

Kent Tracking Statements to support Assessment in the Primary Mathematics National Curriculum 2014

Overview

Kent Local Authority has produced the following guidance to help primary schools with their assessment without levels, within and across year groups in the new Primary Mathematics Curriculum. The document has been designed to allow schools to track pupil progress in maths, support progression and ensure that children are given the appropriate breadth of experience.

The mathematics programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Mathematics programmes of study: key stages 1 and 2 National Curriculum in England September 2014 DfE

It is expected that, by the end of each key stage, the majority of pupils will meet the programme of study. Schools can interpret each programme at their own discretion, provided that the curriculum demands have been met by the end of each programme.

It will be a challenge, at the end of each academic year, to establish whether or not pupils are on track to meet the end of key stage requirements. Schools will want to track pupils year by year, and within year, in order to make judgements about pupils' attainment and progress.

In response to this, we have developed a series of statements which aim to make this more manageable. As in the programmes of study, expectations for mathematics are given as separate year groups. Where year groups are mixed, schools can select appropriately from the statements, according to their chosen contexts for learning and to meet the needs of their pupils. Provided the end of key stage expectations have been met, the order in which some requirements are achieved has inbuilt flexibility.

A set of statements has been created for each strand across each key stage using the following headings:

Number and Place Value

- ☐ Number and place value
- ☐ Addition and subtraction
- ☐ Multiplication and division
- ☐ Fractions
- ☐ Ratio and proportion (Y6)
- ☐ Algebra (Y6)

Geometry and measures

- ☐ Measures
- ☐ Properties of shapes
- ☐ Position and movement
- ☐ Statistics

In the assessment of children's attainment, it is vital that teachers understand and use the aims of the mathematics curriculum 2014.

The National Curriculum sets out aims which should underpin all mathematics teaching at KS1 and KS2 and should ensure that pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately

- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.

It is through these aims that children will develop a deep conceptual understanding of mathematics rather than a focus on process learning. Children who are to be assessed as 'exceeding' need to demonstrate excellent conceptual understanding as well as a strong ability to reason, generalise and discuss their mathematical understanding.

Statements have been prepared to match as closely as possible to the 'expected' or 'at national' standard for each year group, together with statements to support teachers to make judgements about those pupils working at levels exceeding the national standards.

As far as possible, and where relevant, statements match in context between each of the three standards: emerging/expected/exceeding.

How to use the Tracking Statements

While we await confirmation from the DfE agreed performance descriptors, schools will need support to help them make judgements about whether pupils have reached their age related expectations. There is no guidance yet as to the weighting which may be awarded to the different elements of the mathematics programmes of study. However, it is clear that fluency, problem solving and reasoning are key aspects of understanding and therefore evidence should also be collected for these. Therefore, it is appropriate to establish a 'best fit' judgement of pupil attainment across a broad range of evidence. Those pupils for whom there is insufficient evidence of work at age related statements should be assessed as 'below' their national standard.

Year 1 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Count to and across 20, forwards and backwards, beginning with 0 or 1, or from any given number. <input type="checkbox"/> Count, read and write numbers to 10 in numerals. <input type="checkbox"/> Given a number, identify 1 more and 1 less. <input type="checkbox"/> Identify and represent numbers using objects and pictorial representations. <input type="checkbox"/> Use the language of: more than, less than (fewer), most, least <input type="checkbox"/> Read and write numbers from 1 to 10 in numerals and words. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Find the total of two groups by combining. <input type="checkbox"/> Calculate subtractions through taking away. <input type="checkbox"/> Represent addition and subtraction calculations using objects and pictorial representations. <input type="checkbox"/> Know and use addition and subtraction number facts to 5 and some facts to 10. <input type="checkbox"/> Add and subtract one-digit numbers. <input type="checkbox"/> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Begin to recall doubles and halves of numbers to 5. <input type="checkbox"/> Count in multiples of 2 and 10. <input type="checkbox"/> Solve simple problems involving grouping and sharing with pictorial representations and arrays with the support of the teacher. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity.

Year 1 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. <input type="checkbox"/> Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s. <input type="checkbox"/> Given a number, identify 1 more and 1 less. <input type="checkbox"/> 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. <input type="checkbox"/> Read and write numbers from 1 to 20 in numerals and words. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs. <input type="checkbox"/> Represent and use number bonds and related subtraction facts within 20. <input type="checkbox"/> Add and subtract one-digit and two-digit numbers to 20, including 0. <input type="checkbox"/> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity. <input type="checkbox"/> Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity.

