and calculate mathematical statements for multiplication and division using the multiplication tables that pupils know, including for two-digit numbers times one-digit numbers

Number

Term 3

Number: Multiplication and Division

Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two digit numbers times one-digit numbers, using mental and progressing to formal written methods.
Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objectives.

Term 4

Number: Fractions

Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.
Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Solve problems that involve all of the above.

Measurement

Term 3

Measurement: Length & Perimeter

Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).
Measure the perimeter of simple 2D shapes.

Term 4

Measurement: Mass & Capacity

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

YEAR 3

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions **Measurement –** Length and Perimeter, Mass and Capacity **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Fractions **Measurements –** Money, Time **Geometry –** Shape **Problem Solving Foci:** Visualising, Reasoning Logically, Working Systematically and Looking for Patterns.	

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Arithmetic

Term 5

- To know how to add and subtract fractions with the same denominator within one whole [e.g. 5/7 + 1/7 = 6/7]
- To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- To know how to write and calculate mathematical statements for multiplication and division using the multiplication tables that pupils know, including for two-digit numbers times one-digit numbers.
- To know the place value of each digit in a three-digit number (hundreds, tens, ones) and identify a missing part in standard partitioning (e.g. 100 + __ + 2 = 142)
- To know how to count from 0 in multiples of 4, 8, 50 and 100

Term 6

- To know how to write and calculate mathematical statements for multiplication and division using the multiplication tables that pupils know, including for two-digit numbers times one-digit numbers
- Consolidation of gaps

Number

Term 5

Number: Fractions

- Recognise and show, using diagrams, equivalent fractions with small denominators.
- Compare and order unit fractions, and fractions with the same denominators.
- Add and subtract fractions with the same denominator within one whole.
- Solve problems that involve all of the above.

Measurement

Term 5

Measurement: Money

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

Term 5

Measurement: 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, a.m./p.m., 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 [for example to calculate the time taken by particular events or tasks].

Term 6

Geometry: Properties of Shapes

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.
Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
Draw 2-D shapes and make 3-D shapes using modelling materials. Recognise 3-D shapes in different orientations and describe them.

Term 6

Statistics

Interpret and present data using bar charts, pictograms and tables. Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.

YEAR 4

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division **Measurement –** Area **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions, Decimals **Measurement –** Length and Perimeter **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Number –** Decimals **Measurements –** Money, Time **Geometry –** Shape, Position and Direction **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

Arithmetic

Terms 1 and 2

- To know how to find 10, 100 and 1,000 more or less than a given number.
- To know the place value of 4 digit numbers and identify a missing part in standard partitioning (e.g. 1000 + __ + 20 + 4 = 1324).
- To recall multiplication and division facts for the 2, 3, 4, 5, 6 and 10 times tables.
- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.To recall multiplication and division facts for the 7, 8, 9, 11 and 12 times tables (in addition to previous times tables learned).

Number

Term 1
Number: Place value

- Recognise the place value of a four-digit number
- Find 1000 more or less than a given number
- V Order and compare numbers beyond 1000
- Count backwards through zero to include negative numbers
- Round any number to the nearest 10, 100 or 1000
- Count in multiples of 6, 7, 9, 25 and 1000
- Solve number and practical problems that involve all of the above and with increasingly large positive numbers
- 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.

Term 1
Number: Addition and Subtraction

- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- Estimate and use inverse operations to check answers to a calculation
- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Term 2
Number: Multiplication and Division

- Recall and use multiplication and division facts for multiplication tables up to 12 × 12.
- Count in multiples of 6, 7, 9. 25 and 1000
- 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.
- Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Measurement

Term 2
Measurement: Area

- Find the area of rectilinear shapes by counting squares.

