Fladbury

Church of England **Primary School** and **Preschool**

Maths Curriculum

Happy Hearts, Open Minds, Bright Futures

Jesus promised: “I came that you may have life and have it to the full.”

- John 10:10

Our Vision

Every child at Fladbury will know they are loved by God, have a **happy heart** and be part of a flourishing, well-led school. When they leave Fladbury, they will be well-prepared to meet challenges, confident in their abilities and look forward to their **bright future** with an **open mind**.

Our Mathematic Aims

The overarching aims of our Mathematics Curriculum are to support our children to have a rich and enjoyable experience in Maths, by providing the knowledge, skills and understanding that enable all our children to flourish in society and be fully prepared for the next stage in their learning. Our children will develop positive and confident attitudes towards Mathematics and be able to use and apply their knowledge to real life contexts.

To be able to follow lines of enquiry, reason mathematically and solve problems with increasing sophistication is another important aim at Fladbury.

Happy Hearts	Open Minds	Bright Futures
		
Through our Mathematics Curriculum, the lens of our Christian value of 'joy' and our vision statement 'happy heart', the children of Fladbury appreciate and understand that Maths is a powerful tool for global understanding and communication. Using it, they can make sense of the world and solve complex and real life problems and in doing so provide them with a sense of happiness and satisfaction. The feeling they get when they solve a problem or learn something new is overwhelmingly positive and joyful; and we actively look for that response when we teach at Fladbury.	Children with open minds understand sometimes there are no right or wrong answers. They analyse, hypothesise and experiment and their own thinking is supported, nurtured and developed. This open culture supports a spirit of freedom where children feel free to cross out (for example) their mathematical jottings, change their minds and develop their own strategies. Having an open mind in Mathematics is not always neat and tidy but it involves deep-level learning and sometimes the chaos of thinking, refining and finding new mathematical ideas.	Mathematics is constantly part of everyday life. In the future our children will make educated decisions about interest rates, budgeting, finding the best discounts when they shop, adjusting a recipe to feed more people, figuring out how much they will need for home improvement - all of these involve mathematics. Ultimately, at Fladbury we encourage our children to embrace and explore mathematics, as it will bring immense benefit to them that extends far beyond the classroom. Mathematics is a critical foundation that will leave our children to be well-poised to grow into global citizens equipped to tackle life's challenges, master the mundane and chase their dreams.

Spirituality in Mathematics

Fladbury's definition of Spirituality is: Spirituality is about understanding that we are part of something bigger than ourselves. It's the connections and relationships we have with God, with others, with ourselves and with nature. It brings about a sense of awe and wonder and can lead to asking big questions about who we are and our place in God's world.

The study of mathematics enables children to make sense of the world around them and at Fladbury we strive to enable our children to explore the connections between their Maths 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 children. Our children 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.

Intent

"Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject". (National Curriculum)

The 2014 National Curriculum for Maths aims to ensure that all children:

- Become fluent in the fundamentals of Mathematics
- Are able to reason mathematically
- Can solve problems by applying their Mathematics

At Fladbury, these skills are embedded within Maths lessons and developed consistently over time. We are committed to ensuring that children are able to recognise the importance of Maths in the wider world and that they are also able to use their mathematical skills and knowledge confidently in their lives in a range of different contexts. We want all children to enjoy Mathematics and to experience success in the subject, with the ability to reason mathematically. We are committed to developing children's curiosity about the subject, as well as an appreciation of the beauty and power of Mathematics.

Mathematics is the only way we have of expressing the fundamental principles of the universe; it is logic, it is rationality, it is using your mind to solve the biggest mysteries we know. Yet, we use maths every day in the most mundane ways, to handle money, predict weather or tell the time. At Fladbury First School, we want our children to experience the beauty and grandeur of maths alongside having a firm grasp of the fundamentals. We want them to enjoy mathematics and explore mathematical concepts so that they leave us just as confident tackling large problems as they are using their fundamentals.

We believe that all children should be fluent in the fundamentals of mathematics. By exposing them to a variety of different core concepts that are frequently practised, we hope to develop foundations in their understanding on which the children can build. From this, more instrumental/procedural approach, the children can then build a conceptual understanding allowing them to draw rich links between these core concepts.

