Severne Junior, Infant and (NC) School

Mathematics MTP

EYFS-1- Three and Four-Year-Olds

Area	Cycle One	Cycle Two	Cycle Three
Number and Place Value	• Communication and language Use a wider range of vocabulary. • Understand 'why' questions, like: "why do you think the caterpillar is so fat?" • Mathematics Recite numbers past 5. • Say one number name for each item in order: 1, 2, 3, 4, 5. • Identifying, Representing and Estimating numbers Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). • Show 'finger numbers' up to 5. • Experiment with their own symbols and marks as well as numerals. • Reading and writing numbers Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Experiment with their own symbols and marks as well as numerals	Understand 'why' questions, like: "why do you think the caterpillar is so fat?" Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Recite numbers past 5. • Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinality') • Identifying, Representing and Estimating numbers • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Compare and order numbers Compare quantities using language: 'more than', 'fewer than'. • Solve Problems Solve real world mathematical problems with numbers up to 5.	• Solve Problems Solve real world mathematical problems with numbers up to 5. <mark>Consolidation</mark>
Measurement	• Describe, measure, compare and solve Make comparisons between objects relating to size, length,	• Telling the time Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then…'	<mark>Consolidation</mark>

	weight and capacity.		
Properties of Shapes	• Recognise 2d and 3d shapes and their properties Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'. .	• Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) **using mathematical language**: 'sides', 'corners', 'straight'.	• Select shapes appropriately: flat surfaces for a building, a triangular pattern for a roof, etc. • Combine shapes to make new ones – an arch, a bigger triangle etc
Position, Direction and Movement	• Position, direction and movement Understand position through words – for example, "The bag is under the table," – with pointing. • Describe a familiar route. • Patterns Talk about and identify the patterns around them. For example, stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc.	• Discuss routes and locations, using words like 'in front of' and 'behind'. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern.	• Understand position through words **alone** – for example, "The bag is under the table," – with no pointing
Statistics	• Experiment with their own symbols and marks, as well as numerals.	Consolidation	Consolidation

SMSC links	British Values
Spiritual development in Mathematics The study of mathematics enables students to make sense of the world around them and we strive to enable each of our students to explore the connections between their numeracy skills and every-day life. Developing deep thinking and an ability to question the way in which the world works promotes the spiritual growth of students. Students are encouraged	Democracy Take into account the views of others in shared activities. Voting when collecting data. The Rule of Law Undertake safe practices, following class rules during tasks and activities for the benefit of all. Understand the consequences if rules are not followed Individual Liberty Work within boundaries to make safe choices during practical activities. Make own choices within data handling activities. Tolerance of those with different faiths

to see the sequences, patterns, symmetry and scale both in the man-made and the natural world and to use maths as a tool to explore it more fully.

Moral development in Mathematics

The moral development of students is an important thread running through the mathematics syllabus. Students are provided with opportunities to use their maths skills in real life contexts, applying and exploring the skills required in solving various problems. For example, students are encouraged to analyse data and consider the implications of misleading or biased statistical calculations. All students are made aware of the fact that the choices they make lead to various consequences. They must then make a choice that relates to the result they are looking for. The logical aspect of this relates strongly to the right/wrong responses in maths.

Social development in Mathematics

Problem solving skills and teamwork are fundamental to mathematics through creative thinking, discussion, explaining and presenting ideas. Students are always encouraged to explain concepts to each other and support each other in their learning. In this manner, students realise their own strengths and feel a sense of achievement which often boosts confidence. Over time they become more independent and resilient learners.

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and beliefs Use maths to learn about different faiths and cultures around the world. Eg. looking at patterns/shapes within Islam / Hindu religions

Mutual Respect To behave appropriately, allowing all participants the opportunity to work effectively. Take turns and share equipment. Review each other's work respectfully. Work collaboratively on projects/problems, help and advise others

The Cultural Child - Mathematics supports the cultural development of a child by exposing them to a range of different approaches to solving problems and reasoning skills.

The Social Child - Mathematics supports social development by requiring verbal reasoning. Children have opportunities to discuss their learning with their peers.