Year 1 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Exceeding	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate fluency when counting to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number and when counting in multiples of 2s, 5s and 10s. <input type="checkbox"/> Consistently identify 1 more and 1 less from a given number and use in solving problems. <input type="checkbox"/> Identify and represent numbers using increasingly complex representations including the number line. <input type="checkbox"/> Consistently use the language of: equal to, more than, less than (fewer), most, least accurately when comparing numbers and expressions. 	<p>All aspects of addition and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs. <input type="checkbox"/> Recall and use number facts to 20 fluently and use these to derive new unknown facts. <input type="checkbox"/> Add and subtract one-digit and two-digit numbers to 20 mentally. <input type="checkbox"/> Solve two-step problems that involve addition and subtraction, using concrete objects and pictorial representations. <input type="checkbox"/> Solve missing number problems using a wider range of numbers. 	<p>All aspects of multiplication and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Count in 2s, 5s, and 10 from 0 to answer questions involving x facts. <input type="checkbox"/> Begin to understand division as the inverse of multiplication and use facts in problem solving. <input type="checkbox"/> Recall doubles and halves of numbers to 20. <input type="checkbox"/> Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays. 	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise, find and name a half and quarter of a length, shape, set of objects or quantity.

Year 1 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use the language of measures to make direct comparisons between 2/3 objects. <input type="checkbox"/> Solve simple measure problems (length, mass/weight, capacity and volume and time) in a practical context using direct comparison and non-standard units. <input type="checkbox"/> Recognise and sort coins to £1. <input type="checkbox"/> Use language related to time e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. <input type="checkbox"/> Tell the time to the nearest hour. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise and name some common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> ➤ 2-D shapes [for example, rectangles (including squares), circles and triangles] ➤ 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] <input type="checkbox"/> Sort shapes based on simple properties. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe position, direction and movement, including whole, half -turns.

Year 1 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Compare, describe and solve practical problems for: <ul style="list-style-type: none"> ➤ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] ➤ mass/weight [for example, heavy/light, heavier than, lighter than] ➤ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] ➤ time [for example, quicker, slower, earlier, later] <input type="checkbox"/> Measure and begin to record the following: <ul style="list-style-type: none"> ➤ lengths and heights ➤ mass/weight ➤ capacity and volume ➤ time (hours, minutes, seconds) ➤ recognise and know the value of different denominations of coins and notes ➤ sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] . <input type="checkbox"/> Recognise and use language relating to dates, including days of the week, weeks, months and years. <input type="checkbox"/> Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> ➤ 2-D shapes [for example, rectangles (including squares), circles and triangles] ➤ 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Year 1 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement
Exceeding	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use knowledge of measures in solving problems of increasingly complexity. <input type="checkbox"/> Solve more complex problems involving money and other measures including time. <input type="checkbox"/> Be able to apply knowledge of measures to other curriculum areas in practical activities. 	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Compare and sort shapes using 1 criterion. <input type="checkbox"/> Recognise and name common 2-D and 3-D shapes, describing their properties using increasingly sophisticated mathematical vocabulary. <input type="checkbox"/> Reason about and solve more complex problems relating to shapes and their properties. 	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply knowledge of position to problem solving across the curriculum. <input type="checkbox"/> Solve more complex problems involving position and movement.

Year 2 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Count to and across 100, forwards or backwards, beginning with 0 or 1, or from any given number. <input type="checkbox"/> Count in multiples of 2s, 5s and 10s. <input type="checkbox"/> Count in steps of 10 within 100, starting from any number. <input type="checkbox"/> Read and write numbers from 1 to 100 in numerals, and up to 20 in words (not necessarily spelled correctly). <input type="checkbox"/> Use the place value of each digit to order numbers to 100. <input type="checkbox"/> Know the number that is 1 more and 1 less than any number up to 100. <input type="checkbox"/> Use the language of least. <input type="checkbox"/> Identify and represent numbers using objects, structured apparatus and number lines. <input type="checkbox"/> Use place value and number facts to solve simple problems. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recall and use addition and subtraction facts for all numbers up to 10. <input type="checkbox"/> Add and subtract numbers mentally, including: 2 single-digit numbers, a number up to 20 and 1s. <input type="checkbox"/> Add and subtract numbers using concrete objects, pictorial representations and the written columnar method including: a two-digit number and 1, adding 3 single-digit numbers with a total up to 20. <input type="checkbox"/> Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=). <input type="checkbox"/> Solve missing number addition problems involving single-digit numbers. <input type="checkbox"/> Solve simple 1 or 2 step problems with addition and subtraction. <input type="checkbox"/> Show that addition can be done in any order (commutative). 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recall multiplication facts for the 10 multiplication table and use them to derive division facts, and count in steps of 10 to answer questions. <input type="checkbox"/> Recall and use doubling and halving facts for numbers up to double 10 and other significant doubles. <input type="checkbox"/> Recognise odd and even numbers to 20. <input type="checkbox"/> Solve simple problems involving grouping and sharing, using objects, pictorial representations and arrays. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity. <input type="checkbox"/> Begin to solve simple problems involving fractions.