To further reinforce these core concepts all children are exposed to problem solving. This daily problem solving is designed to encourage perseverance with mathematical problems as well as foster core aspects of logic and reasoning that the children will be able to apply more widely to their learning and life. Alongside the core concepts and problem solving, the children's ability to reason mathematically is fostered, with a particular emphasis on the use of mathematical vocabulary. This is done so that, children are able to express their thought process fully and allows them to develop arguments, justifications and proof. The use of mathematical language and core concepts is particularly relevant given the effect that COVID lockdowns have had on some of our children's attainment. Subject specific language has been linked to closing the gap with disadvantaged and advantaged children (Purves 2019) as well as the implementation of individualised technology to support those core concepts (Outhwaite et. Al. 2017).

Impact

Fladbury First School has a supportive ethos and our approaches support the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of others.

Children can underperform in Mathematics because they think they cannot do it or are not naturally good at it. The school's use of White Rose Maths addresses these preconceptions by ensuring that all children experience challenge and success in Mathematics by developing a growth mind set. Regular and ongoing assessment informs teaching, as well as intervention, to support and enable the success of each child.

By the time the children leave Fladbury First School we aim for each of them to be confident in the application of their fundamental maths skills in a variety of situations. They should be able to leverage this understanding to solve problems both mathematical and logical and use this to reason effectively. They will be able to then present a justification, argument or proof using mathematical language. We also want our children to have an appreciation for Maths more widely and how it is applied to a variety of real life contexts both mundane and wondrous. With this, they can discover, nurture and share their gifts wherever they take them.

Implementation

At Fladbury First School, we structure our Mathematics around the Mastery Approach curriculum from EYFS to Year 6. This is to ensure that the distinct domains of mathematics are covered in sufficient depth and clarity. The White Rose curriculum structures the learning within these domains so that knowledge, concepts and procedures are carefully sequenced over time to build skills and knowledge systematically. We also ensure that we use the most up to date White Rose curriculum, which is revised each year based on research and teacher feedback. However, we do not use the White Rose resources exclusively as we want to ensure that teachers remain able to adapt and alter the learning to fit the needs of their pupils. This allows teachers to draw on Nrich, NCETM, I See Reasoning/Problem Solving, Maths No Problem! resources, and others, in order to ensure that the needs of the children in their class are being met.

We take our exploration of mathematics further during our daily fluency sessions. This gives all of our learners the opportunity to generalise from their understandings of the core concepts taught that week, something that is vital to their understanding of mathematics more widely (Mason and Johnston-Wilder 2004). Teachers reinforce an expectation that all children are capable of achieving high standards in Mathematics. The large majority of children progress through the curriculum content at the same pace; significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind. If a pupil fails to grasp a concept or procedure, this is identified quickly and early intervention ensures the pupil is ready to move forward with the whole class in the next lesson.

The structure and connections within the mathematics are emphasised, so that pupils develop deep learning that can be sustained. Lesson design identifies the new mathematics that is to be taught, the key points, the difficult points and a carefully sequenced journey through the learning. Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention, so that all children keep up. Children's explanations and their proficiency in articulating mathematical reasoning, with the precise use of mathematical vocabulary, are supported through the use of stem sentences provided by the teacher. Key facts such as multiplication tables and addition facts within 10 are learnt to automaticity to avoid cognitive overload in the working memory and enable pupils to focus on new concepts. One approach being used in the classrooms is to label key areas with these face (8+2=10) and then use this fact to refer to the area in general conversation. For example, can you fetch the 8+2=1 please? (register)

The curriculum is designed to have an emphasis on number, with a large proportion of time spent reinforcing number to build competency. Lessons are planned to provide plenty of opportunities to build reasoning and problem solving elements into the curriculum. Children will use concrete objects and manipulatives to help them understand what they are doing. Alongside this, children are encouraged to use pictorial representations which are presented in different ways. Both concrete and pictorial representations support children's understanding of abstract methods.

Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. These teaching blocks are broken down into smaller steps, to help children understand concepts better. This approach means that children do not cover too many concepts at once which can lead to cognitive overload. Each lesson phase provides the means for children to achieve greater depth, with children who are quick to grasp new content, being offered rich and sophisticated problems, within the lesson as appropriate.

We teach mixed aged classes and follow the White Rose Maths Mixed Aged overview

Our Curriculum

White Rose Maths

At Fladbury CE Primary School, we structure our Mathematics around the Mastery Approach curriculum from EYFS to Year 6. This is to ensure that the distinct domains of mathematics are covered in sufficient depth and clarity. The White Rose curriculum structures the learning within these domains so that knowledge, concepts and procedures are carefully sequenced over time to build skills and knowledge systematically. We also ensure that we use the most up to date White Rose curriculum, which is revised each year based on research and teacher feedback.