EYFS-Reception

Area	Cycle One	Cycle Two	Cycle Three
Number and Place Value	• Communication and Language; Learn new vocabulary. Use new vocabulary throughout the day. ELG – Speaking - Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. Mathematics; • Count objects, actions and sounds. Count beyond ten. ELG – Numerical Patterns Verbally count beyond 20, recognising the pattern of the counting system. Identifying, Representing and Estimating Numbers • Subsitise (recognise quantities without counting) Reading and Writing Numbers • Link the number symbol (numeral) with its cardinal number value. Compare and Order Numbers • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Place Value • Understand the 'one more than/one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10.	Have a deep understanding of number to 10, including the composition of each number. • Subitise 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. Verbally count beyond 20, recognising the pattern of the counting system. • 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. Link the number symbol (numeral) with its cardinal number value Explore the composition of numbers to 10. (Number bonds)	Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
Addition and Subtraction	• Understand the 'one more than/one less than' relationship between consecutive numbers.	Explore and represent patterns within numbers up to 10, including evens and	<mark>Consolidation</mark>

	· Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.	odds, double facts and how quantities can be distributed evenly.	
Measurement	Describe measure, compare and solve · Compare length, weight and capacity. Telling the time · Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then…'	· Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then…' Continuous reinforcement.	Describe measure, compare and solve · Compare length, weight and capacity.
Properties of shapes	• Recognise 2D shapes and their properties Select, rotate and manipulate shapes in order to develop spatial reasoning skills.	• Compare and classify shapes Compose and decompose shapes so that children can recognise a shape can have other shapes within it, just as numbers can.	• Select, rotate and manipulate shapes in order to develop spatial reasoning skills.
Position and direction	Draw information from a simple map. • Continue, copy and create repeating patterns	Continue, copy and create repeating patterns	Draw information from a simple map.
Statistics	Experiment with their own symbols and marks, as well as numerals (continued from Nursery).	Experiment with their own symbols and marks, as well as numerals (continued from Nursery).	Consolidation

SMSC links

Spiritual development in Mathematics
The study of mathematics enables students to make sense of the world around them and we strive to enable each of our students to explore the connections between their numeracy skills and every-day life. Developing deep thinking and an ability to question the way in which the world works promotes the spiritual growth of students. Students are encouraged to see the sequences, patterns, symmetry and scale both in the man-made and the natural world and to use maths as a tool to explore it more fully.

Moral development in Mathematics
The moral development of students is an important thread running through the mathematics syllabus. Students are provided with opportunities to use their maths skills in real life contexts, applying and exploring the skills required in solving various problems. For example, students are encouraged to analyse data and consider the implications of misleading or biased statistical calculations. All students are made aware of the fact that the choices they make lead to various consequences. They must then make a choice that

British Values

Democracy Take into account the views of others in shared activities. Voting when collecting data. The Rule of Law Undertake safe practices, following class rules during tasks and activities for the benefit of all. Understand the consequences if rules are not followed Individual Liberty Work within boundaries to make safe choices during practical activities. Make own choices within data handling activities. Tolerance of those with different faiths and beliefs Use maths to learn about different faiths and cultures around the world. Eg. looking at patterns/shapes within Islam / Hindu religions

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relates to the result they are looking for. The logical aspect of this relates strongly to the right/wrong responses in maths.

Social development in Mathematics

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Cultural development in Mathematics

Mathematics is a universal language with a myriad of cultural inputs throughout the ages. Various approaches to mathematics from around the world are used and this provides an opportunity to discuss their origins. This includes different multiplication methods from Egypt, Russia and China, Pythagoras' Theorem from Greece, algebra from the Middle East and debates as to where Trigonometry was first used. We try to develop an awareness of both the history of maths alongside the realisation that many topics we still learn today have travelled across the world and are used internationally.

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Year 1

Area	Cycle One	Cycle Two
Place Value (2 weeks)	• Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • Count in multiples of twos, fives and tens • Read and write numbers to 100 in numerals • Read and write numbers from 1 to 20 in numerals and words • Identify and represent numbers to 20 using objects and pictorial representations including the number line • Given a number, identify one more and one less • *Recognise and create repeating patterns with numbers, objects and shapes*	• Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • Count in multiples of twos, fives and tens • *Begin to recognise the place value of numbers beyond 20 (tens and ones)* • Identify and represent numbers using objects and pictorial representations including the number line • Use the language of: equal to, more than, less than (fewer), most, least • *Identify odd and even numbers linked to counting in twos from 0 and 1* • *Solve problems and practical problems involving all of the above*
Addition and Subtraction, Multiplication and Division (5 weeks)	• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • Represent and use number bonds and related subtraction facts within 20 • Add and subtract one-digit and two-digit numbers to 20, including zero *(using concrete objects and pictorial representations)* Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ - 9 • *Recall and use doubles of all numbers to 10 and corresponding halves*	• Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ - 9 • 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
Fractions (3 weeks)	• *Understand that a fraction can describe part of a whole* • *Understand that a unit fraction represents one equal part of a whole* • Recognise, find and name a half as one of two equal parts of an object shape or quantity *(including measure)*	• Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity *(including measure)*
Revision Week		
Measure (3 weeks)	• Measure and begin to record: - lengths and heights, *using non-standard and then manageable standard units (m/cm)*	• Measure and begin to record: - capacity and volume *using non-standard and then manageable standard units (litres/ml)*

