

Botley School Maths Progression Map

EYFS

In planning and guiding what children learn, practitioners must reflect on the different rates at which children are developing and adjust their practice appropriately. Three characteristics of effective teaching and learning are:

- playing and exploring - children investigate and experience things, and ‘have a go.’
- active learning - children concentrate and keep on trying if they encounter difficulties and enjoy achievements.
- creating and thinking critically - children have and develop their own ideas, make links between ideas, and develop strategies for doing things.

In addition, the Prime Areas of Learning (Personal, Social and Emotional Development, Communication and Language and Physical Development) underpin and are an integral part of children’s learning in all areas.

EYFS Mathematics (Statutory)

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to ten, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space, and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, ‘have a go,’ to talk to adults and peers about what they notice and not be afraid to make mistakes.

EYFS Mathematics

Number	Number facts	Numerical Patterns	Measure, Shape and Space	Key vocabulary
<ul style="list-style-type: none"> • Have a deep understanding of number to ten, including the composition of each number. • Subitise (recognise quantities without counting) up to five 	<ul style="list-style-type: none"> • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to ten, including double facts. 	<ul style="list-style-type: none"> • Verbally count beyond twenty, recognising the pattern of the counting system. • Compare quantities up to ten 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 ten, including evens and odds, double facts and how quantities can be distributed equally. 	<ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools, and techniques, experimenting with colour, design, texture, form, and function, including measuring. • Recognise a range of shapes and link items that have the same shape. 	<p>Use enriching and widening children’s vocabulary that will support later reading. comprehension</p> <p>See vocabulary sheets.</p>

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<ul style="list-style-type: none"> Count Read and write. Identify Represent 	<ul style="list-style-type: none"> Recall Count Add Subtract 	<ul style="list-style-type: none"> Count Compare Explore Represent 	<ul style="list-style-type: none"> Use Explore Recognise 	<ul style="list-style-type: none"> Use Explore
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	Nursery			Reception			
	Autumn	Spring	Summer	Autumn	Spring	Summer	ELG
Subitising	Subitising 1, 2, 3 Sto art with objects all the same i.e. red bears. Use a maximum of two different criteria e.g. red and yellow bears. Play games with die using 1, 2, 3. Quick reveal using objects. Using regular and irregular patterns Link to environment and tidying up (using die pattern) e.g. three pens in this pot, can you collect two balls			Perceptually subitise within 3 Identify sub-groups in larger arrangements. Create their own patterns for numbers within 4. Practise using their fingers to represent quantities which they can subitise. Experience subitising in a range of contexts, including temporal patterns made by sounds.	Increase confidence in subitising by continuing to explore patterns within five, including structured and random. arrangements Explore a range of patterns made by some numbers greater than five, including structured patterns in which five is a clear part. Experience patterns which show a small group and '1 more'. Continue to match arrangements to finger patterns.	Continue to practise increasingly familiar subitising arrangements, including those which expose '1 more' or 'doubles' patterns. Use subitising skills tenable them to identify when patterns show the same number but in a different arrangement, or when patterns are similar but have a different number. Subitise structured and unstructured patterns, including those which show numbers within ten, in relation to 5 and 10. Be encouraged to identify when it is appropriate to count and when groups can be subitised.	Number ELG: Children at the expected level of development will: Subitise (recognise quantities without counting) up to 5
Continue from first half-term Subitise within five, perceptually and conceptually, depending on the arrangements.				Explore symmetrical patterns, in which each side is a familiar pattern, linking these doubles.			

