



# Mathematics Progression Map

## Intent

At Holy Trinity CE Academy, Mathematics is a fundamental part of each day. We believe that Maths teaches us how to make sense of the world around us. We aim to provide children with the skills in order to develop the ability to calculate, to communicate, to reason and to solve problems. This enables children to explore, understand and appreciate relationships and patterns in both number and shape in the everyday life. We wish to promote enjoyment and enthusiasm for learning through practical activity, cross curricular learning, exploration and discussion. We aim to promote confidence, resilience and competence with numbers and the number system through children working hard and pushing themselves to achieve.

We deliver the programme of study that meet the requirements of the National Curriculum 2014. We offer progression within fluency, reasoning and problem solving and in turn aim for children to become true masters of content, applying and being creative with new knowledge in multiple ways. We provide opportunities for children to challenge themselves, to develop communication skills, independence and cooperation when solving problems in order to take responsibility for their learning. This in turn will equip children with learning behaviours that will support them in to their adult life.

Key mathematical skills and knowledge are taught in the daily lesson and every effort is made to link mathematics with other areas of the curriculum. Mathematical possibilities are identified across the links between mathematics and other curricular work are made so children see that mathematics is not an isolated subject.

Maths vocabulary is used in the correct way in order to develop children's knowledge. Children are encouraged to use the correct mathematical language and terminology to discuss their mathematics and to explain their reasoning.

## Implementation

Teaching across the school is a gradual progression, based around a mastery approach using a spiral curriculum. EYFS start with singing and working with concrete manipulatives. There are significant links made to everyday life and this can be seen through play. In KS1 there is still a large emphasis on concrete manipulatives, connections to everyday life, repetition and consolidation of basic number skills that can be applied to calculations. In KS2 calculations are secured and problem solving and reasoning is emphasised to deepen understanding. Times tables are consolidated to the 12 times table by Year 4 who prepare for the MTC. Some manipulatives are still used for place value, decimals, weight and shape. Maths tools like times tables grids, 100 squares and place value chart are also used.

Reception to Y6 provide a daily maths lesson. Lessons are taught with a balance between whole class work, group teaching, practical tasks and individual practice to encourage mathematical talk, support and independence. First and foremost, we focus on effective and quality teaching for all. Lessons are taught in order to teach for secure and deep understanding of mathematical concepts. This is delivered in small, manageable steps. 'Cold Task' assessments are completed before the start of each unit from Year 1 to Year 6. From this, staff will identify any gaps in learning and any opportunities for pre-filling knowledge. Teachers use the outcomes of cold tasks to produce a weekly plan that states objectives which will be covered in each lesson and gives details of how they are going to be taught. These 'small steps' are



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planned using the White Rose Mastery resources. White Rose blocks have been adapted and moved to different points within the term, with most units being speared in to smaller blocks of learning. This is to provide time for reflection and revision of precious learning, as well as engaging children with a variety of topics over a term. At Holy Trinity we teach with a mastery approach in a spiral curriculum. A concept is taught and will be revisited the following term but in greater depth in order to build upon prior knowledge. We start with number (place value, addition/subtraction, multiplication/division) which is consolidated first before moving on to measurement, statistics and geometry. This is important as the children will then be able to use their number skills and then apply it to other mathematical disciplines. A progression map has been provided to all teachers so they understand where children are coming from and where they are headed. We tailor our sequential plans to individual cohorts, with all lessons differentiated so that all pupils may access the curriculum regardless of disadvantages or SEND.

Staff are aware and sensitive to the needs of all pupils. Based on the mastery approach, pupils who are sound with their fluency deepen their understanding with reasoning and problem solving. Pupils who are struggling to grasp a concept will have a teacher working and checking in with them during the lesson. They will also have the opportunity to revisit it with the teacher prior to the next lesson. We also use short term interventions to aide catch up and extension activities are offered to extend learning.

Pupils are seated in a variety of ways – in both ability groups and mixed groups depending upon the needs of the children within the lesson. A typical lesson will include the following elements; a mental oral starter each day; pre-filling if needed – addressing misconceptions, identifying prior learning links with new learning and introducing key vocabulary; a main teaching activity including progression in fluency, reasoning and problems solving tasks. Independent tasks are set for all children to access. A scaffold is provided for children who may need support (e.g. teacher/ TA support, use of apparatus, smaller steps). Challenges and extension tasks are set to stretch and apply thinking in a variety of contexts.

