St. Paul's Dorking
Church of England (Aided) Primary School

Maths Overview

At St. Paul's we want our children to love Maths and engage with the subject in a way that is relevant and purposeful to them and their lives. We want them to be inspired and motivated to develop essential skills in fluency, reasoning and problem solving that will enable them to flourish in later life. Our core Maths skills in calculation, number facts and times tables are the basis from which our fluency in number is derived and as such form the key building blocks of our Maths curriculum. These will be an integral part of our daily teaching. We will use our school values of wisdom, trust and perseverance to ensure that skills and knowledge are revisited in a timely and relevant manner using assessment to inform what we teach. Our teaching is informed by existing schemes of work whilst being enabled by our own trusted pedagogy. Our teaching will build the knowledge and model the skills needed to become confident Mathematicians by ensuring careful progression using an appropriate combination of concrete, visual and abstract methods and resources.

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MATHEMATICS

Mathematics

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Content	**Range 5** **Comparison** Compares two small groups of up to five objects, **Counting** To count 0 to 5 using one to one correspondence Recognise numerals up to 10 **Cardinality** To subitise 1,2 and 3 objects. **Composition** To know that numbers are made up of smaller numbers. **Spatial awareness** Responds to and uses language of position and direction **Shape**	**Range 5** **Comparison** To introduce things and relative size. To use number names and symbols from 0 to 10. **Counting** Reciting and ordering numbers 0 to 10 To know the term total. **Cardinality** To subitise to 4 and maybe 5. **Composition** 1 more. Separates and solves practical problems with number up to 10. **Spatial awareness** Predicts, moves and rotates objects to fit the space or create the shape they would like.	**Range 6** **Comparison** • Uses number names and symbols when comparing numbers, showing interest in large numbers • Estimates of numbers of things, showing understanding of relative size **Counting** • Enjoys reciting numbers from 0 to 10 (and beyond) and back from 10 to 0 **Cardinality** • Engages in subitising numbers to four and maybe five • Counts out up to 10 objects from a larger group **Composition** •Shows awareness that numbers are made	**Range 6** **Comparison** • Uses number names and symbols when comparing numbers, showing interest in large numbers • Estimates of numbers of things, showing understanding of relative size **Counting** • Increasingly confident at putting numerals in order 0 to 10 (ordinality) **Cardinality** • Matches the numeral with a group of items to show how many there are (up to 10) **Composition** • In practical activities, adds one	Statutory ELG: Number Children at the expected level of development will: - Have a deep understanding of number to 10, including the composition of each number; - Subitise (recognise quantities without counting) up to 5; - Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts Statutory ELG: Numerical Patterns Children at the expected level of development will: - Verbally count beyond 20, recognising the pattern of the counting system;	Statutory ELG: Number Children at the expected level of development will: - Have a deep understanding of number to 10, including the composition of each number; - Subitise (recognise quantities without counting) up to 5; - Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts Statutory ELG: Numerical Patterns Children at the expected level of development will: - Verbally count beyond 20, recognising the pattern of the counting system;

		Response to common shape names 2D shapes. Awareness of shape similairities and differences **Pattern** Creating and exploring patterns. **Measures** Recalls a sequence of events in everyday life and stories. Range 6 **Measures** Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy	**Shape** Enjoys partitioning and combining shapes to make new shapes with 2D and 3D shapes. **Pattern** Joins in with simple patterns, objects, games and stories. **Measures** In meaningful contexts, finds the longer or shorter, heavier or lighter and more/less full of two items.	up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects • Begins to conceptually subitise larger numbers by subitising smaller groups within the number, e.g. sees six raisins on a plate as three and three **Spatial awareness** • Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints **Shape** Uses informal language and analogies, (e.g. heart-shaped and hand-shaped leaves), as well as mathematical terms to describe shapes • Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes	and subtracts one with numbers to 10 • Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and "+" or "-" **Spatial awareness** • Investigates turning and flipping objects in order to make shapes fit and create models; predicting and visualising how they will look (spatial reasoning) • May enjoy making simple maps of familiar and imaginative environments, with landmarks **Shape** Uses informal language and analogies, (e.g. heart-shaped and hand-shaped leaves), as well as mathematical terms to describe shapes	- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

				• Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build. **Pattern** Spots patterns in the environment, beginning to identify the pattern "rule" • Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat **Measures** • Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy • Is increasingly able to order and sequence events using everyday language related to time	• Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes • Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build. **Pattern** Spots patterns in the environment, beginning to identify the pattern "rule" • Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat **Measures** • Becomes familiar with measuring tools in everyday experiences and play • Beginning to experience measuring time with timers and calendars		