However, we do not use the White Rose resources exclusively as we want to ensure that teachers remain able to adapt and alter the learning to fit the needs of their pupils. This allows teachers to draw on Nrich, NCETM, I See Reasoning/Problem Solving, Maths No Problem! resources, and others, in order to ensure that the needs of the children in their class are being met.

Adaptive Teaching

Fladbury CE Primary School has a robust approach to adaptive teaching, ensuring that all children receive an education that responds to their strengths and needs. The use of scaffolding techniques allows teachers to break down complex concepts into manageable chunks, providing children with the support they need to work towards the same objectives as their peers. Visual resources such as word banks, diagrams and flash cards are often used in lessons to support all children to meet their learning objectives. Our school also embraces technology, utilising educational software such as Clickr and Widgit that engage children and provide opportunities for personalised learning. Additionally, active learning strategies, such as collaborative projects and hands-on activities, encourage children to engage with their lessons, fostering both peer interaction and critical thinking skills. Teachers ensure that children have access to practical concrete resources to further support their understanding and to give alternate ways of finding solutions to problems. Modelling is another critical strategy used by teachers, where they demonstrate thought processes and outline how they would complete a task to meet the learning objective. This allows children to observe and understand what they are working towards.

Through this multifaceted approach, Fladbury CE Primary School creates an inclusive learning environment where every child is supported in their educational journey, promoting not only academic success but also a lifelong love for learning.

Assessment

Assessing children in Maths is crucial.

Identify Learning Gaps: Regular assessment helps teachers identify areas where children might be struggling or where they have gaps in their understanding. This allows for targeted intervention to help them catch up.
Track Progress: Math assessments provide a way to track a child's progress over time. This can help educators and parents see how well the child is mastering new concepts and skills.
Set Learning Goals: Assessment results can guide the setting of realistic learning goals for each child. It helps in customizing lessons to meet individual learning needs, ensuring that each child is progressing at their own pace.
Build Confidence: When children are assessed and they see improvement in their performance, it can boost their confidence. It shows them that their hard work is paying off, which can motivate them to keep learning.
Guide Instruction: Assessments can inform teachers about which methods and strategies are most effective for the students. If many students perform poorly in a certain area, it might indicate a need for a change in teaching approach.
Provide Feedback: Assessments give children feedback about their strengths and areas for improvement. Constructive feedback allows them to understand how they can improve their skills and deepen their understanding.
Accountability: Assessments ensure accountability for both students and teachers. They help hold everyone responsible for the learning process, ensuring that the educational objectives are being met.
Prepare for Future Learning: A solid foundation in math is essential for future academic success. By assessing children regularly, we ensure they are building the necessary skills for more complex topics later on, such as algebra, geometry, and calculus.

Teachers use a variety of assessment strategies in math to gauge students' understanding and to provide insights into their learning progress. These strategies can be both formal and informal, and they cater to different learning styles and needs. Here are some common assessment strategies used in classrooms:

Formative assessments: ongoing, low-stakes evaluations that help teachers monitor students' progress and adjust instruction as needed.
Exit Tickets: At the end of a lesson, students answer a quick question or solve a problem to demonstrate what they have learned.
Observations: Teachers observe students during activities and note their approach to problem-solving, collaboration, and understanding of key concepts.
Peer Assessments: Students assess each other’s work, which helps reinforce their understanding and encourages collaborative learning.
Thumbs Up/Thumbs Down: A quick check where students signal their understanding of a concept by giving a thumbs up (understanding) or thumbs down (need more help).
Think-Pair-Share: Students think about a problem, discuss it with a partner, and then share their thoughts with the class.
Quick Quizzes: Short quizzes, often with multiple-choice or short-answer questions, that help gauge student comprehension in real-time.
Summative assessments: end of unit tests

Our Curriculum Year 1

Yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value (within 10)**					Number **Addition and subtraction (within 10)**					Geometry **Shape**	Consolidation
Spring	Number **Place value (within 20)**			Number **Addition and subtraction (within 20)**			Number **Place value (within 50)**		Measurement **Length and height**		Measurement **Mass and volume**	
Summer	Number **Multiplication and division**			Number **Fractions**		Geometry **Position and direction**	Number **Place value (within 100)**		Measurement **Money**	Measurement **Time**		Consolidation