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Cardinality, Ordinality and counting	Counting: Saying number words in sequence Counting: Tagging each object with one number word Counting: Knowing the last number counted gives the total so far Subitising: Recognising small quantities without needing to count them all			Relate the counting sequence to cardinality, seeing that the last number spoken gives the number in the entire set. Have a wide range of opportunities to develop their knowledge of the counting sequence, including through rhyme and song. Have a wide range of opportunities to develop 1:1 correspondence, including by coordinating movement and counting Have opportunities to develop an understanding that anything can be counted, including actions and sounds. Explore a range of strategies which support accurate counting.	Continue to develop verbal counting to twenty and beyond. Continue to develop object counting skills, using a range of strategies to develop accuracy. Continue to link counting to cardinality, including using their fingers to represent quantities between 5 and 10. Order numbers, linking cardinal and ordinal representations of number.	Continue to develop verbal counting to twenty and beyond, including counting from different starting numbers. Continue to develop confidence and accuracy in both verbal and object counting.	Number ELG: Children at the expected level of development will: Subitise (recognise quantities without counting) up to 5. Numerical Patterns ELG: Children at the expected level of development will: Verbally count beyond twenty, recognising the pattern of the counting system. Compare quantities up to ten in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity
				Continue to develop their counting skills	Continue consolidate their understanding of cardinality, working with larger numbers within 10		
Composition	Sorting (as linked to odd and even)	Part-whole: Identifying smaller numbers with a number (conceptual subitising – seeing groups	Inverse operations	Explore the cardinality of five, linking this dice patterns and five fingers. on one hand Begin to count beyond 5 Begin recognising numerals, relating these quantities they can subitise and count.	Become more familiar with the counting pattern beyond 20.		
				See that all numbers can be made of 1s. Compose their own collections within 4.	Continue to explore the composition of five. and practise recalling ‘missing’ or ‘hidden’ parts for 5. Explore the composition of six, linking this familiar pattern, including symmetrical patterns. Begin see that numbers within ten can be composed of ‘5 and a bit’.	Explore the composition of 10.	Number ELG: Children at the expected level of development will: Have a deep understanding of number to ten, including the composition of each number. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to ten, including double facts.

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		and combining t a toto al)		Explore the concept of 'wholes' and 'parts' by looking at a range of objects that are composed of parts, some of which can be taken apart and some of which cannot. Explore the composition of numbers within 5.	Explore the composition of odd and even numbers, looking at the 'shape' of these numbers. Begin to link even numbers to doubles Begin to explore the composition of numbers within 10.		Numerical Patterns ELG: Children at the expected level of development will: Explore and represent patterns within numbers up to ten, including evens and odds, double facts and how quantities can be distributed equally.
Comparison	More than / less than		Identifying groups with the same number of things	Understand that sets can be compared according to a range of attributes, including by them. numerosity Use the language of comparison, including 'more than' and 'fewer than.' Compare sets 'just by looking.'	Continue to compare sets using the language of comparison and play games which involve comparing sets. Continue to compare sets by matching, identifying when sets are equal Explore ways of making unequal sets equal.	Order sets of objects, linking this to their understanding of the ordinal number system.	Number ELG: Children at the expected level of development will: Have a deep understanding of number to ten, including the composition of each number. Subitise (recognise quantities without counting) up to 5. Numerical Patterns ELG: Children at the expected level of development will: Compare quantities up to ten 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 ten, including evens and odds, double facts and how quantities can be distributed equally.
				Compare sets using a variety of strategies, including 'just by looking,' by subitising and by matching. Compare sets by matching, seeing that when every object in a set can be matched tone in the other set, they contain the same number and are equal amounts.	Compare numbers, reasoning about which is more, using both an understanding of the 'howmanyness' of a number, and its position in the number system.		
Shape and Space	Developing spatial awareness:	Developing spatial vocabulary	Representing spatial relationships	Showing awareness of properties of shape Describing properties of shape	Developing an awareness of relationships between shapes		
	Experiencing different viewpoints	Shape awareness: Developing shape awareness through construction	Identifying similarities between shapes				
Measure	Beginning to use time to sequence events through days of the week song timetable, routines, modelling sequencing events language and visual			Beginning to use time to sequence events through daily calendar and reciting of days of the week/months of the year, visual timetable, sequencing events etc.			

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	<p>Recognising attributes and adults modelling vocabulary during play (Maths specific vocabulary more than just big, small) Exploring measures in a variety of ways through play-based opportunities.</p>	<p>Comparing amounts of continuous quantities Children begin to use the mathematical vocabulary</p>	<p>Showing awareness of comparison in estimating and predicting e.g. thinking about which container they will need for a specific item</p>	<p>Comparing indirectly</p>	<p>Recognizing the relationship between the size and number of units including estimating how many units will be needed Beginning to use units to compare things. Children given opportunities to measure using units such as bricks, straws to measure weight, length, height</p>		
<p>Pattern <i>Ensuring a variety of criteria e.g. colour, type of object, shapes, natural, size etc.</i></p>	<p>Continuing an AB pattern e.g. stick, rock, stick, rock / red car, blue car, red car, blue car</p>	<p>Copying an AB pattern</p>	<p>Making own AB pattern Spotting an error in an AB pattern</p>	<p>Identifying the unit of repeat e.g. the red car, blue car is the unit of repeat</p>	<p>Continuing an ABC pattern Continuing a pattern which ends mid-unit e.g. red, blue, yellow, red, blue</p>	<p>Making own ABB, ABBC patterns Spotting an error in the pattern</p>	