There are opportunities outside of the main lesson for children to revisit and revise prior learning. Reinforcement is often carried out during registration time. In EYFS the continuous provision supports the children's learning and in Year 1 there are weekly tasks for the children to access independently which reinforce and extend previous learning.

Staff have been provided with specific National College CPD recommendations in order to bolster their pedagogical knowledge. We hold a range of subscriptions of sites to help provide additional problem-solving resources: Classroom Secrets, Primary Stars (KS1), Mathletics (KS2). We hold ks2 booster/tutoring sessions. Formal assessment is used to identify any holes that need to be reviewed. Conversely it can be used to identify areas that have good fluency but need a deepening of understanding.



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## Impact

Progression is mapped out through the school using long term planning. By implementing the intent, children should be confident in the following areas:

- Being fluent in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Solving problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios
- Reasoning mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.
- Having an appreciation of number and number operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately to be successful in mathematics.

The assessment of maths is through a 'cold and hot task' process for units of work. Twice a year summative assessments are used. Target Tracker – the school's assessment system – is used for teachers to identify elements in children's independent work judging them as working towards, expected and greater depth within their current year group. Throughout the cycle the teacher will be responding to children's work, providing praise, support, encouragement and future improvement points to move their work forward.

Utilising Cultural Capital, our children learn maths as something that is fundamentally useful and can link to real life situations (keeping track of time, financial matters, graphs depicting geographical/scientific information and historical timelines e.g climate change, patterns in art etc).

It is the role of the maths lead in partnership with the SLT to ensure continuity and progression across the whole school. This is carried out through the following opportunities: book scrutinies, lesson observations with specific feedback and targets, learning walks, pupil voice and moderation meetings (both in school and with other schools in and outside of the LA). Key Stage meetings are also held on a regular basis, where teachers report to SLT. This information is used by the maths subject leader working with the Additional Needs Manager to amend any intervention groups and ensure that those children who are not working at age related expectations are provided with the support they need.

## Covid 19

Since the beginning of Covid 19 cold/hot tests have not been used to assess pupil knowledge and skills due to the vast amount of time over more than one academic year which some children have not been in school . The publication of the Ready To Progress statements by the DFE became the main assessment tool teachers worked to. This has ensured that there are not large gaps in learning and that teachers are



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able to backtrack to ensure coverage of objectives from prior year groups which had been missed. Staff Inservice training was carried out so that teachers felt confident to do this.  
 School will look to move back to the cold/hot tasks from September 2022 if our tracking system shows that gaps in learning have been filled.

Place Value								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value: Counting	<ul style="list-style-type: none"> <li>develop fast recognition of up to 3 objects, without having to count them individually ('subsidising')</li> <li>recite numbers past 5</li> <li>say one number for each item in order: 1, 2, 3, 4, 5</li> <li>know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principal')</li> </ul>	<ul style="list-style-type: none"> <li>count objects, actions and sounds, up to 10</li> <li>subitise with patterns, 5 and 10 frames, dots on dice, fingers, etc (up to 10)</li> <li>count beyond ten</li> <li>have a deep understanding of number to 10, including the composition of each number</li> <li>subitise (recognise quantities without counting) up to 5</li> <li>verbally count beyond 20, recognising the pattern of the counting system</li> </ul>	<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count numbers to 100 in numerals; count in multiples of twos, fives and tens</li> </ul>	<ul style="list-style-type: none"> <li>count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</li> </ul>	<ul style="list-style-type: none"> <li>count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</li> </ul>	<ul style="list-style-type: none"> <li>count in multiples of 6, 7, 9, 25 and 1000</li> <li>count backwards through zero to include negative numbers</li> </ul>	<ul style="list-style-type: none"> <li>count forwards and backwards in steps of powers of 10 for any given number up to 1,000,000</li> <li>count forwards and backwards with positive and negative whole numbers, including through zero</li> </ul>	
Place Value								