Our Curriculum Year 2

Yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**				Number **Addition and subtraction**					Geometry **Shape**		
Spring	Measurement **Money**			Number **Multiplication and division**				Measurement **Length and height**		Measurement **Mass, capacity and temperature**		
Summer	Number **Fractions**			Measurement **Time**			**Statistics**	Geometry **Position and direction**		**Consolidation**		

Our Curriculum

Y3/4 yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**				Number **Addition and subtraction**				Number **Multiplication and division A**			Measurement **Area**
Spring	Number **Multiplication and division B**				Measurement **Length and perimeter**				Number **Fractions A**		Measurement **Mass and capacity**	Number **Fractions B**
Summer	Measurement **Time**				Number **Decimals**				Measurement **Money**		Geometry **Shape**	Geometry **Position and direction** / **Statistics**

White Rose MATHS

Our Curriculum

Y5/6 yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**			Number **Addition and subtraction**	Number **Multiplication and division A**		Number **Fractions A**				Number **Multiplication and division B**	
Spring	Number **Multiplication and division B**		Number **Fractions B**		Number **Decimals A**	Measurement **Area, perimeter and volume**		Number **Decimals B**			Number **Fractions, decimals and percentages**	
Summer	**Ratio**		**Algebra**	Geometry **Shape**			Geometry **Position and direction**		**Statistics**		Measurement **Converting units**	

White Rose MATHS

Age Related Coverage

Pre School

- Develop fast recognition of up to 3 objects, without
- having to count them individually (‘subitising’).
- Recite numbers past 5.
- Say one number for each item in order: 1,2,3,4,5.
- Know that the last number reached when counting a small set of objects tells you how many there are in total (‘cardinal principle’).
- Show ‘finger numbers’ up to 5.
- 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. Solve real world mathematical problems with numbers up to 5. Compare quantities using language: ‘more than’, ‘fewer than’.
- 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’.
- Understand position through words alone – for example, “The bag is under the table,” – with no pointing. Describe a familiar route. Discuss routes and locations, using words like ‘in front of’ and ‘behind’
- Make comparisons between objects relating to size, length, weight and capacity.
- Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. Combine shapes to make new ones – an arch, a bigger triangle, etc.
- 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. Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern. Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’

Reception

- Count objects, actions and sounds.
- Subitise.
- Link the number symbol (numeral) with its cardinal number value.
- Count beyond ten.
- Compare numbers
- Understand the ‘one more than/one less than’ relationship between consecutive numbers.
- Explore the composition of numbers to 10.
- Automatically recall number bonds for numbers 0–5 and some to 10.
- Select, rotate and manipulate shapes to develop spatial reasoning skills.
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
- Continue, copy and create repeating patterns.
- Compare length, weight and capacity.

Early Learning Goals

- 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.
- 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.

Unit End Points - Place Value

By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can count to and across 100, forwards and backwards, beginning with zero or 1, or from any given number I can 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 I can count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s I can read and write numbers from 1 to 20 in numerals and words Given a number, I can identify 1 more and 1 less	I can identify, represent and estimate numbers using different representations, including the number line I can read and write numbers to at least 100 in numerals and in words I can compare and order numbers from 0 up to 100; use < and > = signs I can recognise the place value of each digit in a 2-digit number (tens, ones)	I can recognise the place value of each digit in a 3 digit number (hundreds, tens, ones) I can count from zero in multiples of 4, 8, 50 and 100 I can find 10 or 100 more or less than a given number I can read and write numbers up to 1,000 in numerals and in words I can identify, represent and estimate numbers using different representations I can compare and order numbers up to 1,000	I can identify, represent and estimate numbers using different representations I can count in multiples of 6, 7, 9, 25 and 1,000 I can recognise the place value of each digit in a 4 digit number (thousands, hundreds, tens and ones) I can find 1,000 more or less than a given number I can order and compare numbers beyond 1,000 I can round any number to the nearest 10, 100 or 1,000	I can read Roman numerals to 1,000 (M) and recognise years written in Roman numerals I can read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit I can count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 I can round any number up to 1,000,000 to the nearest 10,100, 1000, 10,000 and 100,000 I can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero I can solve number problems and practical problems involving the above	I can read, write, order and compare numbers up to 10,000,000 and determine the value of each digit I can use negative numbers in context, and calculate intervals across zero I can round any whole number to a required degree of accuracy I can solve number and practical problems that involve the above