	- mass/weight, *using non-standard and then manageable standard units (kg/g)* - lengths and heights (for example, long/short, longer/shorter, tall/short, double/half) - 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) - time (for example, quicker, slower, earlier, later) • Recognise and use language relating to dates, including days of the week, weeks, months and years • Sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening	- time (hours/minutes/seconds) *within children's range of counting competence* • 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: capacity and volume (for example, full/empty, more than, less than, half, half full, quarter) - time (for example, quicker, slower, earlier, later) • Recognise and know the value of different denominations of coins and notes
Geometry (3 weeks)	• Recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles • Recognise and name common 3-D shapes, including cuboids (including cubes), pyramids and spheres	• Describe movement, including whole, half, quarter and three-quarter turns • Recognise and create repeating patterns with objects and shapes Describe position and direction
Statistics (1 week)	• *Sort objects, numbers and shapes to a given criterion and their own* • *Ask and answer simple questions by counting the number of objects in each category* *Ask and answer questions by comparing categorical data*	• *Present and interpret data in block diagrams using practical equipment* • *Ask and answer simple questions by counting the number of objects in each category* *Ask and answer questions by comparing categorical data*
Revision Week		

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real life contexts, applying and exploring the skills required in solving various problems. For example, students are encouraged to analyse data and consider the implications of misleading or biased statistical calculations. All students are made aware of the fact that the choices they make lead to various consequences. They must then make a choice that relates to the result they are looking for. The logical aspect of this relates strongly to the right/wrong responses in maths.

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Year 2

Area	Cycle One	Cycle Two
Place Value (2 weeks)	• Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • 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 • *Partition numbers into tens and ones (e.g. 23 = 20 + 3)* • *Find 1 or 10 more or less than a given number* • *Understand the connection between the 10 multiplication table and place value* • *Describe and extend simple sequences involving counting on or back in different steps* 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 • 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) • Compare and order numbers from 0 up to 100; use <, > and = signs • Round numbers to at least 100 to the nearest 10 • *Partition numbers in different ways (e.g. 23 = 20 + 3 and 23 = 10 + 13)* Use place value and number facts to solve problems
Addition and Subtraction, Multiplication and Division (5 weeks)	• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting)* • *Select a mental strategy appropriate for the numbers involved in the calculation* • Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • *Understand subtraction as take away* • 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 • *Understand multiplication as repeated addition* • *Understand division as sharing and grouping.* • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting)* • *Select a mental strategy appropriate for the numbers involved in the calculation* • Understand subtraction as take away and difference (how many more, how many less/fewer) • *Recall and use number bonds for multiples of 5 totalling 60 (to support telling time to nearest 5 minutes)* • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems Solve problems with addition and subtraction *including with missing numbers:* - using concrete objects and pictorial representations, including those involving numbers, quantities and measures - applying their increasing knowledge of mental and written methods • *Understand division as sharing and grouping and that a division calculation can have a remainder*

	 • *Derive and use doubles of simple two-digit numbers (numbers in which the ones total less than 10)* • *Derive and use halves of simple two-digit even numbers (numbers in which the tens are even)* • Calculate mathematical statements for multiplication *using repeated addition)* and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	• Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Solve problems involving multiplication and division *(including those with remainders)*, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
Fractions (3 weeks)	• *Understand and use the terms numerator and denominator* • *Understand that a fraction can describe part of a set* • *Understand that the larger the denominator is, the more pieces it is split into and therefore the smaller each part will be* • Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity	• *Understand and use the terms numerator and denominator* • *Understand that a fraction can describe part of a set* • *Understand that the larger the denominator is, the more pieces it is split into and therefore the smaller each part will be* • Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ Count on and back in steps of $\frac{1}{2}$ and $\frac{1}{4}$
Revision Week		
Measure (3 weeks)	• Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity and volume (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 Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change *and* measures **(including time)**
Geometry (2 weeks)	• 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]	• Order/arrange combinations of mathematical objects in patterns/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 week	• Compare and sort objects and numbers. • Interpret and construct simple pictograms and tally charts. • 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	• Compare and sort *objects, numbers and* common 2-D and 3-D shapes and everyday objects • Interpret and construct 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
Revision Week		

SMSC links

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and debates as to where Trigonometry was first used. We try to develop an awareness of both the history of maths alongside the realisation that many topics we still learn today have travelled across the world and are used internationally.