	Skills and continuous provision	Controlling devices (BeeBots, Code-a-Pillar, Botley the Coding Robot, Spheros and unplugged activities) provide opportunities to develop pupils' understanding of left and right, along with directional language. Pupils are asked to guide a device around a shape, and use activities from programming related websites, such as code.org, to develop their understanding further. However, activities which engage pupils in programming tasks need to be carefully considered to ensure they have a clear purpose. (Computing)

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Year 1 Overview 2022 – 2023

Week	Autumn	Spring	Summer
1	Place Value	Place Value	Multiplication and Division
2	Place Value	Place Value	Multiplication and Division
3	Place Value	Place Value	Multiplication and Division
4	Place Value	Number – addition and subtraction (within 20)	Number – Fractions
5	Place Value	Number – addition and subtraction (within 20)	Number – Fractions
6	Addition and Subtraction	Number – addition and subtraction (within 20)	Geometry – position and Direction
7	Addition and Subtraction	Number – Place Value	Number – Place Value (within 100)
8	Addition and Subtraction	Number – Place Value	Number – Place Value (within 100)
9	Addition and Subtraction	Measurement – Length and Height	Measurement – Money
10	Addition and Subtraction	Measurement – Length and Height	Measurement – Time
11	Shape	Measurement – Weight and Volume	Measurement – Time
12	Consolidation	Measurement – Weight and Volume	Assessment and Consolidation

Area of Maths	Year Before	Year At	Year After
Number		• Count to and across 100, forwards and backwards beginning with 0 or 1, or from any given number • Count, read and write numbers to 100 in numerals • Count in multiples of 2s, 5s and 10s • 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 (fewer), most, least • Read and write numbers from 1 to 20 in numerals and words	• Count in steps of 2, 3, and 5 from zero, and in tens from any number, BOTH forwards and backwards • Recognise the place value of each digit in a two-digit number (tens and ones) • Identify, represent and estimate numbers • Compare and order numbers from 0 up to 100; use < (less than) > (more than) and = (equals) signs • Read and write numbers up to at least 100 in numerals AND in words • Use place value and number facts to solve problems
Addition and Subtraction		• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=)	• Use concrete objects and pictorial representations to solve problems, mentally and on paper, with addition and subtraction including money and measures

		• Represent and use number bonds and related subtraction facts within 20 e.g. 5 + 2 = 7, 7 – 2 = 5, 7 – 5 = 2 • Add and subtract one-digit and two-digit numbers to 20, including 0 • Solve one-step problems that involve addition & subtraction using concrete objects & pictorial representations, & missing number problems such as 7 = ? – 9	• Read and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 e.g. 1 + 6 = 7 so 10 + 60 = 70 or 70 – 10 = 60 and 7 – 1 = 6 • Add and subtract numbers using concrete objects, pictorial representations, and mentally including adding or subtracting one or ten to/from a two-digit number, adding and subtracting two two-digit numbers and adding three one-digit numbers • Know and show that addition of numbers can be done in any order and that subtraction of one number from another cannot • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve number problems
Multiplication and Division		• Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with support of the support of an adult	• Recall and use multiplication AND division facts for the 2, 5 and 10 multiplication 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) and division (÷) and equals (=) signs • Show that multiplication of two numbers can be done in any order and division of one number by another cannot • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in context e.g. money and measures
Fractions		• Recognise, find and name half as 1 of 2 equal parts of an object, shape or quantity	• Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of object or a quantity

		• Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity	• Write simple fractions, for example ½ of 6 = 3 and recognise the equivalence of ½ and 2/4
Measurement		Compare, describe and solve practical problems for: • Lengths and heights e.g. long/short, longer/shorter, tall/short, double/half • Mass/weight e.g. heavy/light, heavier than/lighter than • Capacity and volume e.g. full/empty, more than, less than, half, half full, quarter • Time e.g. quicker, slower, earlier, later Measure and begin to record the following: • Lengths and heights • Mass/weight • Capacity and volume • Time (hours, minutes, seconds) • Recognise and know the value of different denominations of coins and notes • Sequence events in chronological order using language such as after, next, first, today, yesterday, tomorrow, morning, afternoon, 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	• Choose and use appropriate standard units to estimate 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 = • 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 • Compare and sequence intervals of 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
Geometry		• Recognise and name common 2-D and 3-D shapes, including - 2-D shapes e.g. oblong, square, circle, triangle - 3-D shapes e.g. cube, cuboid, pyramid, sphere • Describe position, direction and movement, including whole, half, quarter and three-quarter turns e.g. describing a route using language such as forward, backward, left and right	• 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]

			• Compare and sort common 2-D and 3-D shapes and everyday objects • Order and arrange combinations of mathematical objects in patterns and sequences • 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)
Statistics			• Interpret and construct simple pictograms, tally charts, block diagrams and 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