Year 2 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. Recognise the place value of each digit in a two-digit number (tens, ones). Identify, represent and estimate numbers using different representations, including the number line. Compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs. Read and write numbers to at least 100 in numerals and in words. Use place value and number facts to solve problems. 	<p>Sufficient evidence shows the ability to:</p> <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 to 20 fluently, and derive and use related facts up to 100. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, two two-digit numbers. Add 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. 	<p>Sufficient evidence shows the ability to:</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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> Recognise, find, name and write fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ of a length, shape, set of objects or quantity. Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.

Year 2 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Exceeding	<p>All aspects of number and place value at the national standard are embedded. Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate fluency and reasoning in counting forwards and backwards in steps of 2, 5 and 10 including from different starting points and using numbers beyond 100. <input type="checkbox"/> Consistently use less than (<), equals (=) and greater than (>) signs correctly when comparing numbers and expressions. <input type="checkbox"/> Identify and represent numbers using different representations including more complex number lines. <input type="checkbox"/> Demonstrate reasoning about place value and number facts to solve more complex problems. 	<p>All aspects of addition and subtraction at the national standard are embedded. Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recall and use addition and subtraction facts to 20 fluently; derive and use related facts to 100 and beyond. <input type="checkbox"/> Add and subtract numbers mentally using appropriate strategies, including: 2 2-digit numbers, adding /subtracting several single-digit numbers. <input type="checkbox"/> Add and subtract numbers using objects, pictorial representations and the written columnar method including: adding several 2-digit numbers, subtracting 2-digit numbers, adding a 2-digit number to a 3-digit number, adding 3-digit numbers. <input type="checkbox"/> Solve missing number problems involving a wider range of numbers. <input type="checkbox"/> Use addition and subtraction facts to solve more complex problems, such as 3 step problems. 	<p>All aspects of multiplication and subtraction at the national standard are embedded. Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Rapidly recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables and write mathematical statements using the multiplication (\times), division (\div) and equals (=) signs. <input type="checkbox"/> Count in 3s to solve multiplication and division problems for the 3 multiplication table. <input type="checkbox"/> Solve more complex problems involving multiplication and division in a range of contexts including measures. <input type="checkbox"/> Make connections between place value and multiplication/division by 10 and use known multiplication and division facts to derive others. 	<p>All aspects of fractions at the national standard are embedded. Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Express more complex problems using fraction notation and solve them.

Year 2 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Measure and begin to record the following: <ul style="list-style-type: none"> ➤ lengths and heights ➤ mass/weight ➤ volume/capacity ➤ time. <input type="checkbox"/> Recognise and know the value of different denominations of coins and notes. <input type="checkbox"/> Begin to recognise and use the symbols for pounds (£) and pence (p). <input type="checkbox"/> Combine amounts to make small values. <input type="checkbox"/> Sequence the events of several days in chronological order using appropriate language. <input type="checkbox"/> Tell the time to half past the hour; turn the hands of a geared clock to show these times; draw hands on a clock face to show o'clock times. <input type="checkbox"/> Recognise and use language relating to dates, including days of the week, weeks, months and years. <input type="checkbox"/> Know there are 7 days in a week. <input type="checkbox"/> Know the name of the day before or after a given day. <input type="checkbox"/> Solve simple measure problems in a practical context using standardised units. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise, name and describe the properties of common 2-D shapes including pentagons and hexagons. <input type="checkbox"/> Recognise, name and describe the properties of common 3-D shapes including cones and spheres. <input type="checkbox"/> Solve simple problems involving shapes. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe position, directions and movement, including whole, half, quarter and three-quarter turns. <input type="checkbox"/> Solve simple problems involving position and direction. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Interpret and construct simple pictograms where the picture is worth 1 unit. <input type="checkbox"/> Interpret simple tally charts and block diagrams. <input type="checkbox"/> Ask and answer questions that require counting the number of objects in each category.

Year 2 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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. <input type="checkbox"/> Compare and order lengths, mass, volume/capacity and record the results using >, < and =. <input type="checkbox"/> Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value <input type="checkbox"/> Find different combinations of coins that equal the same amounts of money. <input type="checkbox"/> Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. <input type="checkbox"/> Compare and sequence intervals of time. <input type="checkbox"/> 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. <input type="checkbox"/> Know the number of minutes in an hour and the number of hours in a day. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. <input type="checkbox"/> Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. <input type="checkbox"/> Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]. <input type="checkbox"/> Compare and sort common 2-D and 3-D shapes and everyday objects. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Order and arrange combinations of mathematical objects in patterns and sequences. <input type="checkbox"/> 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). 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. <input type="checkbox"/> Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. <input type="checkbox"/> Ask and answer questions about totalling and comparing categorical data.