Botley School Maths Progression Map

Key Stage 1

Purpose of Study

Mathematics is a creative and highly interconnected 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 principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time, and money. By the end of year 2, pupils should know the number bonds to twenty and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

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Key Stage 2

Purpose of Study

Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential everyday life, critical 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

Lower Key Stage 2 - The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the twelve multiplications to able and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling.

Upper Key Stage 2 - The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages, and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals, and percentages.

Pupils should read, spell, and pronounce mathematical vocabulary correctly.

Botley School Maths Progression Map

Number and Place Value

Strand	1	2	3	4	5	6
Number and place value.	<ul style="list-style-type: none"> • count to and across one hundred, forwards and backwards, beginning with 0 or 1, or from any given number. • count, read and write numbers to one hundred in numerals; count in multiples of 2s, 5s and 10s • given a number, identify one more and one less. • identify and represent numbers using objects and pictorial representations including the number line, and use the language of equal to, more than, less than (fewer), most, least. • read and write numbers from 1 to 20 in numerals and words 	<ul style="list-style-type: none"> • count in steps of 2, 3, and 5 from zero, and in tens from any number, forward and backward • recognise the place value of each digit in a two-digit number (10s, 1s) • identify, represent, and estimate numbers using different representations, including the number line. • compare and order numbers from 0 up to 100; use <, > and = signs • read and write numbers to at least one hundred in numerals and in words. • use place value and number facts to solve problems 	<ul style="list-style-type: none"> • count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. • recognise the place value of each digit in a 3-digit number (100s, 10s, 1s) • compare and order numbers up to 1,000. • identify, represent, and estimate numbers using different representations • read and write numbers up to 1,000 in numerals and in words • solve number problems and practical problems involving these ideas. 	<ul style="list-style-type: none"> • count in multiples of 6, 7, 9, 25 and 1,000 • identify 1,000 more or less than a given number. • count backwards through zero to include negative numbers. • recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s) • order and compare numbers beyond 1,000. • identify, represent, and estimate numbers using different representations. • round any number to the nearest 10, 100 or 1,000 • solve number and practical problems that involve all of the above and with increasingly large positive numbers. • read Roman numerals to one hundred (I tic) and know that over time, the numeral system changed to include the concept of 0 and place value 	<ul style="list-style-type: none"> • read, write, order, and compare numbers to at least 1,000,000 and determine the value of each digit. • count forwards or backwards in steps of powers of ten for any given number up to one million. • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. • round any number up to one million to the nearest 10, 100, 1,000, 10,000 and 100,000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1,000 (M) and recognise years written in Roman numerals 	<ul style="list-style-type: none"> • read, write, order, and compare numbers up to 10,000,000 and determine the value of each digit. • round any whole number to a required degree of accuracy • use negative numbers in context and calculate intervals across zero. • solve number and practical problems that involve all of the above

Botley School Maths Progression Map

Skills	<ul style="list-style-type: none"> • Count • Read and write. • Identify • Represent • Use 	<ul style="list-style-type: none"> • Count • Read and write. • Identify • Recognise • Represent • Use • Compare and order 	<ul style="list-style-type: none"> ○ Count ○ Read and write ○ Identify ○ Recognise ○ Represent ○ Use ○ Compare and order. ○ Estimate ○ Solve 	<ul style="list-style-type: none"> • Count • Read and write. • Identify • Recognise • Represent • Compare and order. • Estimate • Solve • Round 	<ul style="list-style-type: none"> • Count • Read and write. • Identify • Recognise • Represent • Compare and order. • Estimate • Solve • Round • Determine • Interpret 	<ul style="list-style-type: none"> • Read and write • Identify. • Recognise • Calculate • Compare and order. • Estimate • Solve • Round • Determine • Use
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Botley School Maths Progression Map