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Year 2 Overview 2022-23

Week	Autumn	Spring	Summer
1	Place Value	Money	Fractions
2	Place Value	Money	Fractions
3	Place Value	Multiplication and Division	Fractions
4	Place Value	Multiplication and Division	Time
5	Addition and Subtraction	Multiplication and Division	Time
6	Addition and Subtraction	Multiplication and Division	Time
7	Addition and Subtraction	Multiplication and Division	Statistics
8	Addition and Subtraction	Length and Height	Statistics
9	Addition and Subtraction	Length and Height	Position and Direction
10	Shape	Mass, capacity and temperature	Position and Direction
11	Shape	Mass, capacity and temperature	Consolidation
12	Shape	Mass, capacity and temperature	Consolidation

Area of Maths	Year Before	Year At	Year After
Number	• Count to and across 100, forwards and backwards beginning with 0 or 1, or from any given number • Count, read and write numbers to 100 in numerals • Count in multiples of 2s, 5s and 10s • 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 (fewer), most, least • Read and write numbers from 1 to 20 in numerals and words	• Count in steps of 2, 3, and 5 from zero, and in tens from any number, BOTH forwards and backwards • Recognise the place value of each digit in a two-digit number (tens and ones) • Identify, represent and estimate numbers • Compare and order numbers from 0 up to 100; use < (less than) > (more than) and = (equals) signs • Read and write numbers up to at least 100 in numerals AND in words • Use place value and number facts to solve problems	• Count in 4s, 8s, 50s and 100s from any number • Read and write numbers up to 100 in numbers and words • Compare and order numbers up to 1000 • Recognise place value of three-digit numbers • Find ten more of ten less than a given number • Solving problems that involve all of the above
Addition and Subtraction	• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=)	• Use concrete objects and pictorial representations to solve problems, mentally and on paper, with addition and subtraction including money and measures	• Add and subtract numbers mentally including a three digit number and ones, a three digit number and tens, a three digit number and hundreds

	• Represent and use number bonds and related subtraction facts within 20 e.g. 5 + 2 = 7, 7 – 2 = 5, 7 – 5 = 2 • Add and subtract one-digit and two-digit numbers to 20, including 0 • Solve one-step problems that involve addition & subtraction using concrete objects & pictorial representations, & missing number problems such as 7 = ? – 9	• Read and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 e.g. 1 + 6 = 7 so 10 + 60 = 70 or 70 – 10 = 60 and 7 – 1 = 6 • Add and subtract numbers using concrete objects, pictorial representations, and mentally including adding or subtracting one or ten to/from a two-digit number, adding and subtracting two two-digit numbers and adding three one-digit numbers • Know and show that addition of numbers can be done in any order and that subtraction of one number from another cannot • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve number problems	• Add and subtract numbers with up to three-digits using an efficient written method • Estimate the answers to a calculation and use the inverse to check answers • Solve missing number problems using number facts, place value, and more complex addition and subtraction
Multiplication and Division	• Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with support of the support of an adult	• Recall and use multiplication AND division facts for the 2, 5 and 10 multiplication 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) and division (÷) and equals (=) signs • Show that multiplication of two numbers can be done in any order and division of one number by another cannot • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in context e.g. money and measures	• Recall and use multiplication and division facts for the 3, 4, and 8 multiplication tables • Multiply and divide numbers mentally and using an efficient written method (up to TU x U and TU ÷ U) • Solve problems, including missing number problems, involving multiplication and division, including scaling problems
Fractions	• Recognise, find and name half as 1 of 2 equal parts of an object, shape or quantity	• Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of object or a quantity	• Count up and down in tenths • Understand what tenths mean

	• Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity	• Write simple fractions, for example ½ of 6 = 3 and recognise the equivalence of ½ and 2/4	• Recognise, find and write fractions of a set of objects e.g. ¼ of 12 pencils or ¾ of 20 shells • Recognise and show, using diagrams, equivalent fractions • Compare and order fractions with the same denominator • Add and subtract fractions with the same denominator within one whole e.g. 5/7 + 1/7 = 6/7 • Solve problems that involve all of the above
Measurement	Compare, describe and solve practical problems for: • Lengths and heights e.g. long/short, longer/shorter, tall/short, double/half • Mass/weight e.g. heavy/light, heavier than/lighter than • Capacity and volume e.g. full/empty, more than, less than, half, half full, quarter • Time e.g. quicker, slower, earlier, later Measure and begin to record the following: • Lengths and heights • Mass/weight • Capacity and volume • Time (hours, minutes, seconds) • Recognise and know the value of different denominations of coins and notes • Sequence events in chronological order using language such as after, next, first, today, yesterday, tomorrow, morning, afternoon, 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	• Choose and use appropriate standard units to estimate 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 = • 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 • Compare and sequence intervals of 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 measure: lengths, masses, volumes/capacities • Tell and write the time on an analogue clock (12 and 24 hour) • Know and use facts about time e.g. 60 minutes in an hour, 365 days in a year/366 in a leap year and vocabulary about time e.g. am/pm • Calculate durations of time • Measure the perimeter of simple shapes • Add and subtract amounts of money (including giving change) • Add and subtract in the context of length, mass and capacity/volume