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	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value: Represent	<ul style="list-style-type: none"> <li>show 'finger numbers' up to 5</li> <li>experiment with their own symbols and marks as well as numerals</li> <li>link numerals and amounts [for example, showing the right number of objects to match the numeral, up to 5]</li> </ul>	<ul style="list-style-type: none"> <li>link the number symbol (numeral) with its cardinal number value, up to 10</li> </ul>	<ul style="list-style-type: none"> <li>identify and represent numbers using objects and pictorial representations</li> <li>read and write numbers to 100 in numerals</li> <li>read and write numbers from 1 to 20 in numerals and words</li> </ul>	<ul style="list-style-type: none"> <li>read and write numbers to at least 100 in numerals and in words</li> <li>identify, represent and estimate numbers using different representations, including the number line</li> </ul>	<ul style="list-style-type: none"> <li>read and write numbers to at least 1000 in numerals and in words</li> <li>identify, represent and estimate numbers using different representations</li> </ul>	<ul style="list-style-type: none"> <li>identify, represent and estimate numbers using different representations</li> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>read, write (order and compare) numbers to at least 1,000,000 and determine the value of each digit</li> <li>read Roman numerals to 1000 (M) and recognise years written in Roman numerals</li> </ul>	<ul style="list-style-type: none"> <li>read, write (order and compare) numbers to at least 10,000,000 and determine the value of each digit</li> </ul>
Place Value: Use PV and Compare	<ul style="list-style-type: none"> <li>compare quantities using language: 'more than', 'fewer than'</li> </ul>	<ul style="list-style-type: none"> <li>compare numbers using vocabulary: 'more than', 'less than', 'fewer', 'the same as', 'equal to'</li> <li>understand the 'one more than/one less than' relationship between consecutive numbers</li> <li>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity</li> </ul>	<ul style="list-style-type: none"> <li>given a number, identify one more and one less</li> </ul>	<ul style="list-style-type: none"> <li>recognise the place value of each digit in a two-digit number</li> <li>compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</li> </ul>	<ul style="list-style-type: none"> <li>recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li> <li>compare and order numbers up to 1000</li> </ul>	<ul style="list-style-type: none"> <li>find 1000 more or less than a given number</li> <li>recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, ones)</li> <li>order and compare numbers beyond 1000</li> </ul>	<ul style="list-style-type: none"> <li>(read, write) order and compare numbers to at least 1,000,000 and determine the value of each digit</li> </ul>	<ul style="list-style-type: none"> <li>(read, write) order and compare numbers to at least 10,000,000 and determine the value of each digit</li> </ul>



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## Place Value

Place Value								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value: Problem & Rounding				<ul style="list-style-type: none"> <li>• use place value and number facts to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>• solve number problems and practical problems involving these ideas</li> </ul>	<ul style="list-style-type: none"> <li>• round any number to the nearest 10, 100 or 1000</li> <li>• solve number and practical problems that involve all of the above with increasingly large positive numbers</li> </ul>	<ul style="list-style-type: none"> <li>• interpret negative numbers in context</li> <li>• round any number up to 1,000,000 to the nearest 10, 100, 1000, 10 000 and 100 000</li> <li>• solve number and practical problems that involve all of the above</li> </ul>	<ul style="list-style-type: none"> <li>• round any whole number to a required degree of accuracy</li> <li>• use negative numbers in context, and calculate intervals across zero</li> <li>• solve number and practical problems that involve all of the above</li> </ul>

## Addition & Subtraction



# Mathematics Progression Map

	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & Subtraction: Recall, Represent, Use		<ul style="list-style-type: none"> <li>• explore the composition of numbers to 10</li> <li>• automatically recall number bonds for numbers 0–10</li> <li>• 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</li> </ul>	<ul style="list-style-type: none"> <li>• read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs</li> <li>• represent and use number bonds and related subtraction facts within 20</li> </ul>	<ul style="list-style-type: none"> <li>• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> <li>• show the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> <li>• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems</li> </ul>	<ul style="list-style-type: none"> <li>• estimate the answer to the calculation and use inverse operations to check answers</li> </ul>	<ul style="list-style-type: none"> <li>• estimate and use inverse operations to check answers to a calculation</li> </ul>	<ul style="list-style-type: none"> <li>• use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</li> </ul>	