Unit End Points – Addition & Subtraction

By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can 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 I can read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs I can represent and use number bonds and related subtraction facts within 20 I can add and subtract 1-digit and 2-digit numbers to 20, including zero I can solve 1-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? − 9 I can represent and use number bonds and related subtraction facts within 20 I can add and subtract 1-digit and 2-digit numbers to 20, including zero I can recall and use addition and subtraction facts to 20 fluently, and derive and use related I can solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? – 9 facts up to 100	I can recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 I can add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a 2-digit number and 1s, a 2-digit number and 10s, two 2-digit numbers and adding three 1-digit numbers I can recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 I can add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a 2-digit number and 1s, a 2-digit number and 10s, two 2-digit numbers and adding three 1-digit numbers I can compare and order numbers from 0 up to 100; use < and > = signs	I can add and subtract numbers mentally, including: a 3-digit number and ones; a 3-digit number and tens; a 3-digit number and hundreds I can solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction I can add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction I can estimate the answer to a calculation and use inverse operations to check answers I can solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	I can add and subtract numbers with up to four digits using the formal written methods of columnar addition and subtraction where appropriate I can estimate and use inverse operations to check answers to a calculation I can solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	I can add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) I can solve addition and subtraction multi-step problems in contexts deciding which operations and methods to se and why I can add and subtract numbers mentally with increasingly large numbers	I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why I can perform mental calculations, including with mixed operations and large numbers I can use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

Unit End Points – Multiplication and Division

By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s I can 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	I can count in steps of 2, 3 and 5 from 0, and in 10s from any number, forward and backward I can calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs I can show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot I can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	I can write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods I can recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables I can write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2-digit numbers times 1-digit numbers, using mental and progressing to formal written method I can solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	I can recall multiplication and division facts for multiplication tables up to 12 × 12 I can recognise and use factor pairs and commutativity in mental calculations I can count in multiples of 6, 7, 9, 25 and 1,000 I can use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers I can recognise and use factor pairs and commutativity in mental calculations I can recall multiplication and division facts for multiplication tables up to 12 × 12 I can use place value, known and derived facts to multiply and divide mentally, including: multiplying by zero and 1; dividing by 1; multiplying together three numbers I can solve problems involving multiplying and adding, including using the distributive law to multiply 2-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects I can multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout	I can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers I can solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers I know whether a number up to 100 is prime and can recall prime numbers up to 19 I can recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) I can solve problems involving multiplication and division, including using my knowledge of factors and multiples, squares and cubes I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 I can multiply and divide numbers mentally, drawing upon known facts I can multiply numbers up to 4 digits by a 1 or 2 digit number using a formal written method including long multiplication for 2 digit numbers I can divide numbers up to 4 digits by a 1 digit number using the formal written method of short division and interpret remainders appropriately for context I can solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign I can use rounding to check answers to calculations and determine in the context of a problem levels of accuracy I can multiply and divide mentally drawing upon known facts	I can solve problems involving multiplication and division I can use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy I can identify common factors, common multiples and prime numbers I can multiply multi-digit numbers up to four digits by a 2-digit whole number using the formal written method of long multiplication I can perform mental calculations, including with mixed operations and large numbers I can divide numbers up to four digits by a 2-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context I can divide numbers up to four digits by a 2-digit number using the formal written method of long division and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context. I can perform mental calculations including with mixed operations and large numbers I can use my knowledge of the order of operations to carry out calculations involving the four operations

Unit End Points - Shape

By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can recognise and name common 2-D and 3-D shapes	I can identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line I can identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces I can identify 2-D shapes on the surface of 3-D shapes I can compare and sort common 2-D and 3-D shapes and everyday objects	I can recognise angles as a property of shape or a description of a turn I can 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 I can identify horizontal and vertical lines and pairs of perpendicular and parallel lines I can draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	I can identify acute and obtuse angles and compare and order angles up to two right angles by size I can compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes I can identify lines of symmetry in 2-D shapes presented in different orientations I can complete a simple symmetric figure with respect to a specific line of symmetry	I know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles I can draw given angles, and measure them in degrees (°) I can 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°) I can use the properties of rectangles to deduce related facts and find missing lengths and angles I can distinguish between regular and irregular polygons based on reasoning about equal sides and angles I can identify 3-D shapes, including cubes and other cuboids, from 2-D representations	I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles I can compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons I can illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius I can draw 2-D shapes using given dimensions and angles I can recognise, describe and build simple 3-D shapes, including making nets