Geometry	• Recognise and name common 2-D and 3-D shapes, including - 2-D shapes e.g. oblong, square, circle, triangle - 3-D shapes e.g. cube, cuboid, pyramid, sphere • Describe position, direction and movement, including whole, half, quarter and three-quarter turns e.g. describing a route using language such as forward, backward, left and right	• 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] • Compare and sort common 2-D and 3-D shapes and everyday objects • Order and arrange combinations of mathematical objects in patterns and sequences • 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)	• Identify horizontal, vertical, perpendicular an parallel lines in shapes • Draw 2-D shapes using given dimensions and angles • Make and describe 3-D shapes • Recognise angles within a shape as a right angle, less than a right angle or greater than a right angle and as an angle of turn
Statistics		• Interpret and construct simple pictograms, tally charts, block diagrams and 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	• Solve one-step and two-step questions (e.g. 'How many more?' and 'How many fewer?') using information presented in scaled bar charts, pictograms and tables

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Year 3 Overview 2022-23

Week	Autumn	Spring	Summer
1	Place Value	Multiplication and Division B	Fractions B
2	Place Value	Multiplication and Division B	Fractions B
3	Place Value	Multiplication and Division B	Money
4	Addition and Subtraction	Length and Perimeter	Money
5	Addition and Subtraction	Length and Perimeter	Measurement – Time
6	Addition and Subtraction	Length and Perimeter	Measurement – Time
7	Addition and Subtraction	Fractions A	Measurement - Time
8	Addition and Subtraction	Fractions A	Shape
9	Multiplication and Division A	Fractions A	Shape
10	Multiplication and Division A	Mass and Capacity	Statistics
11	Multiplication and Division A	Mass and Capacity	Statistics
12	Multiplication and Division A	Mass and Capacity	Consolidation and Assessment

Area of Maths	Year Before	Year At	Year After
Number	• Count in steps of 2, 3, and 5 from zero, and in tens from any number, BOTH forwards and backwards • Recognise the place value of each digit in a two-digit number (tens and ones) • Identify, represent and estimate numbers • Compare and order numbers from 0 up to 100; use < (less than) > (more than) and = (equals) signs • Read and write numbers up to at least 100 in numerals AND in words • Use place value and number facts to solve problems	• Count in 4s, 8s, 50s and 100s from any number • Read and write numbers up to 100 in numbers and words • Compare and order numbers up to 1000 • Recognise place value of three-digit numbers • Find ten more of ten less than a given number • Solving problems that involve all of the above	• Count in multiples of 6, 7, 9, 25 and 1,000 • Find 1,000 more or less than a given number • Count backwards through 0 to include negative numbers • Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s) • Order and compare numbers beyond 1,000 • Identify, represent and estimate numbers using different representations • Round any number to the nearest 10, 100 or 1,000 • Solve number and practical problems that involve all of the above and with increasingly large positive number
Addition and Subtraction	• Use concrete objects and pictorial representations to solve problems, mentally and on paper, with addition and subtraction including money and measures	• 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 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

	• Read and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 e.g. 1 + 6 = 7 so 10 + 60 = 70 or 70 – 10 = 60 and 7 – 1 = 6 • Add and subtract numbers using concrete objects, pictorial representations, and mentally including adding or subtracting one or ten to/from a two-digit number, adding and subtracting two two-digit numbers and adding three one-digit numbers • Know and show that addition of numbers can be done in any order and that subtraction of one number from another cannot • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve number problems	• Add and subtract numbers with up to three-digits using (when needed) an efficient written method • Estimate the answers to a calculation and use the inverse to check answers • Solve missing number problems using number facts, place value & more complex addition & subtraction	• Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why
Multiplication and Division	• Recall and use multiplication AND division facts for the 2, 5 and 10 multiplication 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) and division (÷) and equals (=) signs • Show that multiplication of two numbers can be done in any order and division of one number by another cannot • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in context e.g. money and measures	• Recall and use multiplication and division facts for the 3, 4, and 8 multiplication tables • Multiply and divide numbers mentally and using an efficient written method (up to TU x U and TU ÷ U) • Solve problems, including missing number problems, involving multiplication and division, including scaling problems	• Recall multiplication and division facts for multiplication tables up to 12 × 12 • 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 • Recognise and use factor pairs and commutativity in mental calculations • Multiply 2-digit and 3-digit numbers by a one-digit number using formal written layout • Divide two-digit numbers by a single digit (leading to short division) • Solve problems involving multiplying and division, including scaling problems • Solve problems involving division including questions such as 3 cakes shared equally between 10 children.
Fractions	• Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of object or a quantity	• Count up and down in tenths • Understand what tenths mean	• Recognise and show, using diagrams, families of common equivalent fractions