YEAR 4

TERM 1	TERM 2	TERM 3 TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division **Measurement –** Area **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions, Decimals **Measurement –** Length and Perimeter **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	**Number –** Decimals **Measurements –** Money, Time **Geometry –** Shape, Position and Direction **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

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Arithmetic

Terms 3 and 4

- To know and quickly recall multiplication and division facts for multiplication tables up to 12 x 12.
- Commutative law: To recognise commutativity of addition and multiplication calculations.
- Associative law: To recognise that when adding or multiplying, the order of numbers being used to calculate does not matter.
- Associative law: In multiplication calculations, to recognise that if one or both of the multiplicators is 10x, 100x or 1000x bigger, then the product will correlate.
- To be able to use the inverse calculation to check answers and calculate missing numbers.

Number

Term 3

Number: Multiplication and Division

- Recall and use multiplication and division facts for multiplication tables up to 12 × 12.
- Count in multiples of 6, 7, 9. 25 and 1000
- 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.
- Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Term 4

Number: Fractions

- Recognise and show, using diagrams, families of common equivalent fractions.
- Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- 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.
- Add and subtract fractions with the same denominator.

Term 4

Number: Decimals

- Decimals Recognise and write decimal equivalents of any number of tenths or hundredths.
- Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- Solve simple measure and money problems involving fractions and decimals to two decimal places.

Measurement

Term 3

Measurement: Length & Perimeter

- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- Convert between different units of measure [for example, kilometre to metre]

YEAR 4

TERM 1	TERM 2	TERM 3 TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division **Measurement –** Area **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions, Decimals **Measurement –** Length and Perimeter **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	**Number –** Decimals **Measurements –** Money, Time **Geometry –** Shape, Position and Direction **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

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Arithmetic

Terms 5 and 6

- To know and quickly recall multiplication and division facts for multiplication tables up to 12 x 12.
- Commutative law: To recognise commutativity of addition and multiplication calculations.
- Associative law: To recognise that when adding or multiplying, the order of numbers being used to calculate does not matter.
- Associative law: In multiplication calculations, to recognise that if one or both of the multiplicators is 10x, 100x or 1000x bigger, then the product will correlate.
- To be able to use the inverse calculation to check answers and calculate missing numbers.
- To use mental and written methods to solve 2- and 3-digit by 1-digit multiplication and division calculations.
- To know and quickly recall multiplication and division facts for multiplication tables up to 12 x 12.
- Commutative law: To recognise commutativity of addition and multiplication calculations.
- Associative law: To recognise that when adding or multiplying, the order of numbers being used to calculate does not matter.
- To use mental and written methods to solve 2- and 3-digit by 1-digit multiplication and division calculations.
- Add and subtract fractions with the same denominator

Number

Term 5
Number: Decimals

- Compare numbers with the same number of decimal places up to two decimal places.
- Round decimals with one decimal place to the nearest whole number.
- Recognise and write decimal equivalents to ¼, ½ and ¾
- Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths

Measurement

Term 5
Measurement: Money

- Estimate, compare and calculate different measures, including money in pounds and pence.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.

Term 5
Measurement: Time

- Read, write and convert time between analogue and digital 12- and 24-hour clocks. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

Term 6
Geometry: Properties of Shape

- 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.

Term 6
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.

Term 6
Geometry: Position & 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.

YEAR 5

TERM 1	TERM 2	TERM 3 TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division, Fractions **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions, Decimals and Percentages **Measurement –** Statistics **Geometry –** Perimeter and Area **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	**Shape –** Position and Direction **Number–** Decimals, Negative Numbers **Measurements –** Converting Units and Volume **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

Arithmetic

Terms 1 and 2

- To know the value of each digit in numbers up to 1,000,000 and identify a missing part in standard partitioning (e.g. 1000 + __ + 20 + 4 = 1324)
- To know how to count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000
- To know and quickly recall multiplication and division facts for multiplication tables up to 12 × 12
- To know how to add and subtract numbers mentally with increasingly large numbers.
- To know how to add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).
- To know how to multiplying together three numbers.
- To know how to multiply and divide numbers mentally drawing upon known facts.

Number

Term 1
Number

- Read, write, order and compare numbers to at least 1000000 and determine the value of each digit.
- Count forwards or backwards in steps of powers of 10 for any given number up to 1000000.
- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero.
- Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000
- 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.