Position and Direction
Unit End Points - By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can describe position, direction and movement, including whole, half, quarter and three-quarter turns	I can use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise)		I can describe positions on a 2-D grid as coordinates in the first quadrant I can plot specified points and draw sides to complete a given polygon I can describe movements between positions as translations of a given unit to the left/right and up/down	I can 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.	I can describe positions on the full coordinate grid (all four quadrants) I can draw and translate simple shapes on the coordinate plane, and reflect them in the axes

Measure, Area, Perimeter and Volume
Unit End Points - By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can compare, describe and solve practical problems for: lengths and heights; mass/weight; capacity and volume; time I can measure and begin to record the following: lengths and heights; mass/weight; capacity and volume; time	I can choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels I can compare and order lengths, mass, volume/capacity and record the results using >, < and = I can solve problems including addition and subtraction, using concrete objects and pictorial representations, including those involving numbers, quantities and measures I can solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	I can measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) I can measure the perimeter of simple 2-D shapes	I can convert between different units of measure I can find the area of rectilinear shapes by counting squares I can measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres I can calculate and compare the area of rectangles (including squares) including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. I can estimate volume and capacity I can estimate volume (for example using 1 cm3 blocks to build cuboids (including cubes)) and capacity (for example using water) I can convert between different units of metric measure I can understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints I can solve problems involving converting between units of time.	I can recognise that shapes with the same areas can have different perimeters and vice versa. I can recognise when it is possible to use formulae for the area and volume of shapes I can calculate the area of parallelograms and triangles I can 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. I can 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. I can solve problems involving the calculation and conversion of units of measure using decimal notation up to 3 decimal places where appropriate

Money
Unit End Points - By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can recognise and know the value of different denominations of coins and notes	I can recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value I can solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change I can find different combinations of coins that equal the same amounts of money	I can add and subtract amounts of money to give change, using both £ and p in practical contexts	I can estimate, compare and calculate different measures, including money in pounds and pence		

Statistics
Unit End Points - By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	I can interpret and construct simple pictograms, tally charts, block diagrams and tables I can ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity I can ask and answer questions about totalling and comparing categorical data	I can interpret and present data using bar charts, pictograms and tables I can solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables I can 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	I can interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs I can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	I can solve comparison, sum and difference problems using information presented in a line graph I can complete, read and interpret information in tables, including timetables	I can interpret and construct pie charts and line graphs and use these to solve problems I can calculate and interpret the mean as an average

Time
Unit End Points - By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening) I can recognise and use the language relating to dates, including days of the week, weeks, months and years I can measure and begin to record time (hours, minutes, seconds) I can compare, describe and solve practical problems for time I can practise counting (1, 2, 3 …), ordering (for example, 1st, 2nd, 3rd …) (non-statutory guidance) I can tell the time to the hour and half past the hour and draw the hands on a clock face to show these times I can compare, describe and solve practical problems for: lengths and height; mass/weight; capacity and volume; time	I can 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 I Know the number of minutes in an hour and the number of hours in a day I can solve problems with addition and subtraction, using concrete objects and pictorial representations, including those involving numbers, quantities and measures	I can tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12hr and 24hr clocks I can estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight I know the number of seconds in a minute and the number of days in each month, year and leap year I can compare durations of events	I can read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value I can read, write and convert time between analogue and digital 12- and 24-hour clocks I can solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days		