	• Write simple fractions, for example ½ of 6 = 3 and recognise the equivalence of ½ and 2/4	• Recognise, find and write fractions of a set of objects e.g. ¼ of 12 pencils or ¾ of 20 shells • Recognise and show, using diagrams, equivalent fractions • Compare and order fractions with the same denominator • Add and subtract fractions with the same denominator within one whole e.g. 5/7 + 1/7 = 6/7 • Solve problems that involve all of the above	• Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10 • Solve problems involving increasingly harder fractions to calculate quantities, fractions to divide quantities, including non-unit fractions where the answer is a whole number • Add and subtract fractions with the same denominator • Recognise and write decimal equivalents of any number of tenths or hundreds • Recognise and write decimal equivalents to 1/4, 1/2, 3/4 • Find 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 • Round decimals with 1 decimal place to the nearest whole number • Compare numbers with the same number of decimal places up to 2 decimal places • Solve simple measure and money problems involving fractions and decimals to 2 decimal places
Measurement	• Choose and use appropriate standard units to estimate 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 = • Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value	• Compare and measure: lengths, masses, volumes/capacities • Tell and write the time on an analogue clock (12 and 24 hour) • Know and use facts about time e.g. 60 minutes in an hour, 365 days in a year/366 in a leap year and vocabulary about time e.g. am/pm • Calculate durations of time • Measure the perimeter of simple shapes • Add and subtract amounts of money (including giving change)	• 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 • Find the area of shapes, made up of rectangles, by counting squares • Estimate, compare and calculate different measures, including money in pounds and pence • Read, write and convert time between analogue and digital 12- and 24-hour clocks

	• 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 • Compare and sequence intervals of 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	• Add and subtract in the context of length, mass and capacity/volume	• Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days
Geometry	• 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] • Compare and sort common 2-D and 3-D shapes and everyday objects • Order and arrange combinations of mathematical objects in patterns and sequences • 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)	• Identify horizontal, vertical, perpendicular an parallel lines in shapes • Draw 2-D shapes using given dimensions and angles • Make and describe 3-D shapes • Recognise angles within a shape as a right angle, less than a right angle or greater than a right angle and as an angle of turn	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Identify acute and obtuse angles and compare and order angles up to 2 right angles by size • 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 • Describe positions on a 2-D grid as coordinates in the first quadrant • Describe movements between positions as translations of a given unit to the left/right and up/down • Plot specified points and draw sides to complete a given polygon
Statistics	• Interpret and construct simple pictograms, tally charts, block diagrams and tables	Solve one-step and two-step questions (e.g. 'How many more?' and 'How many fewer?') using information presented in scaled bar charts, pictograms and tables	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs

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

St. Paul's Dorking
Church of England (Aided) Primary School

Year 4 Overview 2022-23

Week	Autumn	Spring	Summer
1	Place Value	Number – Multiplication and Division B	Number – Decimals B
2	Place Value	Number – Multiplication and Division B	Number – Decimals B
3	Place Value	Number – Multiplication and Division B	Measurement – Money
4	Place Value	Measurement – Length and Perimeter	Measurement – Money
5	Addition and Subtraction	Measurement – Length and Perimeter	Measurement – Time
6	Addition and Subtraction	Fractions	Measurement – Time
7	Addition and Subtraction	Fractions	Consolidation
8	Area	Fractions	Geometry – Properties of shape
9	Multiplication and Division A	Fractions	Geometry – Properties of shape
10	Multiplication and Division A	Decimals A	Statistics
11	Multiplication and Division A	Decimals A	Position and Direction
12	Consolidation and Assessment	Decimals A	Position and Direction

Area of Maths	Year Before	Year At	Year After
Number	• Count in 4s, 8s, 50s and 100s from any number • Read and write numbers up to 100 in numbers and words • Compare and order numbers up to 1000 • Recognise place value of three-digit numbers • Find ten more of ten less than a given number • Solving problems that involve all of the above	• Count in multiples of 6, 7, 9, 25 and 1,000 • Find 1,000 more or less than a given number • Count backwards through 0 to include negative numbers • Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s) • Order and compare numbers beyond 1,000 • Identify, represent and estimate numbers using different representations • Round any number to the nearest 10, 100 or 1,000 • Solve number and practical problems that involve all of the above and with increasingly large positive number	• Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • Read, write, order and compare numbers to at least 1,000,000 • Determine the value of each digit up to 1,000, 000 • Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0 • Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 • Solve number problems & practical problems involving **ALL** of the above • Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals
Addition and Subtraction	• Add and subtract numbers mentally including a three digit number and ones, a three digit	• Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction **where appropriate**	• Add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction)