## Addition & Subtraction

	EYFS	KS1	KS2
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	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & Subtraction: Calculations			<ul style="list-style-type: none"> <li>• add and subtract one-digit and two-digit numbers to 20, including zero</li> </ul>	<ul style="list-style-type: none"> <li>• add and subtract numbers using concrete objects, pictorial representations, and mentally, including:               <ul style="list-style-type: none"> <li>➤ a two-digit number and ones</li> <li>➤ a two-digit number and tens</li> <li>➤ two two-digit numbers</li> <li>➤ adding three one-digit numbers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• add and subtract numbers mentally, including:               <ul style="list-style-type: none"> <li>➤ a three-digit number and ones</li> <li>➤ a three-digit number and tens</li> <li>➤ a three-digit number and hundreds</li> </ul> </li> <li>• add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</li> </ul>	<ul style="list-style-type: none"> <li>• add and subtract numbers with up to 4 digits using formal written methods of columnar addition and subtraction where appropriate</li> </ul>	<ul style="list-style-type: none"> <li>• add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</li> <li>• add and subtract numbers mentally with increasingly large numbers</li> </ul>	<ul style="list-style-type: none"> <li>• perform mental calculations, including with mixed operations and large numbers</li> <li>• use their knowledge of the order of operations to carry out calculations involving the four operations</li> </ul>

## Addition & Subtraction

	EYFS	KS1	KS2
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	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & Subtraction: Solve Problems	<ul style="list-style-type: none"> <li>• solve real world mathematical problems with numbers up to 5</li> </ul>	<ul style="list-style-type: none"> <li>• solve real world mathematical problems with numbers up to 10</li> </ul>	<ul style="list-style-type: none"> <li>• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math></li> </ul>	<ul style="list-style-type: none"> <li>• solve problems with addition and subtraction:               <ul style="list-style-type: none"> <li>➤ using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>➤ applying their increasing knowledge of mental and written methods</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</li> </ul>	<ul style="list-style-type: none"> <li>• solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why</li> </ul>	<ul style="list-style-type: none"> <li>• solve addition and subtraction multi-step problems and contexts, deciding which operations and methods to use and why</li> <li>• solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equal sign</li> </ul>	<ul style="list-style-type: none"> <li>• solve addition and subtraction multi-step problems and contexts, deciding which operations and methods to use and why</li> </ul>

## Multiplication & Division

	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & Division:		<ul style="list-style-type: none"> <li>• explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can</li> </ul>	<ul style="list-style-type: none"> <li>• count in 2s, 5s and 10s up to 100</li> </ul>	<ul style="list-style-type: none"> <li>• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> </ul>	<ul style="list-style-type: none"> <li>• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</li> </ul>	<ul style="list-style-type: none"> <li>• recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></li> <li>• use place value, known and derived facts to multiply</li> </ul>	<ul style="list-style-type: none"> <li>• identify multiples and factors, including finding all factor pairs of a numbers, and common factors of two numbers</li> </ul>	<ul style="list-style-type: none"> <li>• identify common factors, common multiples and prime numbers</li> <li>• use estimation to check answers to calculations and determine, in the</li> </ul>



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		be distributed equally		<ul style="list-style-type: none"> <li>show that multiplication of two numbers can be done in any order (commutative) and division of one number by any other cannot</li> </ul>		and divide mentally, including multiplying by 0 and 1; dividing by 1; multiplying together three numbers <ul style="list-style-type: none"> <li>recognise and use factor pairs and commutativity in mental calculations</li> </ul>	<ul style="list-style-type: none"> <li>know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</li> <li>establish whether a number up to 100 is prime and recall prime numbers up to 19</li> <li>recognise and use square numbers and cube numbers, and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>)</li> </ul>	context of a problem, an appropriate degree of accuracy
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Multiplication & Division								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & Division: Calculations				<ul style="list-style-type: none"> <li>calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs</li> </ul>	<ul style="list-style-type: none"> <li>write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including two-digit numbers times one-digit</li> </ul>	<ul style="list-style-type: none"> <li>multiply two-digit and three-digit numbers by a one-digit number using formal written layout</li> </ul>	<ul style="list-style-type: none"> <li>multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers</li> <li>multiply and divide numbers</li> </ul>	<ul style="list-style-type: none"> <li>multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</li> <li>divide numbers up to 4 digits by a two-digit whole number using the formal</li> </ul>



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					numbers, using mental and progressing to formal written methods		mentally drawing upon known facts <ul style="list-style-type: none"><li>• divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context</li><li>• multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</li></ul>	written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context <ul style="list-style-type: none"><li>• 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</li><li>• perform mental calculations, including with mixed operations and large numbers</li></ul>
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## Multiplication & Division