Year 2 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Exceeding	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none">Find all possible combinations of coins to equal a given amount or how to pay a given amount using the fewest possible number of coins.Know that there are 60 minutes in an hour and 24 hours in a day and use these facts to solve problems.Tell and write the time to 5 minutes and draw hands on a clock face to show these times.Solve more complex problems involving, money and other measures, including time.Reason about multiplicative relationships between specific measured quantities, drawing on knowledge of 2, 5 and 10 tables and knowledge of fractions.	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none">Compare and sort common 2-D and 3-D shapes and common objects, using more than 1 criterion, identifying and describing their properties.Reason about and solve more complex problems involving shapes and their properties.	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none">Order and arrange combinations of mathematical objects in more complex patterns and sequences.Solve more complex problems involving position and direction.	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none">Interpret and construct pictograms (where the symbols show many to one correspondence), block diagrams (where the scale is divided into 2s or 5s) and more complex tablesUse more complex charts to ask and answer questions by reading from the chart the number of objects in each category, sorting the categories by quantity, totalling and comparing categorical data.

Year 3 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. <input type="checkbox"/> Recognise the place value of each digit in a two-digit number (tens, ones). <input type="checkbox"/> Identify, represent and estimate numbers using different representations, including the number line. <input type="checkbox"/> Compare and order numbers from 0 up to 100; use and = signs. <input type="checkbox"/> Read and write numbers to at least 100 in numerals and in words. <input type="checkbox"/> Use place value and number facts to solve problems. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods. <input type="checkbox"/> Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. <input type="checkbox"/> Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and ten, two 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. <input type="checkbox"/> Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. <input type="checkbox"/> Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs. <input type="checkbox"/> Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. <input type="checkbox"/> Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise, find, name and write fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity. <input type="checkbox"/> Write simple fractions for example, $\frac{1}{2}$ of $6 = 3$ and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.

Year 3 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. <input type="checkbox"/> Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). <input type="checkbox"/> Compare and order numbers up to 1000. <input type="checkbox"/> Identify, represent and estimate numbers using different representations. <input type="checkbox"/> Read and write numbers up to 1000 in numerals and in words. <input type="checkbox"/> Solve number problems and practical problems involving these ideas. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. <input type="checkbox"/> Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. <input type="checkbox"/> Estimate the answer to a calculation and use inverse operations to check answers. <input type="checkbox"/> Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. <input type="checkbox"/> Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. <input type="checkbox"/> Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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. <input type="checkbox"/> Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. <input type="checkbox"/> Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. <input type="checkbox"/> Recognise and show, using diagrams, equivalent fractions with small denominator. <input type="checkbox"/> Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]. <input type="checkbox"/> Compare and order unit fractions, and fractions with the same denominators. <input type="checkbox"/> Solve problems that involve all of the above.

Year 3 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Exceeding	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Show fluency in the use of number facts and are able to make generalisations based on these to find unknown facts. <input type="checkbox"/> Demonstrate a secure understanding of place value and have fluency when working with numbers up to and above 1000. <input type="checkbox"/> Apply place value and number facts knowledge to solving problems involving number and place value in a range of familiar and unfamiliar contexts. 	<p>All aspects of addition and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate rapid recall of number facts which they can use to generate new unknown facts. <input type="checkbox"/> Use rapid recall of number facts to support their repertoire of calculation strategies, both mental and written. <input type="checkbox"/> Use a range of efficient written and mental calculation strategies to use in calculation. <input type="checkbox"/> Draw on their repertoire of calculation strategies in problem solving, explaining their choices and communicating their reasoning. <input type="checkbox"/> Communicate their ideas as well as following a reasoned argument. 	<p>All aspects of multiplication and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate rapid recall of multiplication and division facts and the ability to use these to derive related facts to solve problems. <input type="checkbox"/> Show a repertoire of written and mental calculation methods to solve problems that involve multiplication and division. They are able to communicate their reasoning and explain their thinking. <input type="checkbox"/> Apply their understanding of multiplication and division to a wider range of problem solving contexts such as shape and measures. 	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply knowledge of fractions to solving problems of increasingly complexity. <input type="checkbox"/> Show understanding of the connections between areas of learning in fractions such as the ability to recognise equivalency and links to decimal place value. <input type="checkbox"/> Use fractions in problem solving, explaining reasoning in problems involving measures shape and statistics.

Year 3 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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. <input type="checkbox"/> Compare and order lengths, mass, volume/capacity and record the results using >, < and =. <input type="checkbox"/> Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. <input type="checkbox"/> Find different combinations of coins that equal the same amounts of money. <input type="checkbox"/> Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. <input type="checkbox"/> Compare and sequence intervals of time 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. <input type="checkbox"/> Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. <input type="checkbox"/> Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]. <input type="checkbox"/> Compare and sort common 2-D and 3-D shapes and everyday objects. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Order and arrange combinations of mathematical objects in patterns and sequences. <input type="checkbox"/> 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). 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. <input type="checkbox"/> Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. <input type="checkbox"/> Ask and answer questions about totalling and comparing categorical data.