	number and tens, a three digit number and hundreds • Add and subtract numbers with up to three-digits using (when needed) an efficient written method • Estimate the answers to a calculation and use the inverse to check answers • Solve missing number problems using number facts, place value & more complex addition & subtraction	• 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	• Add and subtract numbers mentally with increasingly large numbers • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
Multiplication and Division	• Recall and use multiplication and division facts for the 3, 4, and 8 multiplication tables • Multiply and divide numbers mentally and using an efficient written method (up to TU x U and TU ÷ U) • Solve problems, including missing number problems, involving multiplication and division, including scaling problems	• Recall multiplication and division facts for multiplication tables up to 12 × 12 • 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 • Recognise and use factor pairs and commutativity in mental calculations • Multiply 2-digit and 3-digit numbers by a one-digit number using formal written layout • Divide two-digit numbers by a single digit (leading to short division) • Solve problems involving multiplying and division, including scaling problems • Solve problems involving division including questions such as 3 cakes shared equally between 10 children.	• Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers: establish whether a number up to 100 is prime and recall prime numbers up to 19 • Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • Multiply and divide numbers mentally, drawing upon known facts • Divide numbers up to 4 digits by a one-digit number using the formal written method of short division & interpret remainders appropriately for the context • Multiply & divide whole numbers & those involving decimals by 10, 100 & 1,000 • Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) • Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes

			• Solve multi-step problems involving combinations of all four operations including understanding the meaning of the equals sign • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
Fractions	• Count up and down in tenths • Understand what tenths mean • Recognise, find and write fractions of a set of objects e.g. ¼ of 12 pencils or ¾ of 20 shells • Recognise and show, using diagrams, equivalent fractions • Compare and order fractions with the same denominator • Add and subtract fractions with the same denominator within one whole e.g. 5/7 + 1/7 = 6/7 • Solve problems that involve all of the above	• 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 100 and dividing tenths by 10 • Solve problems involving increasingly harder fractions to calculate quantities, fractions to divide quantities, including non-unit fractions where the answer is a whole number • Add and subtract fractions with the same denominator • Recognise and write decimal equivalents of any number of tenths or hundreds • Recognise and write decimal equivalents to 1/4, 1/2, 3/4 • Find 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 • Round decimals with 1 decimal place to the nearest whole number • Compare numbers with the same number of decimal places up to 2 decimal places • Solve simple measure and money problems involving fractions and decimals to 2 decimal places	• Compare and order fractions whose denominators are all multiples of the same number • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5] • Add and subtract fractions with the same denominator, and denominators that are multiples of the same number • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • Read and write decimal numbers as fractions [for example, 0.71 = 71/100] • Recognise/use thousandths & relate them to tenths, hundredths & decimal equivalents • Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place • Read, write, order and compare numbers with up to 3 decimal places • Solve problems involving number up to 3 decimal places • 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 • Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25
Measurement	• Compare and measure: lengths, masses, volumes/capacities • Tell and write the time on an analogue clock (12 and 24 hour) • Know and use facts about time e.g. 60 minutes in an hour, 365 days in a year/366 in a leap year and vocabulary about time e.g. am/pm • Calculate durations of time • Measure the perimeter of simple shapes • Add and subtract amounts of money (including giving change) • Add and subtract in the context of length, mass and capacity/volume	• 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 • Find the area of shapes, made up of rectangles, by counting squares • Estimate, compare and calculate different measures, including money in pounds and pence • Read, write and convert time between analogue and digital 12- and 24-hour clocks • Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days	• Convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre] • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Measure & calculate the perimeter of composite rectilinear shapes in centimetres & metres • Calculate & compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) & square metres (m^2), & estimate the area of irregular shapes • Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] • Solve problems involving converting between units of time • Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling
Geometry	• Identify horizontal, vertical, perpendicular an parallel lines in shapes • Draw 2-D shapes using given dimensions and angles • Make and describe 3-D shapes	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Identify acute and obtuse angles and compare and order angles up to 2 right angles by size	• Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles

	• Recognise angles within a shape as a right angle, less than a right angle or greater than a right angle and as an angle of turn	• 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 • Describe positions on a 2-D grid as coordinates in the first quadrant • Describe movements between positions as translations of a given unit to the left/right and up/down • Plot specified points and draw sides to complete a given polygon	• Draw given angles, and measure them in degrees (°) • Identify: • angles at a point and 1 whole turn (total 360°) • angles at a point on a straight line and half a turn (total 180°) • other multiples of 90° • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles • 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
Statistics	Solve one-step and two-step questions (e.g. 'How many more?' and 'How many fewer?') using information presented in scaled bar charts, pictograms and tables	• 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	• Solve comparison, sum and difference problems using information presented in a line graph • Complete, read and interpret information in tables, including timetables