Addition and Subtraction

Strand	1	2	3	4	5	6
Addition and Subtraction	<ul style="list-style-type: none"> • 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 0 solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$ 	<ul style="list-style-type: none"> • solve problems with addition and subtraction: <ul style="list-style-type: none"> • using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods recall and use addition and subtraction facts up to 100 add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> • a two-digit number and 1s • a two-digit number and 10s • 2 two-digit numbers adding three one-digit numbers. • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems 	<ul style="list-style-type: none"> • add and subtract numbers mentally, including: <ul style="list-style-type: none"> • a three-digit number and 1s • a three-digit number and tens • a three-digit number and 100s • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. • estimate the answer to a calculation and use inverse operations to check answers. • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction 	<ul style="list-style-type: none"> • add and subtract numbers with up to four digits using the formal written methods of columnar addition and subtraction where appropriate. • estimate and use inverse operations to check answers to a calculation. • solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why 	<ul style="list-style-type: none"> • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) add and subtract numbers mentally with increasingly large numbers use rounding to check answers to calculate and determine, in the context of a problem, levels of accuracy solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why 	<ul style="list-style-type: none"> • perform mental calculations, including with mixed operations and large numbers use their knowledge of the order of operations to carry out calculations involving the Four operations solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition and subtraction use estimation to check answers to calculate and determine, in the context of a problem, an appropriate degree of accuracy

Botley School Maths Progression Map

Skills	<ul style="list-style-type: none"> • Read and write. • Interpret • Represent • Use • Add • Subtract 	<ul style="list-style-type: none"> • Recall • Check • Represent • Use • Add • Subtract • Solve • Apply • Mental methods • Prove (show) • Inverse 	<ul style="list-style-type: none"> • Add • Subtract • Use • Solve • Apply • Mental methods • Formal methods • Prove (show) • Inverse • Estimate • Calculate 	<ul style="list-style-type: none"> • Add • Subtract • Use • Solve • Apply • Mental methods • Formal methods • Prove/explain (why) • Inverse • Estimate • Calculate • Determine/decide 	<ul style="list-style-type: none"> • Add • Subtract • Use • Solve • Apply • Mental methods • Formal methods • Prove/explain (why) • Inverse • Estimate • Calculate • Determine/decide 	<ul style="list-style-type: none"> • Add • Subtract • Use • Solve • Apply • Mental methods • Formal methods • Prove/explain (why) • Inverse • Estimate • Calculate • Determine/decide
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Multiplication and Division

Strand	1	2	3	4	5	6
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Botley School Maths Progression Map

Multiplication and Division	<p>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</p>	<ul style="list-style-type: none"> recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts 	<ul style="list-style-type: none"> recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers of times one-digit numbers, using mental and progressing to formal written methods. solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected tm objects 	<ul style="list-style-type: none"> recall multiplication and division facts for multiplication tables up to 12×12 use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by one; multiplying together three numbers recognise and use factor pairs and commutativity in mental calculations. multiply two-digit and three-digit numbers by a one-digit number using formal written layout. solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected tm objects 	<ul style="list-style-type: none"> 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 (nonprime) numbers. establish whether a number up to one hundred is prime and recall prime numbers up to nineteen. multiply numbers up to four digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. multiply and divide numbers mentally, drawing upon known facts. divide numbers up to four digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000. recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) solve problems involving the four operations, including using their knowledge of factors and multiples, squares, and cubes: including scaling by simple fractions and problems involving simple rates 	<ul style="list-style-type: none"> multiply multi-digit numbers up to four digits by a two-digit whole number using the formal written method of long multiplication. divide numbers up to four digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. divide numbers up to four digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. perform mental calculations, including with mixed operations and large numbers. identify common factors, common multiples, and prime numbers. use their knowledge of the order of operations to carry out calculations involving the 4 operations. solve problems involving multiplication and division. use estimation to check answers to calculate and determine, in the context of a problem, an appropriate degree of accuracy
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Botley School Maths Progression Map