Year 3 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). <input type="checkbox"/> Measure the perimeter of simple 2-D shapes. <input type="checkbox"/> Add and subtract amounts of money to give change, using both £ and p in practical contexts. <input type="checkbox"/> Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. <input type="checkbox"/> 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. <input type="checkbox"/> Know the number of seconds in a minute and the number of days in each month, year and leap year. <input type="checkbox"/> Compare durations of events [for example to calculate the time taken by particular events or tasks]. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. <input type="checkbox"/> Recognise angles as a property of shape or a description of a turn. <input type="checkbox"/> Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. <input type="checkbox"/> Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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). 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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?']. <input type="checkbox"/> Use information presented in scaled bar charts and pictograms and tables.

Year 3 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Exceeding	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none">❑ Use a wide range of tools when working with measures and can move more fluently between different units.❑ Use understanding of other areas of the curriculum to solve problems and calculations involving measures e.g. multiplication.❑ Apply their understanding to solve problems of increasing complexity and can reason about their choices.	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none">❑ Apply knowledge and understanding of the properties of shapes to a wider range of regular and irregular 2D and 3D shapes.❑ Work with an increasing level of accuracy describing the properties of shapes.❑ Apply their knowledge and understanding to solving problems of increasingly complexity as well as communicating their reasoning.	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none">❑ Apply knowledge of position and movement to solving problems.❑ Be able to use mathematical vocabulary to describe the position and movement of a given unit.	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none">❑ Interpret data to answer questions related to problems across the curriculum.❑ Interpret data and read scales with increased accuracy with different divisions using knowledge of number.❑ Pose their own questions and formulate hypothesis and make decisions about how to collect data to solve problems.❑ Reason and explain their decisions.

Year 4 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. <input type="checkbox"/> Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). <input type="checkbox"/> Compare and order numbers up to 1000. <input type="checkbox"/> Identify, represent and estimate numbers using different representations. <input type="checkbox"/> Read and write numbers up to 1000 in numerals and in words. <input type="checkbox"/> Solve number problems and practical problems involving these ideas. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. <input type="checkbox"/> Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. <input type="checkbox"/> Estimate the answer to a calculation and use inverse operations to check answers. <input type="checkbox"/> Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. <input type="checkbox"/> Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. <input type="checkbox"/> Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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. <input type="checkbox"/> Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. <input type="checkbox"/> Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. <input type="checkbox"/> Recognise and show, using diagrams, equivalent fractions with small denominator. <input type="checkbox"/> Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]. <input type="checkbox"/> Compare and order unit fractions, and fractions with the same denominators. <input type="checkbox"/> Solve problems that involve all of the above.

Year 4 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Count in multiples of 6, 7, 9, 25 and 1000 find 1000 more or less than a given number. <input type="checkbox"/> Count backwards through zero to include negative numbers. <input type="checkbox"/> Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). <input type="checkbox"/> Order and compare numbers beyond 1000. <input type="checkbox"/> Identify, represent and estimate numbers using different representations. <input type="checkbox"/> Round any number to the nearest 10, 100 or 1000. <input type="checkbox"/> Solve number and practical problems that involve all of the above and with increasingly large positive numbers. <input type="checkbox"/> 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. <input type="checkbox"/> Estimate and use inverse operations to check answers to a calculation. <input type="checkbox"/> Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recall multiplication and division facts for multiplication tables up to 12×12. <input type="checkbox"/> Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. <input type="checkbox"/> Recognise and use factor pairs and commutativity in mental calculations. <input type="checkbox"/> Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. <input type="checkbox"/> 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 to m objects. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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 one hundred and dividing tenths by ten. <input type="checkbox"/> 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. <input type="checkbox"/> Add and subtract fractions with the same denominator. <input type="checkbox"/> Recognise and write decimal equivalents of any number of tenths or hundredths. <input type="checkbox"/> Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$. <input type="checkbox"/> 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. <input type="checkbox"/> Round decimals with one decimal place to the nearest whole number. <input type="checkbox"/> Compare numbers with the same number of decimal places up to two decimal places. <input type="checkbox"/> Solve simple measure and money problems involving fractions and decimals to two decimal places.

Year 4 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Exceeding	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate very good understanding of place value and is able to apply this to working with larger numbers/decimals. <input type="checkbox"/> Demonstrate confidence to use knowledge of place value in solving problems. <input type="checkbox"/> Apply their understanding to solving increasingly complex problems, is able to reason and explain their thinking. 	<p>All aspects of addition and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts. <input type="checkbox"/> Show a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems. <input type="checkbox"/> Make choices regarding choice of strategies and explain reasoning. <input type="checkbox"/> Solve problems of increasing complexity using a range of strategies and is able to communicate their reasoning. 	<p>All aspects of multiplication and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate rapid and fluent recall of all x facts to 12 x 12 and is able to use their knowledge to generate new facts. <input type="checkbox"/> Show a clear understanding of the different structures of multiplication and division and the related vocabulary. <input type="checkbox"/> Demonstrate a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems. <input type="checkbox"/> Solve problems of increasing complexity using a range of strategies and is able to communicate their reasoning. 	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply knowledge of fractions to problems involving measures and shapes. <input type="checkbox"/> Apply links with division to solving increasingly complex problems. <input type="checkbox"/> Show a good understanding of the connections between fractions and decimals and is able to use their knowledge to translate between the two. <input type="checkbox"/> Apply their knowledge of fractions to problems of increasing complexity and to explain their reasoning and thinking.