Multiplication & Division								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & Division: Solve Problems			<ul style="list-style-type: none"> <li>• 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</li> </ul>	<ul style="list-style-type: none"> <li>• solve problems using multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts</li> </ul>	<ul style="list-style-type: none"> <li>• solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which <math>n</math> objects are connected to <math>m</math> objects</li> </ul>	<ul style="list-style-type: none"> <li>• solve problems involving multiplying and adding, including using the distributive law to multiply two numbers by one digit, integer scaling problems and harder correspondence problems such as <math>n</math> objects are connected to <math>m</math> objects</li> </ul>	<ul style="list-style-type: none"> <li>• solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</li> <li>• solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</li> </ul>	<ul style="list-style-type: none"> <li>• solve problems involving addition, subtraction, multiplication and division</li> </ul>
Multiplication & Division: Combined Operations							<ul style="list-style-type: none"> <li>• solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equal sign</li> </ul>	<ul style="list-style-type: none"> <li>• use their knowledge of the order of operations to carry out calculations involving the four operations</li> </ul>



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## Fractions, Decimals & Percentages

Fractions, Decimals & Percentages								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions: Recognise and Write			<ul style="list-style-type: none"> <li>recognise, find and name a half as one of two equal parts of an object, shape or quantity</li> <li>recognise, find and name a quarter as one of four equal parts of an object, shape or quantity</li> </ul>	<ul style="list-style-type: none"> <li>recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</li> </ul>	<ul style="list-style-type: none"> <li>count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and dividing one-digit numbers or quantities by 10</li> <li>recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</li> <li>recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</li> </ul>	<ul style="list-style-type: none"> <li>count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten</li> </ul>	<ul style="list-style-type: none"> <li>identify, name and write equivalent fractions of a give fraction, represented visually, including tenths and hundredths</li> <li>recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt;1</math> as a mixed number [for example, <math>\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}</math>]</li> </ul>	
Fractions: Compare				<ul style="list-style-type: none"> <li>recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></li> </ul>	<ul style="list-style-type: none"> <li>recognise and show, using diagrams, equivalent fractions with small denominators</li> <li>compare and order unit</li> </ul>	<ul style="list-style-type: none"> <li>recognise and show, using diagrams, families of common equivalent fractions</li> </ul>	<ul style="list-style-type: none"> <li>compare and order fractions whose denominators are all multiples of the same number</li> </ul>	<ul style="list-style-type: none"> <li>use common factors to simplify fractions; use common multiples to express fractions in the same denomination</li> </ul>



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					fractions, and fractions with the same denominators			<ul style="list-style-type: none"> <li>compare and order fractions, including fractions <math>&gt;1</math></li> </ul>
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## Fractions, Decimals & Percentages

	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions: Calculations				<ul style="list-style-type: none"> <li>write simple fractions for example, <math>\frac{1}{2}</math> of 6 = 3</li> </ul>	<ul style="list-style-type: none"> <li>add and subtract fractions with the same denominator within one whole [for example, <math>\frac{5}{7} + \frac{1}{7} = \frac{6}{7}</math>]</li> </ul>	<ul style="list-style-type: none"> <li>add and subtract fractions with the same denominator</li> </ul>	<ul style="list-style-type: none"> <li>add and subtract fractions with the same denominator and denominators that are multiples of the same number</li> <li>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> </ul>	<ul style="list-style-type: none"> <li>add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li> <li>multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>]</li> <li>divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>]</li> </ul>



# Mathematics Progression Map

Fractions: Solve Problems					<ul style="list-style-type: none"><li>• solve problems that involve all of the above</li></ul>	<ul style="list-style-type: none"><li>• 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</li></ul>		

## Fractions, Decimals & Percentages

	EYFS	KS1	KS2
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# Mathematics Progression Map

	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Decimals: Recognise and Write						<ul style="list-style-type: none"> <li>• recognise and write decimal equivalents of any number of tenths or hundredths</li> <li>• recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math></li> </ul>	<ul style="list-style-type: none"> <li>• read and write decimal numbers as fractions [for example, <math>0.71 = \frac{71}{100}</math>]</li> <li>• recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</li> </ul>	<ul style="list-style-type: none"> <li>• identify the value of each digit in numbers given to three decimal places</li> </ul>
Decimals: Compare						<ul style="list-style-type: none"> <li>• round decimals with one decimal place to the nearest whole number</li> <li>• compare numbers with the same number of decimal places up to two decimal places</li> </ul>	<ul style="list-style-type: none"> <li>• round decimals with two decimal places to the nearest whole number and to one decimal place</li> <li>• read, write order and compare numbers with up to three decimal places</li> </ul>	