Term 1
Number: Addition and Subtraction

- Add and subtract numbers mentally with increasingly large numbers.
- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- 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.

Term 2
Number: Multiplication and Division

- Multiply and divide numbers mentally drawing upon known facts.
- Multiply and divide whole numbers by 10, 100 and 1000.
- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.
- 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.
- 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

Term 2
Fractions

- Compare and order fractions whose denominators are 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.

YEAR 5

TERM 1	TERM 2	TERM 3 TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division, Fractions **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions, Decimals and Percentages **Measurement –** Statistics **Geometry –** Perimeter and Area **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	**Shape –** Position and Direction **Number–** Decimals, Negative Numbers **Measurements –** Converting Units and Volume **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

Arithmetic

Terms 3 and 4

- To know how to multiply together three numbers
- To know how to multiply and divide numbers mentally drawing upon known facts
- To know how to 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
- To know how to add and subtract fractions with the same denominator and denominators that are multiples of the same number
- To know how to 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
- To know how to solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- To know how to divide numbers up to 4 digits by a one-digit number using the formal written method of short division
- To know how to add and subtract fractions with the same denominator and denominators that are multiples of the same number
- To know the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- To know how to multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000
- To know how calculate a percentage of a quantity [e.g. of measures such as 15% of 360]
- To know and quickly recall multiplication and division facts for multiplication tables up to 12×12
- To know how to multiplying together three numbers
- To know how to solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equal sign.

Number

Term 3
Number: Multiplication and Division

- Multiply and divide numbers mentally drawing upon known facts.
- Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 digit numbers.
- 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.
- Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign.

Term 3
Number: Fractions

- Compare and order fractions whose denominators are 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.

Term 4
Number: Decimals & Percentages

- Read, write, order and compare numbers with up to three decimal places.
- 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.
- 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.

Measurement

Term 4
Measurement: Perimeter & Area

- Measure and calculate the perimeter of composite rectilinear shapes in cm and m.

Term 4
Statistics

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

YEAR 5

TERM 1	TERM 2	TERM 3 TERM 4	TERM 5	TERM 6
Number – Place Value, Addition and Subtraction, Multiplication and Division, Fractions **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Multiplication and Division, Fractions, Decimals and Percentages **Measurement –** Statistics **Geometry –** Perimeter and Area **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	**Shape –** Position and Direction **Number–** Decimals, Negative Numbers **Measurements –** Converting Units and Volume **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

Arithmetic

Terms 5 and 6

- To know and quickly recall multiplication and division facts for multiplication tables up to 12x12
- To know how to multiply together three numbers
- To know how to solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign

Number

Term 5
Number: Decimals & Percentages

- Read, write, order and compare numbers with up to three decimal places.
- 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.
- 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.
- Negative numbers

Measurement

Term 5
Geometry: Properties of Shape

- Identify 3D shapes, including cubes and other cuboids, from 2D representations.
- 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.
- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
- Draw given angles, and measure them in degrees.

Term 5
Geometry: Position & 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.

Term 6
Number

- Negative numbers

Term 6
Measurement: Converting Units

- Convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml]
- 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.

Term 6
Measurement: volume
Estimate volume [for example using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]

YEAR 6

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, 4 Operations, Fractions **Measurements –** Converting Units **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Ratio, Algebra, Decimals, Fractions, Decimals and Percentages **Measurements –** Area, Perimeter and Volume **Geometry –** Statistics **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Shape –** Position and Direction Assessments Themed Projects **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

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Arithmetic

Terms 1 and 2

- To know the value of each digit in numbers up to 10,000,000 and identify a missing part in standard partitioning (e.g. 1000 + __ + 20 + 4 = 1324)
- To know how to use negative numbers to calculate intervals across zero
- To know and quickly recall multiplication and division facts for multiplication tables up to 12 × 12
- To recognise and know how to use factor pairs and commutativity in mental calculations

Term 1
Number: Place Value

- Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.
- 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.

Term 1
Number: Addition, Subtraction, Multiplication and Division

- Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.
- Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication.
- Divide numbers up to 4 digits by a 2-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.
- Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to 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 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.