Year 4 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). <input type="checkbox"/> Measure the perimeter of simple 2-D shapes. <input type="checkbox"/> Add and subtract amounts of money to give change, using both £ and p in practical contexts. <input type="checkbox"/> Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. <input type="checkbox"/> 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. <input type="checkbox"/> Know the number of seconds in a minute and the number of days in each month, year and leap year. <input type="checkbox"/> Compare durations of events [for example to calculate the time taken by particular events or tasks]. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. <input type="checkbox"/> Recognise angles as a property of shape or a description of a turn. <input type="checkbox"/> Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. <input type="checkbox"/> Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise). 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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 and pictograms and tables.

Year 4 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Convert between different units of measure [for example, kilometre to metre; hour to minute]. <input type="checkbox"/> Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. <input type="checkbox"/> Find the area of rectilinear shapes by counting squares. <input type="checkbox"/> Estimate, compare and calculate different measures, including money in pounds and pence. <input type="checkbox"/> Read, write and convert time between analogue and digital 12- and 24-hour clocks. <input type="checkbox"/> Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. <input type="checkbox"/> Identify acute and obtuse angles and compare and order angles up to two right angles by size. <input type="checkbox"/> Identify lines of symmetry in 2-D shapes presented in different orientations. <input type="checkbox"/> Complete a simple symmetric figure with respect to a specific line of symmetry. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe positions on a 2-D grid as coordinates in the first quadrant. <input type="checkbox"/> Describe movements between positions as translations of a given unit to the left/right and up/down. <input type="checkbox"/> Plot specified points and draw sides to complete a given polygon. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. <input type="checkbox"/> Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

Year 4 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Exceeding	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures. <input type="checkbox"/> Use their understanding of the concepts related to measures to solve increasingly complex problems. <input type="checkbox"/> Make connections to other areas of mathematics such as fractions, decimals and use this to solve problems. <input type="checkbox"/> Communicate reasoning and talk about mathematics using appropriate language. <input type="checkbox"/> Apply knowledge of measures to other areas of the curriculum such as science. 	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sort and classify shapes using a range of criterion using mathematically appropriate vocabulary. <input type="checkbox"/> Apply knowledge of shapes to solving problems with increasing complexity explaining reasoning. <input type="checkbox"/> Make links and connections with other areas of the curriculum. 	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Solve increasingly complex problems involving position and movement. <input type="checkbox"/> Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science. 	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data. <input type="checkbox"/> Draw conclusions based on data and be able to justify reasoning.

Year 5 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Count in multiples of 6, 7, 9, 25 and 1000. <input type="checkbox"/> Find 1000 more or less than a given number. <input type="checkbox"/> Count backwards through zero to include negative numbers. <input type="checkbox"/> Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). <input type="checkbox"/> Order and compare numbers beyond 1000. <input type="checkbox"/> Identify, represent and estimate numbers using different representations. <input type="checkbox"/> Round any number to the nearest 10, 100 or 1000. <input type="checkbox"/> Solve number and practical problems that involve all of the above and with increasingly large positive numbers. <input type="checkbox"/> 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. <input type="checkbox"/> Estimate and use inverse operations to check answers to a calculation. <input type="checkbox"/> Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recall multiplication and division facts for multiplication tables up to 12×12. <input type="checkbox"/> Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. <input type="checkbox"/> Recognise and use factor pairs and commutativity in mental calculations. <input type="checkbox"/> Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. <input type="checkbox"/> 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 to m objects. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise and show, using diagrams, families of common equivalent fractions. <input type="checkbox"/> Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. <input type="checkbox"/> 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. <input type="checkbox"/> Add and subtract fractions with the same denominator. <input type="checkbox"/> Recognise and write decimal equivalents of any number of tenths or hundredths. <input type="checkbox"/> Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$. <input type="checkbox"/> 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. <input type="checkbox"/> Round decimals with one decimal place to the nearest whole number. <input type="checkbox"/> Compare numbers with the same number of decimal places up to two decimal places. <input type="checkbox"/> Solve simple measure and money problems involving fractions and decimals to two decimal places.