## Fractions, Decimals & Percentages

	EYFS	KS1	KS2
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# Mathematics Progression Map

	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Decimals: Calculations and Problems						<ul style="list-style-type: none"><li>• find the effect of dividing a one- of two-digit number by 10 and 100, identifying the value of digits in the answer as ones, tenths and hundredths</li></ul>	<ul style="list-style-type: none"><li>• solve problems involving number up to three decimal places</li></ul>	<ul style="list-style-type: none"><li>• multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</li><li>• multiply one-digit numbers with up to two decimal places by whole numbers</li><li>• use written division methods in cases where the answer has up to two decimal places</li><li>• solve problems which require answers to be rounded to specified degrees of accuracy</li></ul>

Fractions, Decimals & Percentages



# Mathematics Progression Map

	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions, Decimals and Percentages						<ul style="list-style-type: none"> <li>• solve simple measure and money problems involving fractions and decimals to two decimal places</li> </ul>	<ul style="list-style-type: none"> <li>• recognise the percent symbol (%) and understand that percent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal</li> <li>• solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25</li> </ul>	<ul style="list-style-type: none"> <li>• associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, <math>\frac{3}{8}</math>]</li> <li>• recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</li> </ul>

Ratio & Proportion			
	EYFS	KS1	KS2



# Mathematics Progression Map

	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ratio and Proportion								<ul style="list-style-type: none"><li>• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</li><li>• solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</li><li>• solve problems involving similar shapes where the scale factor is known or can be found</li><li>• solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</li></ul>



# Mathematics Progression Map

Algebra							
EYFS		KS1		KS2			
3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<ul style="list-style-type: none"> <li>• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math></li> </ul>	<ul style="list-style-type: none"> <li>• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul>	<ul style="list-style-type: none"> <li>• solve problems, including missing number problems</li> </ul>			<ul style="list-style-type: none"> <li>• use simple formulae</li> <li>• generate and describe linear number sequences</li> <li>• express missing number problems algebraically</li> <li>• find pairs of numbers that satisfy an equation with two unknowns</li> <li>• enumerate possibilities of combinations of two variables</li> </ul> <p style="text-align: right;"><b>Spring 3</b></p>

Note – although algebraic notation is not introduced until Y6, algebraic thinking starts much earlier as exemplified by the ‘missing number’ objectives from Y1/2/3



# Mathematics Progression Map

## Measurement

Measurement								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measurement: Using Measures	<ul style="list-style-type: none"> <li>• make comparisons between objects relating to size, length, weight and capacity</li> </ul>	<ul style="list-style-type: none"> <li>• compare length, weight and capacity by making predictions and using vocabulary 'than' [for example, "This is heavier than that."]</li> </ul>	<ul style="list-style-type: none"> <li>• compare, describe and solve practical problems for:               <ul style="list-style-type: none"> <li>➤ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</li> <li>➤ mass/weight [for example, heavy/light, heavier/lighter, lighter than]</li> <li>➤ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</li> <li>➤ time [for example, quicker, slower, earlier, later]</li> </ul> </li> <li>• measure and begin to record the following:               <ul style="list-style-type: none"> <li>➤ lengths and heights</li> <li>➤ mass/weight</li> <li>➤ capacity and volume</li> <li>➤ time (hours, minutes, seconds)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• 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</li> <li>• compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =</li> </ul>	<ul style="list-style-type: none"> <li>• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</li> </ul>	<ul style="list-style-type: none"> <li>• Convert between different units of measure [for example, kilometre to metre; hour to minute]</li> <li>• estimate, compare and calculate different measures</li> </ul>	<ul style="list-style-type: none"> <li>• convert between different units of metric measure (for example, kilometre and metre; centimetre and metre, centimetre and millimetre; gram and kilogram; litre and millilitre)</li> <li>• understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</li> <li>• use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling</li> </ul>	<ul style="list-style-type: none"> <li>• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</li> <li>• 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 three decimal places</li> <li>• convert between miles and kilometres</li> </ul>