Skills	<ul style="list-style-type: none"> ● Solve ● Represent ● Multiplication ● Division ● Calculate 	<ul style="list-style-type: none"> ● Recall ● Use ● Multiplication ● Division ● Recognise Write Show ● Solve 	<ul style="list-style-type: none"> ● Recall ● Multiplication Division ● Recognise Write ● Formal/mental methods ● Scaling ● Solve ● Calculate 	<ul style="list-style-type: none"> ● Recall ● Multiplication Division ● Recognise Write ● Formal/mental methods ● Scaling ● Solve ● Calculate 	<ul style="list-style-type: none"> ● Identify ● Multiplication ● Division ● Recognise ● Know and use. ● Formal/mental methods ● Scaling Solve ● Calculate 	<ul style="list-style-type: none"> ● Identify ● Multiplication ● Division ● Recognise ● Know and use. ● Formal/mental methods ● Scaling Solve ● Estimate/calculate/check
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Fractions, Decimals and Percentages

Strand	1	2	3	4	5	6
Fractions, decimals and percentages	<p>recognise, find, and name a half as 1 of 2 equal parts of an object, shape or quantity</p> <p>recognise, find, and name a quarter as 1 of 4 equal parts of an object, shape, or quantity</p>	<p>recognise, find, name, and write fractions third, quarter, two quarters . t threequarters of a length, shape, set of objects or quantity write simple fractions.</p>	<ul style="list-style-type: none"> • count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. • recognise, find, and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. • recognise and show, using diagrams, equivalent fractions with small denominators. • add and subtract fractions with the same denominator within one whole. • compare and order unit fractions, and fractions with the same denominators. • solve problems that involve all of the above 	<ul style="list-style-type: none"> • recognise and show, using diagrams, families of common equivalent fractions. • count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10. • solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. • add and subtract fractions with the same denominator. • recognise and write decimal equivalents of any number of tenths or hundreds. • recognise and write decimal equivalents to quarter, half, and three-quarters. • find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths, and hundredths. • round decimals with 1 decimal place to the nearest whole number • compare numbers with the same number of decimal places up to two decimal places. • solve simple measure and money problems involving fractions and decimals to two decimal places 	<ul style="list-style-type: none"> • compare and order fractions whose denominators are all multiples of the same number. • identify, name, and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number. • add and subtract fractions with the same denominator, and denominators that are multiples of the same number. • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. • read and write decimal numbers as fractions. • recognise and use thousandths and relate them to tenths, hundredths, and decimal equivalents. • round decimals with two decimal places to the nearest whole number and to 1 decimal place • read, write, order, and compare numbers with up to 3 decimal places. • solve problems involving number up to three decimal places. • recognise the per cent symbol (%) and understand that per cent relates to number of parts per one hundred, and write percentages as a fraction with denominator 100, and as a decimal fraction. • solve problems which require knowing percentage and decimal equivalents of half, quarter, fifth, two-fifths, four fifths and those fractions with denominators of multiples of 10 or 25. 	<ul style="list-style-type: none"> • use common factors to simplify fractions; use common multiples to express fractions in the same denomination. • compare and order fractions, including fractions > 1. • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. • multiply simple pairs of proper fractions, writing the answer in its simplest form. • divide proper fractions by whole numbers. • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places. • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places. • 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

Botley School Maths Progression Map

Skills	<ul style="list-style-type: none"> ● recognise ● find ● name 	<ul style="list-style-type: none"> ● Recognise ● Find ● Name ● Write 	<ul style="list-style-type: none"> ● Count ● Find/Recognise ● Division ● Find ● Write ● Use/solve. ● Show ● Add/subtract fractions. ● Compare and order 	<ul style="list-style-type: none"> ● Count ● Recognise/identify. ● Division ● Find ● Write ● Use (including diagrams) ● Show ● Add/subtract fractions. ● Solve/calculate. ● Compare 	<ul style="list-style-type: none"> ● Count ● Recognise/identify. ● Division ● Find ● Write ● Use (including diagrams) ● Show ● Add/subtract fractions. ● Solve/calculate. ● Compare/order 	<ul style="list-style-type: none"> ● Count ● Recognise/identify/recall. ● Division ● Find ● Write ● Use (including diagrams) ● Show ● Add/subtract fractions. ● Solve/calculate. ● Compare/order
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Botley School Maths Progression Map