Year 5 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Expected	<p>Sufficient evidence shows the ability to:</p> <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 10 for any given number up to 1 000 000. ❑ Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. ❑ Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. ❑ Solve number problems and practical problems that involve all of the above. ❑ Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. 	<p>Sufficient evidence shows the ability to:</p> <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 calculations and determine, in the context of a problem, levels of accuracy. ❑ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. 	<p>Sufficient evidence shows the ability to:</p> <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 100 is prime & recall prime numbers up to 19. ❑ Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. ❑ Multiply and divide numbers mentally drawing upon known facts. ❑ Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context ❑ Multiply and divide whole numbers and those involving decimals by 10, 100 & 1000. ❑ Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). ❑ Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. ❑ Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. ❑ Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. 	<p>Sufficient evidence shows the ability to:</p> <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 & write mathematical statements > 1 as a mixed number [$2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$]. ❑ Add and subtract fractions with the same denominator and denominators that are multiples of the same number. ❑ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. ❑ Read and write decimal numbers as fractions [for example, $0.71 = 71/100$]. ❑ Recognise 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 one decimal place. ❑ Read, write, order & compare numbers with up to three decimal places. ❑ Solve problems involving number up to three decimal places. ❑ Recognise the percent symbol (%) and understand that percent relates to 'number of parts per hundred', write percentages as a fraction with denominator 100, & as a decimal. ❑ Solve problems which require knowing percent & decimal equivalents of $1/2$, $1/4$, $1/5$, $2/5$, $4/5$ and those fractions with a denominator of a multiple of 10 or 25.

Year 5 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
Exceeding	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts using place value. <input type="checkbox"/> Show very good understanding of place value and is able to apply this to working with larger numbers/decimals and in solving problems. <input type="checkbox"/> Apply their understanding to solve increasingly complex problems, and is able to reason and explain their thinking. 	<p>All aspects of addition and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts. <input type="checkbox"/> Show a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems. <input type="checkbox"/> Make choices regarding choice of strategies and explain reasoning. <input type="checkbox"/> Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning. <input type="checkbox"/> Explain why different methods give the same result. <input type="checkbox"/> Demonstrate creative thinking when problem solving, and is able to justify and prove. 	<p>All aspects of multiplication and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate rapid and fluent recall of all x facts to 12 x 12 and is able to use their knowledge to generate new facts and when working with larger numbers. <input type="checkbox"/> Apply knowledge of factors, multiples, prime number, squares and commutativity to solving mental calculations of more complex problems. <input type="checkbox"/> Show a clear understanding of the different structures of multiplication and division and the related vocabulary and is able to apply this to solving increasingly complex problems. <input type="checkbox"/> Apply knowledge of the inverse operation and the links between division and multiplication to solving problems. <input type="checkbox"/> Demonstrate a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems. <input type="checkbox"/> Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning. 	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply knowledge of fractions to problems involving measures and shapes. <input type="checkbox"/> Use their knowledge of decimals in problem involving measure to work with increased accuracy. <input type="checkbox"/> Show a very good understanding of the connections between fractions decimals and percentages and is able to use their knowledge to translate between the three. <input type="checkbox"/> Apply their knowledge of fractions, decimals and percentages to problems of increasing complexity and to explain their reasoning and thinking. <input type="checkbox"/> Apply links with division to solving increasingly complex problems.

Year 5 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Convert between different units of measure [for example, kilometre to metre; hour to minute]. <input type="checkbox"/> Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. <input type="checkbox"/> Find the area of rectilinear shapes by counting square. <input type="checkbox"/> Estimate, compare and calculate different measures, including money in pounds and pence. <input type="checkbox"/> Read, write and convert time between analogue and digital 12- and 24-hour clocks. <input type="checkbox"/> Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. <input type="checkbox"/> Identify acute and obtuse angles and compare and order angles up to two right angles by size. <input type="checkbox"/> Identify lines of symmetry in 2-D shapes presented in different orientations. <input type="checkbox"/> Complete a simple symmetric figure with respect to a specific line of symmetry. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe positions on a 2-D grid as coordinates in the first quadrant <input type="checkbox"/> Describe movements between positions as translations of a given unit to the left/right and up/down. <input type="checkbox"/> Plot specified points and draw sides to complete a given polygon. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. <input type="checkbox"/> Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

Year 5 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre & millilitre). <input type="checkbox"/> Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. <input type="checkbox"/> Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. <input type="checkbox"/> Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes. <input type="checkbox"/> Estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]. <input type="checkbox"/> Solve problems involving converting between units of time. <input type="checkbox"/> Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. <input type="checkbox"/> Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. <input type="checkbox"/> Draw given angles, and measure them in degrees (°). <input type="checkbox"/> Identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line & 1/2 a turn (total 180°) and other multiples of 90°. <input type="checkbox"/> Use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Solve comparison, sum and difference problems using information presented in a line graph. <input type="checkbox"/> Complete, read and interpret information in tables, including timetables.