Year 5 Overview 2022-23

Week	Autumn	Spring	Summer
1	Place Value	Multiplication and Division B	Shape

2	Place Value	Multiplication and Division B	Shape
3	Place Value	Multiplication and Division B	Shape
4	Addition and Subtraction	Fractions B	Position and Direction
5	Addition and Subtraction	Fractions B	Position and Direction
6	Multiplication and Division A	Decimals and Percentages	Decimals
7	Multiplication and Division A	Decimals and Percentages	Decimals
8	Multiplication and Division A	Decimals and Percentages	Decimals
9	Fractions A	Perimeter and Area	Negative Numbers
10	Fractions A	Perimeter and Area	Measuring – converting units
11	Fractions A	Converting Units	Measuring – Converting units
12	Fractions A	Converting Units	Measuring volume

Area of Maths	Year Before	Year At	Year After
Number	• Count in multiples of 6, 7, 9, 25 and 1,000 • Find 1,000 more or less than a given number • Count backwards through 0 to include negative numbers • Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s) • Order and compare numbers beyond 1,000 • Identify, represent and estimate numbers using different representations • Round any number to the nearest 10, 100 or 1,000 • Solve number and practical problems that involve all of the above and with increasingly large positive number	• Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • Read, write, order and compare numbers to at least 1,000,000 • Determine the value of each digit up to 1,000, 000 • Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0 • Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 • Solve number problems & practical problems involving **ALL** of the above • Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals	• 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
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	• Add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction) • Add and subtract numbers mentally with increasingly large numbers	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders,

	• Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	• 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	fractions, or by rounding, as appropriate for the context • Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, 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 4 operations • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition, subtraction, multiplication and division • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
Multiplication and Division	• Recall multiplication and division facts for multiplication tables up to 12 × 12 • 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 • Recognise and use factor pairs and commutativity in mental calculations • Multiply 2-digit and 3-digit numbers by a one-digit number using formal written layout • Divide two-digit numbers by a single digit (leading to short division) • Solve problems involving multiplying and division, including scaling problems	• Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers: establish whether a number up to 100 is prime and recall prime numbers up to 19 • Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • Multiply and divide numbers mentally, drawing upon known facts	

	• Solve problems involving division including questions such as 3 cakes shared equally between 10 children.	• Divide numbers up to 4 digits by a one-digit number using the formal written method of short division & interpret remainders appropriately for the context • Multiply & divide whole numbers & those involving decimals by 10, 100 & 1,000 • Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) • Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes • Solve multi-step problems involving combinations of all four operations including understanding the meaning of the equals sign • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates (4a+)	
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 100 and dividing tenths by 10 • Solve problems involving increasingly harder fractions to calculate quantities, fractions to divide quantities, including non-unit fractions where the answer is a whole number • Add and subtract fractions with the same denominator • Recognise and write decimal equivalents of any number of tenths or hundreds • Recognise and write decimal equivalents to 1/4, 1/2, 3/4 • Find 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	• Compare and order fractions whose denominators are all multiples of the same number • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5] • Add and subtract fractions with the same denominator, and denominators that are multiples of the same number • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • Read and write decimal numbers as fractions [for example, 0.71 = 71/100]	• Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Compare and order fractions, including fractions >1 • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8] • Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 =1/6] • Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] • Identify the value of each digit in numbers given to 3 decimal places and multiply and

	• Round decimals with 1 decimal place to the nearest whole number • Compare numbers with the same number of decimal places up to 2 decimal places • Solve simple measure and money problems involving fractions and decimals to 2 decimal places	• Recognise/use thousandths & relate them to tenths, hundredths & decimal equivalents • Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place • Read, write, order and compare numbers with up to 3 decimal places • Solve problems involving number up to 3 decimal places • 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 • Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25	divide 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
Ratio and Proportion			• Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts • Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison • Solve problems involving 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
Algebra			• Use simple formulae • Generate and describe linear number sequences • Express missing number problems algebraically

			• Find pairs of numbers that satisfy an equation with 2 unknowns • Enumerate possibilities of combinations of 2 variables
Measurement	• 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 • Find the area of shapes, made up of rectangles, by counting squares • Estimate, compare and calculate different measures, including money in pounds and pence • Read, write and convert time between analogue and digital 12- and 24-hour clocks • Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days	• Convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre] • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Measure & calculate the perimeter of composite rectilinear shapes in centimetres & metres • Calculate & compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) & square metres (m^2), & estimate the area of irregular shapes • Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] • Solve problems involving converting between units of time • Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	• 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 • Convert between miles and kilometres • Recognise that shapes with the same areas can have different perimeters and vice versa • Recognise when it is possible to use formulae for area and volume of shapes • Calculate the area of parallelograms and triangles • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]
Geometry	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Identify acute and obtuse angles and compare and order angles up to 2 right angles by size	• Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	• Draw 2-D shapes using given dimensions and angles • Recognise, describe and build simple 3-D shapes, including making nets • Compare and classify geometric shapes based on their properties and sizes and find