# Mathematics Progression Map

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Measurement								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measurement: Money			<ul style="list-style-type: none"> <li>recognise and know the value of different denominations of coins and notes</li> </ul>	<ul style="list-style-type: none"> <li>recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>find different combinations of coins that equal the same amounts of money</li> <li>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</li> </ul>	<ul style="list-style-type: none"> <li>add and subtract amounts of money to give changes, using both £ and p in practical contexts</li> </ul>	<ul style="list-style-type: none"> <li>estimate, compare and calculate different measures, including money in pounds and pence</li> </ul>	<ul style="list-style-type: none"> <li>use all four operations to solve problems involving measure [for example, money]</li> </ul>	



# Mathematics Progression Map

## Measurement

Measurement								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measurement: Time	<ul style="list-style-type: none"> <li>begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'</li> </ul>		<ul style="list-style-type: none"> <li>sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</li> <li>recognise and use language relating to dates, including days of the week, weeks, months and years</li> <li>tell the time to the hour and half past the hour and draw the hands on a clock face to show these times</li> </ul>	<ul style="list-style-type: none"> <li>compare and sequence intervals of time</li> <li>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</li> <li>know the number of minutes in an hour and the number of hours in a day</li> </ul>	<ul style="list-style-type: none"> <li>tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</li> <li>estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight</li> <li>know the number of seconds in a minute and the number of days in each month, year and leap year</li> <li>compare durations of events [for example to calculate the time taken by particular events or tasks]</li> </ul>	<ul style="list-style-type: none"> <li>read, write and convert time between analogue and digital 12- and 24- hour clocks</li> <li>solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</li> </ul>	<ul style="list-style-type: none"> <li>solve problems involving converting between units of time</li> </ul>	<ul style="list-style-type: none"> <li>use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa</li> </ul>



# Mathematics Progression Map

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## Measurement

	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measurement: Perimeter, Area, Volume					<ul style="list-style-type: none"> <li>• measure the perimeter of simple 2-D shapes</li> </ul>	<ul style="list-style-type: none"> <li>• measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</li> <li>• find the area of rectilinear shapes by counting squares</li> </ul>	<ul style="list-style-type: none"> <li>• measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</li> <li>• calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes</li> <li>• estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for</li> </ul>	<ul style="list-style-type: none"> <li>• recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>• recognise when it is possible to use formulae for area and volume of shapes</li> <li>• calculate the area of parallelograms and triangles</li> <li>• calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other</li> </ul>





# Mathematics Progression Map

							example, using water]	units [for example, mm <sup>3</sup> and km <sup>3</sup> ]
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Geometry								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Geometry: 2-D Shapes	<ul style="list-style-type: none"> <li>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'.</li> </ul>	<ul style="list-style-type: none"> <li>select, rotate and manipulate shapes in order to develop spatial reasoning skills</li> <li>compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can</li> </ul>	<ul style="list-style-type: none"> <li>recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles]</li> </ul>	<ul style="list-style-type: none"> <li>identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</li> <li>identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</li> <li>compare and sort common 2-D shapes and everyday objects</li> </ul>	<ul style="list-style-type: none"> <li>draw 2-D shapes</li> </ul>	<ul style="list-style-type: none"> <li>compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</li> <li>identify lines of symmetry in 2-D shapes presented in different orientations</li> </ul>	<ul style="list-style-type: none"> <li>distinguish between regular and irregular polygons based on reasoning about equal sides and angles</li> <li>use the properties of rectangles to deduce related facts and find missing lengths and angles</li> </ul>	<ul style="list-style-type: none"> <li>draw 2-D shapes using given dimensions and angles</li> <li>compare and classify geometric shapes based on their properties and sizes</li> <li>illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</li> </ul>



# Mathematics Progression Map

Geometry: 3-D Shapes	<ul style="list-style-type: none"> <li>select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.</li> <li>combine shapes to make new ones - an arch, a bigger triangle etc.</li> </ul>	<ul style="list-style-type: none"> <li>select, rotate and manipulate shapes in order to develop spatial reasoning skills</li> </ul>	<ul style="list-style-type: none"> <li>recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]</li> </ul>	<ul style="list-style-type: none"> <li>recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]</li> <li>compare and sort common 3-D shapes and everyday objects</li> </ul>	<ul style="list-style-type: none"> <li>make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</li> </ul>		<ul style="list-style-type: none"> <li>identify 3-D shapes, including cubes and other cuboids, from 2-D representations</li> </ul>	<ul style="list-style-type: none"> <li>recognise, describe and build simple 3-D shapes, including making nets</li> </ul>