Year 3

Area	Cycle One	Cycle Two
Place Value (2 weeks)	• Count from 0 in multiples of 4, 8, 50 and 100 • Read and write numbers up to 1000 in numerals and in words • Identify, represent and estimate numbers using different representations *(including the number line)* • Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Partition numbers in different ways (e.g. 146 = 100+ 40+6 only) • Compare and order numbers up to 1000 • Find 1, 10 or 100 more or less than a given number • Find the effect of multiplying a one- or two-digit number by 10 and 100, identify the value of the digits in the answer • Describe and extend number sequences involving counting on or back in different steps Solve number problems and practical problems involving these ideas	• Count from 0 in multiples of 4, 8, 50 and 100 • Read and write numbers up to 1000 in numerals and in words • Count up and down in tenths • Find 1/10, 1, 10 or 100 more or less than a given number • Read and write numbers with one decimal place • Identify the value of each digit to one decimal place • Partition numbers in different ways (e.g. 146 = 100+ 40+6 and 146 = 130+16, 120 + 26) • Compare and order numbers with one decimal place • Round numbers to at least 1000 to the nearest 10 or 100 • Read Roman numerals from I to XII Solve number problems and practical problems involving these ideas
Addition and Subtraction, Multiplication and Division (5 weeks)	• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* • *Select a mental strategy appropriate for the numbers involved in the calculation* • *Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context* • *Recall/use addition/subtraction facts for 100 (multiples of 5 and 10)* • *Derive and use addition and subtraction facts for 100* • *Derive and use addition and subtraction facts for multiples of 100 totalling 1000* • 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 Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* • *Select a mental strategy appropriate for the numbers involved in the calculation* • *Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context* • *Recall/use addition/subtraction facts for 100 (multiples of 5 and 10)* • *Derive and use addition and subtraction facts for 100* • *Derive and use addition and subtraction facts for multiples of 100 totalling 1000* • 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

	• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* • *Understand that division is the inverse of multiplication and vice versa* • *Understand how multiplication and division statements can be represented using arrays* • *Understand division as sharing and grouping and use each appropriately* • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • *Derive and use doubles of all numbers to 100 and corresponding halves* • *Derive and use doubles of all multiples of 50 to 500* • Write and calculate mathematical statements for multiplication and division using the multiplication tables that 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 *(and interpreting remainders)*, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction • *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* • *Understand that division is the inverse of multiplication and vice versa* • *Understand how multiplication and division statements can be represented using arrays* • *Understand division as sharing and grouping and use each appropriately* • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • *Derive and use doubles of all numbers to 100 and corresponding halves* • *Derive and use doubles of all multiples of 50 to 500* • Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using formal written methods culminating in short method multiplication and division. • *Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy* Solve problems, including missing number problems, involving multiplication and division *(and interpreting remainders)*, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects
Fractions (3 weeks)	• *Show practically or pictorially that a fraction is one whole number divided by another (e.g. $\frac{3}{4}$ can be interpreted as 3 ÷ 4)* • *Understand that finding a fraction of an amount relates to division* • Recognise that tenths arise from dividing objects into 10 equal parts and in dividing one-digit numbers or quantities by 10 • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • Recognise and show, using diagrams, equivalent fractions with small denominators	• Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] • Compare and order unit fractions, and fractions with the same denominators *(including on a number line)* • *Count on and back in steps of $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$* Solve problems that involve all of the above
Revision Week		
Measure	• Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	• Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks

(3 weeks)	• *Continue to estimate and measure temperature to the nearest degree (°C) using thermometers* • *Understand perimeter is a measure of distance around the boundary of a shape* • Measure the perimeter of simple 2-D shapes • *Continue to recognise and use the symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds/pence* • *Recognise that ten 10p coins equal £1 and that each coin is $\frac{1}{10}$ of £1* • Add and subtract amounts of money to give change, using both £ and p in practical contexts *Solve problems involving money and measures.*	• Estimate/read time with increasing accuracy to the nearest minute • Record/compare time in terms of seconds, minutes, hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon, 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] *Solve problems involving money and measures and simple problems involving passage of time*
Geometry (2 weeks)	• Draw 2-D 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
Statistics week	• *Use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects* • Interpret and present data using bar charts, pictograms and tables Solve one-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and 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
Revision Week		