Term 2
Number: Fractions

- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
- Compare and order fractions, including fractions > 1
- Generate and describe linear number sequences (with fractions)
- Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions.
- Multiply simple pairs of proper fractions, writing the answer in its simplest form
- Divide proper fractions by whole numbers
- Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction
- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Term 2
Measurement: Converting Units

- 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 3dp.
- Convert between miles and kilometres.

YEAR 6

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Number – Place Value, 4 Operations, Fractions **Measurements –** Converting Units **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Ratio, Algebra, Decimals, Fractions, Decimals and Percentages **Measurements –** Area, Perimeter and Volume **Geometry –** Statistics **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement		**Shape –** Position and Direction Assessments Themed Projects **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

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Arithmetic

Terms 1 and 2

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- Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.
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- Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to 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 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.

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- 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 3dp.
- Convert between miles and kilometres.

YEAR 6

TERM 1	TERM 2	TERM 3 TERM 4	TERM 5	TERM 6
Number – Place Value, 4 Operations, Fractions **Measurements –** Converting Units **Problem Solving Foci:** Visualising, Reasoning Logically and Working Backwards		**Number –** Ratio, Algebra, Decimals, Fractions, Decimals and Percentages **Measurements –** Area, Perimeter and Volume **Geometry –** Statistics **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	**Shape –** Position and Direction Assessments Themed Projects **Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

Arithmetic

Terms 3 and 4

- Identify the value of each digit in numbers given to 3 decimal places and multiply numbers by 10, 100 and 1,000 giving answers up to 3 decimal places.
- Multiply one-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 which require answers to be rounded to specified degrees of accuracy. To know the order of operations to carry out calculations involving the four operations (BODMAS).
- To know how to multiply one-digit numbers with up to two decimal places by whole numbers.
- To know how to use written division methods in cases where the answer has up to two-decimal places.
- To know how calculate a percentage of a quantity [e.g. of measures such as 15% of 360]
- To be able to use the inverse calculation to check answers and calculate missing numbers.

Number

Term 3
Number: 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 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.

Term 3
Number: Algebra

- Use simple formulae. Generate and describe linear number sequences.
- Express missing number problems algebraically.
- Find pairs of numbers that satisfy an equation with two unknowns.
- Enumerate possibilities of combinations of two variables.

Term 3
Number: Decimals

- Identify the value of each digit in numbers given to 3 decimal places and multiply numbers by 10, 100 and 1,000 giving answers up to 3 decimal places.
- Multiply one-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 which require answers to be rounded to specified degrees of accuracy.

Term 4
Number: Fractions

- Use common factors to simplify fraction s; use common multiples to express fractions in the same denomination.
- Compare and order fractions, including fractions > 1
- Generate and describe linear number sequences (with fractions)
- Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions.
- Multiply simple pairs of proper fractions, writing the answer in its simplest form
- Divide proper fractions by whole numbers
- Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction
- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Number: Percentages

- Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison.
- Recall and use equivalences between simple fractions, decimals and percentages including in different contexts.

Measurement

Term 4
Measurement: Perimeter, Area & 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 cm3, m3 and extending to other units (mm3, km3)

Term 4
Statistics

- Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.
- Interpret and construct pie charts and line graphs and use these to solve problems.
- Calculate the mean as an average.

YEAR 6										
TERM 1		**TERM 2**		**TERM 3**		**TERM 4**			**TERM 5**	**TERM 6**
Number – Place Value	**Number –** 4 Operations	**Number –** Fractions	**Measurements –** Converting Units	**Number –** Ratio,	**Number –** Algebra	**Number** Fractions, Decimals and Percentages	**Measurements –** Area, Perimeter and Volume	**Geometry –** Statistics	**Geometry – Shape,** Position and Direction Assessments	Themed Projects
Problem Solving Foci: Visualising, Reasoning Logically and Working Backwards				**Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement					**Problem Solving Foci:** Conjecturing, Working systematically, Looking for Patterns, Trials and Improvement	