Fractions
Unit End Points - By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
I can recognise, find and name a half as one of two equal parts of an object, shape or quantity and as one of four equal parts of an object,, shape or quantity I can recognise, find and name a quarter as one of four equal parts of an object, shape or quantity (Y1)	I can recognise, find, name and write fractions 1/3 , 1/4 , 2/4 and 3/4 of a length, shape, set of objects or quantity I can write simple fractions, for example 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2	I can recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators I can compare and order unit fractions, and fractions with the same denominators I can measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) I can recognise and show, using diagrams, equivalent fractions with small denominators I can add and subtract fractions with the same denominator within one whole	I can recognise and show, using diagrams, families of common equivalent fractions I can add and subtract fractions with the same denominator	I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths I can recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number I can compare and order fractions whose denominators are all multiples of the same number I can add and subtract fractions with the same denominator, and denominators that are multiples of the same number I can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers I can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	I can use common factors to simplify fractions; use common multiples to express fractions in the same denomination I can compare and order fractions, including fractions > 1 I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions I can multiply proper fractions by whole numbers I can multiply simple pairs of proper fractions, writing the answer in its simplest form I can divide proper fractions by whole numbers I can associate a fraction with division and calculate decimal fraction equivalents for a simple fraction I can associate a fraction with division and calculate decimal fraction equivalents for a simple fraction. I can recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Decimals and Percentages
Unit End Points - By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		I can count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing 1-digit numbers or quantities by 10 I can compare numbers with the same number of decimal places up to 2 decimal places I can count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10 I can recognise and write decimal equivalents to 1/4 , 1/2 and 3/4 I can solve simple measure and money problems involving fractions and decimals to 2 decimal places I can round decimals with 1 decimal place to the nearest whole number I can find the effect of dividing a 1- or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths	I can recognise and write decimal equivalents of any number of tenths or hundredths I can compare numbers with the same number of decimal places up to 2 decimal places I can count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10 I can recognise and write decimal equivalents to 1/4 , 1/2 and 3/4 I can solve simple measure and money problems involving fractions and decimals to 2 decimal places I can round decimals with 1 decimal place to the nearest whole number I can find the effect of dividing a 1- or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths	I can read, write, order and compare numbers with up to 3 decimal places I can solve problems involving numbers up to 3 decimal places I can round decimals with 2 decimal places to the nearest whole number and to 1 decimal place I can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 I can read and write decimal numbers as fractions I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths I can 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 I can 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	I can identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places I can solve problems which require answers to be rounded to specified degrees of accuracy I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why I can identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places I can multiply 1 digit numbers with up to 2 decimal places by whole numbers I can use written division methods in cases where the answer has up to 2 decimal places I can solve problems involving addition, subtraction, multiplication and division I can solve problems involving the calculation of percentages and use of percentages for comparison I can recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Ratio
Unit End Points - By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					I can solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts I can solve problems involving unequal sharing and grouping using knowledge of fractions and multiplies I can solve problems involving similar shapes where the scale factor is known or can be found.

Algebra
Unit End Points - By the end of each unit, children will be able to…

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					I can use simple formulae I can generate and describe linear number sequences I can find two pairs of numbers that satisfy an equation with two unknowns I can enumerate possibilities of combinations of two variables I can express missing number problems algebraically

Number and Place Value

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number	Sort	Numbers to 100	Numbers to 1000	Negative numbers/integers	Ten thousands	Numbers to ten million
None	Represent	Hundreds	Ascending	Round	One hundred thousands	Millions
After	Multiples	Count in steps	Descending	Roman numerals	Powers of Integer	Ten millions
Count	Partitioning	Count in multiples Estimate	10 or 100 more	1000 more 1000 less		
Subitise	Recombine		10 or 100 less	Thousands		
Order	Ones		Hundreds	Round		
Compare	Tens					
Forwards	Place value					
Backwards	Compare					
Numerals						
Digit						
One more						
One less						
Many						
Equal to/same as						
More than						
Less than (Fewer)						

Addition and Subtraction

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Add	Addition/Add	3-digit number	Column addition	4-digit number	Efficient written method	Order of operations
Plus	More	Commutative	Column subtraction	Methods		
Altogether	Altogether		Exchange			
Total	Sum		Estimate			
Take away/minus	Total					
Number bonds	Double/near double					
Part Whole	Half/halve					
Digit	Subtraction					
	Take away					
	Minus					
	Difference					
	Equals					
	Facts					
	Problems					
	Missing number problems					
	2-digit number					
	Inverse					
	Number bonds					

Multiplication and Division

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Double	Multiplication	Multiplication tables	Exchange	Factor pairs	Prime numbers	Long division
Half	Division	Commutative	Mathematical statements	Distributive law	Square numbers	Order of operations
Twice as many	Arrays		Derived facts	Remainders	Cube numbers	Common factors
Equal	Row		Product		Short division	Common multiples
Unequal	Column		Multiples		Dividend	
Share	Count in…		Factors		Divisor	
Group	Lots of		Scale up		Quotient	
Odd	Groups of..				Operations	
Even	Times				Formal written method	
	Multiple					
	Repeated addition					
	Share					
	Divide					

Fractions, Decimals and Percentages

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Whole	Three quarters	Tenths	Decimal	Percent %	Simplify
	Half	Third	Compare and order	Equivalent	Percentage	Degree of accuracy
	Quarter	Equivalent fractions	Tenths	Equivalence	complements	
	Equal parts	Unit fractions		Convert		
		Non unit fractions		Proper fractions		
		Numerator		Improper fractions		
		Denominator		Decimals point		
		One whole		Mixed numbers		