Measurement

Strand	1	2	3	4	5	6
Measurement	<ul style="list-style-type: none"> • compare, describe, and solve practical problems for: length and heights, mass/weight, capacity and volume, time. • measure and begin to record the following: length and heights, mass/weight, capacity and volume, time. • recognise and know the value of different denominations of coins and notes sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon, and evening] • recognise and use language relating to dates, including days of the week, weeks, months, and years tell the time to the hour and half past the hour and draw the hands on a clock face to show these times 	<ul style="list-style-type: none"> • choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and = recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value find different combinations of coins • 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 	<ul style="list-style-type: none"> • measure, compare, add, and subtract lengths (m/cm/mm); mass (kg/g); volume/capacity. (l/ml) • measure the perimeter of simple 2-D shapes. • add and subtract amounts of money to give change, using both £ and p in practical contexts. • tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. • estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon, and midnight. • know the number of seconds in a minute and the number of days in each month, year, and leap year. • compare durations of events 	<ul style="list-style-type: none"> • convert between different units of measure • measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. • find the area of rectilinear shapes by counting squares. • estimate, compare and calculate different measures, including money in pounds and pence. • read, write, and convert time between analogue and digit al 12- and 24-hour clocks. • solve problems involving converting from hours to minutes, minutes seconds, years months, weeks. days 	<ul style="list-style-type: none"> • convert between different units of metric measure. • understand and use approximate equivalences between metric units and common imperial units. • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. • calculate and compare the area of recto angles (including squares), including using standard units, square centimetres (cm²) and square metres (m²), and estimate the area of irregular shapes • estimate volume and capacity. • solve problems involving converting between units of time. • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling 	<ul style="list-style-type: none"> • solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation tup to 3 decimal places convert between miles and kilometres recognise that shapes with the same areas can have different perimeters and vice versa recognise when it is possible to use formulae for area and volume of shapes calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending tother units
Skills	<ul style="list-style-type: none"> • Compare and describe • Solve • Measure • Recognise • Know 	<ul style="list-style-type: none"> • Chose and use. • Estimate and measure. • Compare and order. • Recognise • Find and know. 	<ul style="list-style-type: none"> • Measure • Compare • Tell and write the time. • Estimate • Know 	<ul style="list-style-type: none"> • Measure • Compare • Read, tell, and write the time. • Estimate • Convert • Solve 	<ul style="list-style-type: none"> • Measure • Compare • Read, tell, and write the time. • Estimate • Convert • Solve 	<ul style="list-style-type: none"> • Use, read and write. • Compare • Convert • Estimate • Convert • Solve

Botley School Maths Progression Map

	<ul style="list-style-type: none"> ● Use ● Sequence ● Tell the time 	<ul style="list-style-type: none"> ● Solve ● Compare and sequence. ● Tell the time and write times 		<ul style="list-style-type: none"> ● Calculate 	<ul style="list-style-type: none"> ● Calculate 	<ul style="list-style-type: none"> ● Recognise ● Calculate
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Geometry

Strand	1	2	3	4	5	6
Geometry – Properties of shapes	<ul style="list-style-type: none"> ● recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> • 2-D shapes [for example, recto angles (including squares), circles and triangles] • 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] 	<ul style="list-style-type: none"> ● identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line. ● identify and describe the properties of 3-D shapes, including the number of edges, vertices, and faces. ● identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] ● compare and sort common 2-D and 3-D shapes and everyday objects. 	<ul style="list-style-type: none"> ● draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. ● 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 threequarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle. ● identify horizontal al and vertical lines and pairs of perpendicular and parallel lines 	<ul style="list-style-type: none"> ● compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. ● identify acute and obtuse angles and compare and order angles up t. Two right angles by size ● identify lines of symmetry in 2-D shapes presented in different orientations. ● complete a simple symmetric figure with respect to a specific line of symmetry. 	<ul style="list-style-type: none"> ● identify 3-D shapes, including cubes and other cuboids, from 2-D representations. ● know angles are measured in degrees: estimate and compare acute, obtuse, and reflex angles. ● draw given angles, and measure them in degrees (°) ● identify: <ul style="list-style-type: none"> • angles at a point and one whole turn (toto al 360°) • angles at a point on a straight line and half a turn (toto al 180°) • other multiples of 90° ● use the properties of recto angles to deduce related facts and find missing lengths and angles. ● distinguish between regular and irregular polygons based on reasoning about equal sides and angles. 	<ul style="list-style-type: none"> ● draw 2-D shapes using given dimensions and angles. ● recognise, describe, and build simple 3-D shapes, including making nets. ● compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons ● illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. ● recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
	<ul style="list-style-type: none"> ● describe position, direction and movement, 	<ul style="list-style-type: none"> ● order and arrange combinations of mathematical objects in patterns and sequences. 	<ul style="list-style-type: none"> ● Pupils connect decimals and rounding to drawing 	<ul style="list-style-type: none"> ● describe positions on a 2-D grid as coordinates in the first quadrant. 	<ul style="list-style-type: none"> ● identify, describe, and represent the position of a shape following a reflection or translation, using the 	<ul style="list-style-type: none"> ● describe positions on the full coordinate grid (all four quadrants)