SMSC links	**British Values**
Spiritual development in Mathematics *The study of mathematics enables students to make sense of the world around them and we strive to enable each of our students to explore the connections between their numeracy skills and every-day life. Developing deep thinking and an ability to question the way in which the world works promotes the spiritual growth of students. Students are encouraged to see the sequences, patterns, symmetry and scale both in the man-made and the natural world and to use maths as a tool to explore it more fully.* **Moral development in Mathematics** *The moral development of students is an important thread running through the*	*Democracy Take into account the views of others in shared activities. Voting when collecting data. The Rule of Law Undertake safe practices, following class rules during tasks and activities for the benefit of all. Understand the consequences if rules are not followed Individual Liberty Work within boundaries to make safe choices during practical activities. Make own choices within data handling activities. Tolerance of those with different faiths and beliefs Use maths to learn about different faiths and cultures around the world. Eg. looking at patterns/shapes within Islam / Hindu religions*

mathematics syllabus. Students are provided with opportunities to use their maths skills in real life contexts, applying and exploring the skills required in solving various problems. For example, students are encouraged to analyse data and consider the implications of misleading or biased statistical calculations. All students are made aware of the fact that the choices they make lead to various consequences. They must then make a choice that relates to the result they are looking for. The logical aspect of this relates strongly to the right/wrong responses in maths.

Social development in Mathematics

Problem solving skills and teamwork are fundamental to mathematics through creative thinking, discussion, explaining and presenting ideas. Students are always encouraged to explain concepts to each other and support each other in their learning. In this manner, students realise their own strengths and feel a sense of achievement which often boosts confidence. Over time they become more independent and resilient learners.

Cultural development in Mathematics

Mathematics is a universal language with a myriad of cultural inputs throughout the ages. Various approaches to mathematics from around the world are used and this provides an opportunity to discuss their origins. This includes different multiplication methods from Egypt, Russia and China, Pythagoras' Theorem from Greece, algebra from the Middle East and debates as to where Trigonometry was first used. We try to develop an awareness of both the history of maths alongside the realisation that many topics we still learn today have travelled across the world and are used internationally.

Mutual Respect To behave appropriately, allowing all participants the opportunity to work effectively. Take turns and share equipment. Review each other's work respectfully. Work collaboratively on projects/problems, help and advise others

The Cultural Child - Mathematics supports the cultural development of a child by exposing them to a range of different approaches to solving problems and reasoning skills.

The Social Child - Mathematics supports social development by requiring verbal reasoning. Children have opportunities to discuss their learning with their peers.

Year 4

Area	Cycle One	Cycle Two
Place Value (2 weeks)	• Count in multiples of 6, 7, 9, 25 and 1000 • Count backwards through zero to include negative numbers • *Read and write numbers to at least 10 000* • *Read and write numbers with up to two decimal places* • Recognise the place value of each digit in a four-digit number • *Partition numbers in different ways (e.g 235 = 200, 20, 15 etc)* • Identify, represent and estimate numbers using different representations *(including the number line)* • Order and compare numbers beyond 1000 • Round any number to the nearest 10, 100 or 1000 • *Describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps* Solve number and **practical problems** that involve all of the above and with increasingly large positive numbers	• Count in multiples of 6, 7, 9, 25 and 1000 • Count backwards through zero to include negative numbers • Count up and down in hundredths • *Order and* compare numbers with the same number of decimal places up to two decimal places • Find *0.1, 1, 10, 100 or* 1000 more or less than a given number • *Identify the value of each digit to two decimal places* • *Partition numbers in different ways (e.g. 2.3 = 2+0.3 & 1+1.3)* • Round decimals (one decimal place) to the nearest whole number • Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer • Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value Solve number and practical problems that involve all of the above and with increasingly large positive numbers
Addition and Subtraction, Multiplication and Division (5 weeks)	• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* • *Select a mental strategy appropriate for the numbers involved in the calculation* • *Recall and use addition and subtraction facts for 100* • *Recall and use +/- facts for multiples of 100 totalling 1000* • *Derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)* • *Add and subtract mentally combinations of two and three digit numbers and decimals to one decimal place* • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why *Solve addition and subtraction problems involving missing numbers* • *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)*	• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* • *Select a mental strategy appropriate for the numbers involved in the calculation* • *Recall and use addition and subtraction facts for 100* • *Recall and use +/- facts for multiples of 100 totalling 1000* • *Derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)* • *Add and subtract mentally combinations of two and three digit numbers and decimals to one decimal place* • Add and subtract numbers with up to 4 digits *and decimals with one decimal place* using the formal written methods of columnar addition and subtraction where appropriate • Estimate; use inverse operations to check answers to a calculation *Solve addition and subtraction problems involving missing numbers* • *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)*