Ratio and Proportion

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						Relative size Missing values Integer multiplication Percentages Scale factor Unequal sharing and grouping

Algebra

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						Formulae Linear number sequences Algebraically Equation Unknowns Combinations Variables Substitute Symbol Known variables

Measurement (Measures and Length)

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measure		Standard units	Millimetre	Kilometre	Decimal notation	Conversion
Wider		Estimate	mm	km	Scaling	Miles
Narrow		Order	Perimeter	Rectilinear shape	Metric units	Formulae
Compare		Record results		Area	Imperial units	Parallelograms
Longer		Centimetre		Irregular shapes	Inches	Triangles
Shorter		cm		Convert	Compound shape	Feet
length		Metre				
		m				

Measurement (Height, Weight and Capacity)

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Height	Mass	Kilogram		Convert	Volume	Cubic metre
Long	Volume	kg			Cubic	Cubic millimetre
Short	Holds	Gram			centimetres	Cubic kilometre
Weight	Scales	g			Pounds	Gallons
Capacity	Container	Quarter			Pints	Stones
Heavy/light	Weigh	Three quarters				Ounces
Heavier than Lighter than	Balances	Litres				
Full/empty		L				
More than		Millimetres				
Less than		ml				
Half/half full		Temperature				
		Degrees				

Measurement (Time)

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasons	Chronological order	Intervals of time	Analogue			
Time	Days of the week	Quarter past/to	Roman numerals			
Quicker	Months of the year	Duration	12-hour clock			
Slower	Month		24-hour clock			
Earlier	Year		Am/pm			
Later	O'clock		Noon			
Before	Half past		Midnight			
After	Second		Leap year			
First			Digital			
Next						
Today						
Yesterday						
Tomorrow						
Morning						
Afternoon						
Evening						
Day						
Week						
Hour						
Minutes						

Measurement (Money)

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Money Coins Notes Pounds £ Pence p	Value Change				

Measurement (Properties of Shape)

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
2d shapes	Group	Line of symmetry	Right angle	Isosceles		Radius
Rectangle	Sort	Symmetrical	triangle	Equilateral		Diameter
Square	Sides	Mirror line	Heptagon	Scalene		Circumference
Circle	Corners	Reflection	Polygon	Trapezium		Dimensions
Triangle	Properties	Pattern	Properties	Rhombus		
Characteristics	Pyramids	Repeating pattern	Prism	Parallelogram		
3d shapes	Faces	Properties	Horizontal	Kite		
Cuboids	Pentagon	Edges	Vertical	Geometric shapes		
Cubes	Hexagon	Vertices	Perpendicular lines	Quadrilaterals		
Cone	Cylinder	Vertex	Parallel lines	Regular polygon		
Spheres	Octagon			Irregular polygon		
Curved	Hollow					
Straight	Solid					
Flat						

Measurement (Angles)

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			Orientations Angles Acute Obtuse Turn Right angles Half turn Three quarters of a turn Greater than a right angle Less than a right angle Horizontal lines Vertical lines Perpendicular lines Parallel lines Reflex angles Degrees		Angles of a straight line Angles around a point Vertically opposite Missing angles	

Geometry – Position and Direction

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Over	Position	Clockwise/anticlockwise		Co-ordinates	Reflection	Four quadrants
Under	Direction	Straight line		First quadrant		Co-ordinate
Between	Movement	Rotation		Grid		plane
Around	Whole turn	Arrange		Translation		
Through	Quarter turn	Sequences		Plot		
On	Half turn	Degree		Polygon		
Into	Three-quarter turn			X axis /Y Axis		
Next to	Left			Perimeter and area		
Behind	Right					
Beneath	Forwards					
Order	Backwards					
Repeat						
Patterns						
On top of						

Statistics

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Pictograms	Table	Time	Timetable	Pie chart
		Tally chart	Bar chart	graph	Two -way tables	Mean
		Tally	Carroll diagram	Discrete data		Construct
		Vote	Venn diagram	Continuous data		
		Represent	Axis	Line graph		
		Block diagram	Diagram	Comparison		
		Category	Frequency table	problem		
		Sorting		Calculate		
		Totalling		Interpret		
		Comparing				
		Horizontal				
		Vertical				
		Popular				