	• 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 • Describe positions on a 2-D grid as coordinates in the first quadrant • Describe movements between positions as translations of a given unit to the left/right and up/down • Plot specified points and draw sides to complete a given polygon	• Draw given angles, and measure them in degrees (°) • Identify: • angles at a point and 1 whole turn (total 360°) • angles at a point on a straight line and half a turn (total 180°) • other multiples of 90° • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles • 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	unknown angles in any triangles, quadrilaterals, and regular polygons • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles • Describe positions on the full coordinate grid (all 4 quadrants) • Draw and translate simple shapes on the coordinate plane, and reflect them in the axes
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	• Solve comparison, sum and difference problems using information presented in a line graph • Complete, read and interpret information in tables, including timetables	• Interpret and construct pie charts and line graphs and use these to solve problems • Calculate and interpret the mean as an average

Year 6 2022-23

Week	Autumn	Spring	Summer
1	Place Value	Ratio	Shape
2	Place Value	Ratio	Shape
3	Addition, subtraction, multiplication and division	Algebra	Position and Direction

4	Addition, subtraction, multiplication and division	Algebra	Themed projects, consolidation and problem solving.
5	Addition, subtraction, multiplication and division	Decimals	
6	Addition, subtraction, multiplication and division	Decimals	
7	Addition, subtraction, multiplication and division	Fractions, decimals and percentages	
8	Fractions A	Fractions, decimals and percentages	
9	Fractions A	Area, perimeter and volume	
10	Fractions B	Area, perimeter and volume	
11	Fractions B	Statistics	
12	Converting units	Statistics	

Area of Maths	Year Before	Year At	Year After
Number	• Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • Read, write, order and compare numbers to at least 1,000,000 • Determine the value of each digit up to 1,000, 000 • Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0 • Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 • Solve number problems & practical problems involving **ALL** of the above • Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals	• 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	
Addition and Subtraction	• Add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction) • Add and subtract numbers mentally with increasingly large numbers	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders,	

	• 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	fractions, or by rounding, as appropriate for the context • Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, 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 4 operations • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition, subtraction, multiplication and division • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	
Multiplication and Division	• Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers: establish whether a number up to 100 is prime and recall prime numbers up to 19 • Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • Multiply and divide numbers mentally, drawing upon known facts	As above	

	• Divide numbers up to 4 digits by a one-digit number using the formal written method of short division & interpret remainders appropriately for the context • Multiply & divide whole numbers & those involving decimals by 10, 100 & 1,000 • Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) • Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes • Solve multi-step problems involving combinations of all four operations including understanding the meaning of the equals sign • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates		
Fractions	• Compare and order fractions whose denominators are all multiples of the same number • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5] • Add and subtract fractions with the same denominator, and denominators that are multiples of the same number • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • Read and write decimal numbers as fractions [for example, 0.71 = 71/100]	• Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Compare and order fractions, including fractions >1 • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8] • Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 =1/6] • Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] • Identify the value of each digit in numbers given to 3 decimal places and multiply and	

	• Recognise/use thousandths & relate them to tenths, hundredths & decimal equivalents • Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place • Read, write, order and compare numbers with up to 3 decimal places • Solve problems involving number up to 3 decimal places • 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 • Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25	divide 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	
Ratio and Proportion		• Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts • Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison • Solve problems involving 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	
Algebra		• Use simple formulae • Generate and describe linear number sequences • Express missing number problems algebraically	

		• Find pairs of numbers that satisfy an equation with 2 unknowns • Enumerate possibilities of combinations of 2 variables	
Measurement	• Convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre] • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Measure & calculate the perimeter of composite rectilinear shapes in centimetres & metres • Calculate & compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) & square metres (m^2), & estimate the area of irregular shapes • Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] • Solve problems involving converting between units of time • Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	• 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 • Convert between miles and kilometres • Recognise that shapes with the same areas can have different perimeters and vice versa • Recognise when it is possible to use formulae for area and volume of shapes • Calculate the area of parallelograms and triangles • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]	
Geometry	• Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	• Draw 2-D shapes using given dimensions and angles • Recognise, describe and build simple 3-D shapes, including making nets • Compare and classify geometric shapes based on their properties and sizes and find	

	• Draw given angles, and measure them in degrees (°) • Identify: • angles at a point and 1 whole turn (total 360°) • angles at a point on a straight line and half a turn (total 180°) • other multiples of 90° • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles • 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	unknown angles in any triangles, quadrilaterals, and regular polygons • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles • Describe positions on the full coordinate grid (all 4 quadrants) • Draw and translate simple shapes on the coordinate plane, and reflect them in the axes	
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	• Solve comparison, sum and difference problems using information presented in a line graph • Complete, read and interpret information in tables, including timetables	• Interpret and construct pie charts and line graphs and use these to solve problems • Calculate and interpret the mean as an average