	 • Multiply two-digit numbers by a one-digit number using formal written layout • Divide numbers up to 3 digits by a one-digit number using the formal written method of short division Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, and division.	 • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout • Divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • *Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy* Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, *division (including interpreting remainders),* integer scaling problems and harder correspondence problems such as n objects are connected to m objects
Fractions (3 weeks)	• *Understand that a fraction is one whole number divided by another (e.g. $\frac{3}{4}$ can be interpreted as 3 ÷ 4)* • *Recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators* • *Count on and back in steps of unit fractions* • *Compare and order unit fractions and fractions with the same denominators (including on a number line)* • Recognise and show, using diagrams, families of common equivalent fractions • Add and subtract fractions with the same denominator *(using diagrams)* • Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number	• Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten • Recognise and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$ • 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 Solve simple measure and money problems involving fractions and decimals to two decimal places

Revision Week		
Measure (3 weeks)	• Estimate, compare and calculate different measures. • *Order temperatures including those below 0°C* • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • *Know area is a measure of surface within a given boundary* • Find the area of rectilinear shapes by counting squares • Convert between different units of measure [e.g. kilometre to metre]	• Estimate, compare and calculate different measures, including money in pounds and pence • Convert between different units of measure [e.g. hour to minute] • Read, write and convert time between analogue and digital 12- and 24-hour clocks • *Write amounts of money using decimal notation* • *Recognise that one hundred 1p coins equal £1 and that each coin is $\frac{1}{100}$ of £1* Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days *and problems involving money and measures*
Geometry (2 weeks)	• 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 • *Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines* Identify acute and obtuse angles and compare and order angles up to two right angles by size	• 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
Statistics Week	• *Use a variety of sorting diagrams to* compare and classify *numbers and* geometric shapes based on their properties and sizes • Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts, time graphs	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs
Revision Week		

skills and every-day life. Developing deep thinking and an ability to question the way in which the world works promotes the spiritual growth of students. Students are encouraged to see the sequences, patterns, symmetry and scale both in the man-made and the natural world and to use maths as a tool to explore it more fully.

Moral development in Mathematics

The moral development of students is an important thread running through the mathematics syllabus. Students are provided with opportunities to use their maths skills in real life contexts, applying and exploring the skills required in solving various problems. For example, students are encouraged to analyse data and consider the implications of misleading or biased statistical calculations. All students are made aware of the fact that the choices they make lead to various consequences. They must then make a choice that relates to the result they are looking for. The logical aspect of this relates strongly to the right/wrong responses in maths.

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Individual Liberty Work within boundaries to make safe choices during practical activities. Make own choices within data handling activities. Tolerance of those with different faiths and beliefs Use maths to learn about different faiths and cultures around the world. Eg. looking at patterns/shapes within Islam / Hindu religions

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Year 5

Area	Cycle One	Cycle Two

Place Value (2 weeks)	• 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 and determine the value of each digit • *Identify the value of each digit to three decimal places* • *Identify represent and estimate numbers using the number line* • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • Multiply/divide whole numbers and decimals by 10, 100 and 1000 • Interpret negative numbers in context, count on and back with positive and negative whole numbers, including through zero	• Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • *Count forwards and backwards in decimal steps* • *Find 0.01, 0.1, 1, 10, 100, 100 and other powers of 10 more or less than a given number* • Round decimals with two decimal places to the nearest whole number and to one decimal place • Multiply/divide whole numbers and decimals by 10, 100 and 1000 • *Describe and extend number sequences including those with multiplication/division steps and where the step size is a decimal* • Read Roman numerals to 1000 (M); recognise years written as such Solve number and practical problems that involve all of the above
Addition and Subtraction, Multiplication and Division (5 weeks)	• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* • *Select a mental strategy appropriate for the numbers involved in the calculation* • *Recall and use addition and subtraction facts for 1 and 10* • *Derive and use addition and subtraction facts for 1* • Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places • Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why *Solve addition and subtraction problems involving missing numbers* • *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* • Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • Establish whether a number up to 100 is prime and recall prime numbers up to 19 • Recognise and use square (^{2}) and cube (^{3}) numbers, and notation • *Use partitioning to double or halve any number, including decimals to two decimal places* • Multiply and divide numbers mentally drawing upon known facts • Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* • *Select a mental strategy appropriate for the numbers involved in the calculation* • *Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)* • *Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)* • Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places • Add and subtract whole numbers with more than 4 digits *and decimals with two decimal places,* 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 problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • 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 • 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 • *Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy* • Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Solve problems involving multiplication and division, including scaling by simple fractions and problems involving