FRACTIONS

Useful real-life context:
- Pizza slices shared between...; chocolate bars; money off e.g. 1/3 off

Essential prior knowledge:
- fractions are a way to represent parts of a whole
- fractions can be written in different ways but have the same value (equivalence)
- factors/multiples (required for equivalence)
- mixed numbers are a whole number and a fraction

Common misconceptions:
- misunderstanding equivalence: procedural approaches to 'multiply top and bottom' and not appreciating that the fractions still have the same value
- only halving/doubling to find equivalent fraction e.g. can't simplify $\frac{3}{15}$
- unable to partition the whole to calculate e.g. $2\frac{1}{4} - \frac{1}{2}$,
- leaving answers as 'mixed improper fractions' e.g. $3\frac{7}{5}$
- more than/less than symbols when comparing fractions

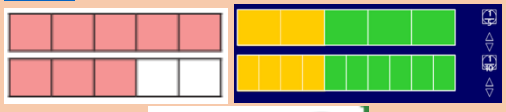
Critical mathematical vocabulary:
Part, whole, mixed number, numerator, denominator, improper fraction, simplest form, simplify

Consistent stem sentences:
- For the fractions to be equivalent, if there are _(2x)_ as many parts in the numerator, there must be _(2x)_ as many parts in the denominator

Generalisations:
- Two or more fractions can have different numbers but the same overall value.
- A common denominator is required when adding or subtract fractions.

Concrete resources:
Magnetic segments

Pictorial representations shown:
Bar models, including from ITP Fractions:
https://mathsframe.co.uk/en/resources/resource/66/itp-fractions



Circular fractions

Pictorial representations drawn by children:
'Complete the image' style drawing using given representations of the above

Expected lesson progression – typically 5 weeks

- How many parts would fit in the whole? Estimate parts of a whole for irregular shapes/patterns/body parts etc. (e.g. I see reasoning – Y6)
- Finding equivalent fractions, including simplest form
- Add and subtract fractions, including unit fractions, non-unit fractions and mixed numbers
- Sustained arithmetical practice of addition and subtraction of fractions
- Solve problems involving addition and subtraction of fractions, using equivalence e.g. I See Reason. Y6 Agree of Disagree pg76 / 'How Many Ways' pg77
- Multiply unit and non-unit fractions by whole numbers or other fractions.
- Sustained arithmetical practice of multiplication of fractions
- Solve problems involving multiplying of fractions, using equivalence e.g. I See Reason. Y6 'Explain mistakes' pg 80
- Divide a proper fraction by a whole number
- Sustained arithmetical practice of division of fractions
- Find fractions of whole amounts
- Compare, order and sequence fractions including mixed numbers.
- Solve problems involving fractions of amounts e.g. Deconstructing Word Questions Y6 'Fractions of quantity' pg 37

End points:
- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
- Compare and order fractions, including fractions > 1
- Generate and describe linear number sequences (with fractions)
- Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions
- Multiply simple pairs of proper fractions, writing the answer in its simplest form
- Divide proper fractions by whole numbers

$\frac{12}{15} = \frac{4}{5}$

$1\frac{3}{4} < 1\frac{4}{5}$

$\frac{3}{4} + \frac{1}{2}, \frac{3}{4} - \frac{1}{2},$

$2\frac{3}{4} + \frac{1}{2}, 2\frac{1}{4} - \frac{1}{2},$

$\frac{3}{4} \times 3, \frac{3}{4} \times \frac{1}{2},$

$\frac{3}{4} \div 3, \frac{3}{4} \div 5,$

$\frac{1}{4} = 1 \div 4 = 0.25$

YEAR 6

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Arithmetic

Terms 5 and 6

- To know and quickly recall multiplication and division facts for multiplication tables up to 12x12
- To know how to multiply together three numbers
- To know how to solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign

Measurements

Term 5

Geometry: Properties of Shapes

- Draw 2-D shapes using given dimensions and angles.
- Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons.
- Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

Geometry: Position & 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 6 – Problem solving and investigation