Geometry								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Geometry: Angles & Lines					<ul style="list-style-type: none"> <li>recognise angles as a property of shape of a description of a turn</li> <li>identify right angles, recognise that two right angles make a half-turn, three make three quarters of a</li> </ul>	<ul style="list-style-type: none"> <li>identify acute and obtuse angles and compare and order angles up to two right angles by size</li> <li>identify lines of symmetry in 2-D shapes presented in different orientations</li> </ul>	<ul style="list-style-type: none"> <li>know angles are measure in degrees: estimate and compare acute, obtuse and reflex angles</li> <li>draw given angles, and measure them in degrees</li> <li>identify:</li> </ul>	<ul style="list-style-type: none"> <li>find unknown angles in any triangles, quadrilaterals, and regular polygons</li> <li>recognise angles where they meet at a point, are on a straight line, or are vertically opposite,</li> </ul>



# Mathematics Progression Map

					<p>turn and four a complete turn; identify whether angles are greater than or less than a right angle</p> <ul style="list-style-type: none"> <li>• identify horizontal and vertical lines and pairs of perpendicular and parallel lines</li> </ul>	<ul style="list-style-type: none"> <li>• complete a simple symmetric figure with respect to a specific line of symmetry</li> </ul>	<ul style="list-style-type: none"> <li>➤ angles at a point and one whole turn (total 360°)</li> <li>➤ angles at a point on a straight line and ½ a turn (total 180°)</li> <li>➤ other multiples of 90°</li> </ul>	and find missing angles
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Geometry								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Geometry: Position &amp; Direction</b>	<ul style="list-style-type: none"> <li>• understand position through words alone – for example, “The bag is under the table,” – with no pointing</li> <li>• describe a familiar route</li> <li>• discuss routes and locations, using words like ‘in</li> </ul>	<ul style="list-style-type: none"> <li>• continue, copy and create repeating patterns [including AB, ABB and ABBC]</li> </ul>	<ul style="list-style-type: none"> <li>• describe position, direction and movement, including whole, half, quarter and three-quarter turns</li> </ul>	<ul style="list-style-type: none"> <li>• order and arrange combinations of mathematical objects in patterns and sequences</li> <li>• use mathematical vocabulary to describe position, direction and movement,</li> </ul>		<ul style="list-style-type: none"> <li>• describe positions on a 2-D grid as coordinates in the first quadrant</li> <li>• describe movements between positions as translations of a given unit to the</li> </ul>	<ul style="list-style-type: none"> <li>• 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</li> </ul>	<ul style="list-style-type: none"> <li>• describe positions on the full coordinate grid (all four quadrants)</li> <li>• draw and translate simple shapes on the coordinate plane, and reflect them in the axes</li> </ul>



# Mathematics Progression Map

	<p>front of' and 'behind'</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• extend and create ABAB patterns – stick, leaf, stick, leaf</li> <li>• notice and correct an error in a repeating pattern</li> </ul>			<p>including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)</p>		<p>left/right and up/down</p> <ul style="list-style-type: none"> <li>• plot specified points and draw sides to complete a given polygon</li> </ul>		
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Statistics								
	EYFS		KS1		KS2			
	3-4 Years	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Statistics: Present &				<ul style="list-style-type: none"> <li>• interpret and construct simple pictograms, tally charts, block diagrams and simple tables</li> </ul>	<ul style="list-style-type: none"> <li>• interpret and present data using bar charts, pictograms and tables</li> </ul>	<ul style="list-style-type: none"> <li>• interpret and present discrete and continuous data using appropriate graphical methods, including bar</li> </ul>	<ul style="list-style-type: none"> <li>• complete, read and interpret information in tables, including timetables</li> </ul>	<ul style="list-style-type: none"> <li>• interpret and construct pie charts and line graphs and use these to solve problems</li> </ul>



# Mathematics Progression Map

						charts and time graphs		
<b>Statistics: Solve Problems</b>				<ul style="list-style-type: none"> <li>ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li> <li>ask and answer questions about totalling and comparing categorical data</li> </ul>	<ul style="list-style-type: none"> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>solve comparison sum and different problems using information presented in bar charts, pictograms, tables and other graphs</li> </ul>	<ul style="list-style-type: none"> <li>solve comparison, sum and difference problems using information presented in a line graph</li> </ul>	<ul style="list-style-type: none"> <li>calculate and interpret the mean as an average</li> </ul>