	• 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 • 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 • *Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy* • Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Solve problems involving multiplication and division, including scaling by simple fractions and problems involving	
Fractions (3 weeks)	• Recognise mixed numbers and improper fractions and convert from one form to the other • *Count on and back in mixed number steps such as $1\frac{1}{2}$* • Compare and order fractions whose denominators are all multiples of the same number *(including on a number line)* • Identify, name and write equivalent fractions of a given fraction, represented visually. • Add and subtract fractions with denominators that are the same and that are multiples of the same number *(using diagrams)* • Write statements > 1 as a mixed number (e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$) • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal • *Solve problems involving fractions*	• Read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$) • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal • *Solve problems involving fractions and decimals to three places* Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and fractions with a denominator of a multiple of 10 or 25
Revision Week		
Measurement (3 weeks)	• *Use, read and write standard units of length and mass* • *Continue to order temperatures including those below 0°C* • Convert between different units of metric measure • Measure/calculate the perimeter of composite rectilinear shapes • Calculate and compare the area of rectangle, use standard units square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes • *Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks*	• Estimate *(and calculate)* volume ((e.g., using 1 cm³ blocks to build cuboids (including cubes)) and capacity (e.g. using water) • *Understand the difference between liquid volume and solid volume* • 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 Use all four operations to solve problems involving measure using decimal notation, including scaling

Geometry (2 weeks)	• Distinguish between regular and irregular polygons based on reasoning about equal sides and angles • Use the properties of rectangles to deduce related facts and find missing lengths and angles • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • Draw given angles, and measure them in degrees (°) • Identify: - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and half a turn (total 180°) - other multiples of 90°	• Identify 3-D shapes from 2-D representations • Describe positions on the first quadrant of a coordinate grid • Plot specified points and complete shapes • 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 Consolidation
Statistics week	• *Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)* • Complete, read and interpret information in tables and timetables • Calculate the median.	• Solve comparison, sum and difference problems using information presented in *all types of graph including* a line graph *Calculate and interpret the mode, median and range*
Revision Week		

SMSC links

Spiritual development in Mathematics

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Year 6

Area	Cycle One	Cycle Two
Place Value (2 weeks)	• *Count forwards or backwards in steps of integers, powers of 10* • Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • Identify the value of each digit to three decimal places • *Identify, represent and estimate numbers using the number line* • *Order and compare numbers including integers and negative numbers* • Multiply and divide numbers by 10, 100 and 1000 • Use negative numbers in context, and calculate intervals across zero • *Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal* Solve number and practical problems that involve all of the above	• *Count forwards or backwards in steps of integers, decimals, powers of 10* • Identify the value of each digit to three decimal places • *Order and compare numbers including integers, decimals and negative numbers* • *Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more/less than a given number* • Round any whole number to a required degree of accuracy • *Round decimals with three decimal places to the nearest whole number or one or two decimal places* • Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • *Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal* Solve number and practical problems that involve all of the above

| Addition and Subtraction, Multiplication and Division (5 weeks) | • *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)*
• *Select a mental strategy appropriate for the numbers in the calculation*
• *Recall and use addition and subtraction facts for 1 (with decimals to two decimal places)*
• Perform mental calculations including with mixed operations and large numbers *and decimals*
• *Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction)*
• Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
• Use knowledge of the order of operations to carry out calculations
• Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)*
• Identify common factors, common multiples and prime numbers
• *Use partitioning to double or halve any number*
• Perform mental calculations, including with mixed operations and large numbers
• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
• Multiply one-digit numbers with up to two decimal places by whole numbers
• Divide numbers up to 4 digits by a two-digit whole number using the formal written methods of short or long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
• Use written division methods in cases where the answer has up to two decimal places
• Use estimation *and inverse* to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
• Use knowledge of the order of operations to carry out calculations
Solve problems involving all four operations, *including those with missing numbers* | • *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)*
• *Select a mental strategy appropriate for the numbers in the calculation*
• *Recall and use addition and subtraction facts for 1 (with decimals to two decimal places)*
• Perform mental calculations including with mixed operations and large numbers *and decimals*
• *Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction)*
• Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
• Use knowledge of the order of operations to carry out calculations
• Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