Botley School Maths Progression Map

Geometry – Position and direction	including whole, half, quarter, and three-quarter turns	<ul style="list-style-type: none"> • 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) 	and measuring straight lines in centimetres, in a variety of contexts. (Non-statutory)	<ul style="list-style-type: none"> • describe movements between positions as translations of a given unit to the left/right and up/down • plot specified points and draw sides to complete a given polygon 	appropriate language, and know that the shape has not changed	<ul style="list-style-type: none"> • draw and translate simple shapes on the coordinate plane, and reflect them in the axes
Skills	<ul style="list-style-type: none"> • Recognise • Name • Describe 	<ul style="list-style-type: none"> • Identify • Describe • Compare • Sort • Order and arrange. • Use • Distinguish 	<ul style="list-style-type: none"> • Draw • Recognise • Identify • Connect 	<ul style="list-style-type: none"> • Classify • Compare • Identify • Complete symmetry • Describe • Plot 	<ul style="list-style-type: none"> • Draw and know. • Recognise and describe. • Build • Compare and classify. • Illustrate and name. • Distinguish • Represent 	<ul style="list-style-type: none"> • Draw • Recognise and describe. • Build • Compare and classify • Illustrate and name translate

Botley School Maths Progression Map

Additional Units of Work

Strand	1	2	3	4	5	6
<p>Extra units – Statistics (Y2, 3, 4, 5 and 6)</p> <p>Ratio and proportion – Y6 ONLY</p> <p>Algebra – Year 6 ONLY</p>	<p>N/A</p>	<ul style="list-style-type: none"> interpret and construct simple pictograms, to ally charts, block diagrams and tables. ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. ask-and-answer questions about totalling and comparing categorical data. 	<ul style="list-style-type: none"> interpret and present data using bar charts, pictograms, and tables. solve one-step and two-step questions [for example ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts, pictograms, and tables 	<ul style="list-style-type: none"> interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. solve comparison, sum, and difference problems using information presented in bar charts, pictograms, tables and other graphs 	<ul style="list-style-type: none"> solve comparison, sum, and difference problems using information presented in a line graph. complete, read and interpret information in tables, including timetables. 	<ul style="list-style-type: none"> Statistics interpret and construct pie charts and line graphs and use these to solve problems. calculate and interpret the mean as an average <hr/> <ul style="list-style-type: none"> Algebra use simple formulae. generate and describe linear number sequences. express missing number problems algebraically find pairs of numbers that satisfy an equation with two unknowns. enumerate possibilities of combinations of two variables <hr/> <ul style="list-style-type: none"> Ratio and Proportion solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison. solve problems involving similar shapes where the scale factor is known or can be found. solve problems involving unequal sharing and grouping using knowledge of fractions and multiples

Botley School Maths Progression Map

Skills		<ul style="list-style-type: none">• Interpret• Construct• Ask and answer	<ul style="list-style-type: none">• Interpret• Present• Solve	<ul style="list-style-type: none">• Interpret• Present• Solve	<ul style="list-style-type: none">• Complete• Read• Interpret Solve	<ul style="list-style-type: none">• Interpret• Construct• Use• Generate and describe.• Express Find Enumerate Solve
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