• *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)*
• Identify common factors, common multiples and prime numbers
• *Use partitioning to double or halve any number*
• Perform mental calculations, including with mixed operations and large numbers
• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
• Multiply one-digit numbers with up to two decimal places by whole numbers
• Divide numbers up to 4 digits by a two-digit whole number using the formal written methods of short or long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
• Use written division methods in cases where the answer has up to two decimal places
• Use estimation *and inverse* to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
• Use knowledge of the order of operations to carry out calculations
Solve problems involving all four operations, *including those with missing numbers*

Solve problems involving all four operations, *including those with missing numbers* |

Fractions (2 weeks)	• Compare and order fractions, including fractions > 1 *(including on a number line)* • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$) • Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$) • *Solve problems involving fractions* • Solve problems which require answers to be rounded to specified degrees of accuracy	• Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts • Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375 and $\frac{3}{8}$) • *Find simple percentages of amounts* Solve problems involving the calculation of percentages (e.g. of measures and such as 15% of 260) and the use of percentages for comparison
Revision Week		
Ratio and proportion week	• Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication/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 Solve problems involving similar shapes where the scale factor is known or can be found
Algebra week	• 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
Measure (2 weeks)	• Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places • Recognise that shapes with the same areas can have different perimeters and vice versa • Calculate the area of parallelograms and triangles •) • *Calculate differences in temperature, including those that involved a positive and negative temperature*	• Convert between standard units of length, mass, volume and time using decimal notation to three decimal places • Convert between miles and kilometres • Recognise when it is possible to use formulae for area and volume of shapes Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units (e.g. mm³ and km³ Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
Geometry (2 weeks)	• Compare/classify geometric shapes based on the properties and sizes • Draw 2-D shapes using given dimensions and angles • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles	• Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • Recognise, describe and build simple 3-D shapes, including making nets • 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

	Find unknown angles in any triangles, quadrilaterals, regular polygons	
Statistics week	• *Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes)* • Interpret graphs and use these to solve problems • *Solve comparison, sum and difference problems using information presented in all types of graph* Calculate and interpret the mean as an average	• *Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes)* • Interpret and construct pie charts and line graphs and use these to solve problems
Revision Week		

SMSC links

Spiritual development in Mathematics

The study of mathematics enables students to make sense of the world around them and we strive to enable each of our students to explore the connections between their numeracy skills and every-day life. Developing deep thinking and an ability to question the way in which the world works promotes the spiritual growth of students. Students are encouraged to see the sequences, patterns, symmetry and scale both in the man-made and the natural world and to use maths as a tool to explore it more fully.

Moral development in Mathematics

The moral development of students is an important thread running through the mathematics syllabus. Students are provided with opportunities to use their maths skills in real life contexts, applying and exploring the skills required in solving various problems. For example, students are encouraged to analyse data and consider the implications of misleading or biased statistical calculations. All students are made aware of the fact that the choices they make lead to various consequences. They must then make a choice that relates to the result they are looking for. The logical aspect of this relates strongly to the right/wrong responses in maths.

Social development in Mathematics

Problem solving skills and teamwork are fundamental to mathematics through creative thinking, discussion, explaining and presenting ideas. Students are always encouraged to explain concepts to each other and support each other in their learning. In this manner, students realise their own strengths and feel a sense of achievement which often boosts confidence. Over time they become more independent and resilient learners.

Cultural development in Mathematics

Mathematics is a universal language with a myriad of cultural inputs throughout the ages. Various approaches to mathematics from around the world are used and this provides an opportunity to discuss their origins. This includes different multiplication methods from

British Values

Democracy Take into account the views of others in shared activities. Voting when collecting data. The Rule of Law Undertake safe practices, following class rules during tasks and activities for the benefit of all. Understand the consequences if rules are not followed Individual Liberty Work within boundaries to make safe choices during practical activities. Make own choices within data handling activities. Tolerance of those with different faiths and beliefs Use maths to learn about different faiths and cultures around the world. Eg. looking at patterns/shapes within Islam / Hindu religions

Mutual Respect To behave appropriately, allowing all participants the opportunity to work effectively. Take turns and share equipment. Review each other's work respectfully. Work collaboratively on projects/problems, help and advise others

The Cultural Child - Mathematics supports the cultural development of a child by exposing them to a range of different approaches to solving problems and reasoning skills.

The Social Child - Mathematics supports social development by requiring verbal reasoning. Children have opportunities to discuss their learning with their peers.

Egypt, Russia and China, Pythagoras' Theorem from Greece, algebra from the Middle East and debates as to where Trigonometry was first used. We try to develop an awareness of both the history of maths alongside the realisation that many topics we still learn today have travelled across the world and are used internationally.