Year 5 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Exceeding	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply knowledge of other areas of the curriculum to their understanding of and problem solving with measures. E.g. squares, cubes, fractions, multiplication decimals. <input type="checkbox"/> Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures. <input type="checkbox"/> Use their understanding of the concepts related to measures to solve increasingly complex problems. <input type="checkbox"/> Communicate reasoning and talk about mathematics using sophisticated mathematical language. <input type="checkbox"/> Apply knowledge of measures to other areas of the curriculum such as science. 	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sort and classify shapes using a wide range of criterion using increasingly sophisticated mathematically appropriate vocabulary. <input type="checkbox"/> Creatively apply knowledge of shapes to solving problems with increasing complexity and be able to justify reasoning and communicate their thinking. <input type="checkbox"/> Make links and connections with other areas of the curriculum and be able to generalise their understanding. 	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Solve increasingly complex problems involving position and movement. <input type="checkbox"/> Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science. 	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data. <input type="checkbox"/> Draw conclusions based on data and be able to communicate reasoning. Be able to look for alternative explanations and hypothesis. <input type="checkbox"/> Use understanding of statistics in other curriculum areas.

Year 6 Number and Place Value

	Number and Place Value	Addition, Subtraction, Multiplication and Division	Fractions	Ratio and Proportion	Algebra
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. <input type="checkbox"/> Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. <input type="checkbox"/> Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. <input type="checkbox"/> Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. <input type="checkbox"/> Solve number problems and practical problems that involve all of the above. <input type="checkbox"/> Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). <input type="checkbox"/> Add and subtract numbers mentally with increasingly large number. <input type="checkbox"/> Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. <input type="checkbox"/> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. <input type="checkbox"/> Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. <input type="checkbox"/> Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers. <input type="checkbox"/> Establish whether a number up to 100 is prime, recall prime numbers up to 19. <input type="checkbox"/> 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. <input type="checkbox"/> Multiply and divide numbers mentally drawing upon known facts. <input type="checkbox"/> 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. <input type="checkbox"/> Multiply and divide whole numbers and those involving decimals by 10, 100 & 1000. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Compare and order fractions whose denominators are all multiples of the same number. <input type="checkbox"/> 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 [e.g.: $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$]. <input type="checkbox"/> Add and subtract fractions with the same denominator and denominators that are multiples of the same number. <input type="checkbox"/> Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. <input type="checkbox"/> Read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$]. <input type="checkbox"/> Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. <input type="checkbox"/> Round decimals with two decimal places to the nearest whole number and to one decimal place. <input type="checkbox"/> Read, write, order and compare numbers with up to three decimal places. <input type="checkbox"/> Solve problems involving number up to three decimal places. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. <input type="checkbox"/> Solve problems which require knowing percentage and decimal equivalents of $1/2$, $1/4$, $1/5$, $2/5$, $4/5$ and those fractions with a denominator of a multiple of 10 or 25. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use simple formula to represent calculations such as perimeter and area of different shapes. <input type="checkbox"/> Use sequencing when working on shape, measures and pattern activities. <input type="checkbox"/> Solve problems including missing number problems using addition, subtraction, multiplication and division facts. <input type="checkbox"/> Demonstrate a secure understanding of the inverse relationship when applied to calculations involving two variables.

Year 6 Number and Place Value

	Number and Place Value	Addition, Subtraction, Multiplication and Division	Fractions	Ratio and Proportion	Algebra
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. <input type="checkbox"/> Round any whole number to a required degree of accuracy. <input type="checkbox"/> Use negative numbers in context, and calculate intervals across zero. <input type="checkbox"/> Solve number and practical problems that involve all of the above. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. <input type="checkbox"/> Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. <input type="checkbox"/> Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. <input type="checkbox"/> Perform mental calculations, including with mixed operations and large numbers. <input type="checkbox"/> Identify common factors, common multiples and prime numbers. <input type="checkbox"/> Use their knowledge of the order of operations to carry out calculations involving the four operations. <input type="checkbox"/> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. <input type="checkbox"/> Compare and order fractions, including fractions > 1. <input type="checkbox"/> Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. <input type="checkbox"/> Multiply simple pairs of proper fractions, writing the answer in its simplest form. [For example, $\frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$]. <input type="checkbox"/> Divide proper fractions by whole numbers. $\frac{1}{3} \div 2 = \frac{1}{6}$ <input type="checkbox"/> Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [e.g. $\frac{3}{8}$]. <input type="checkbox"/> Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. <input type="checkbox"/> Multiply one-digit numbers with up to two decimal places by whole numbers. <input type="checkbox"/> Use written division methods in cases where the answer has up to two decimal places. <input type="checkbox"/> Solve problems which require answers to be rounded to specified degrees of accuracy. <input type="checkbox"/> Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. <input type="checkbox"/> Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. <input type="checkbox"/> Solve problems involving similar shapes where the scale factor is known or can be found. <input type="checkbox"/> Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use simple formulae. <input type="checkbox"/> Generate and describe linear number sequences. <input type="checkbox"/> Express missing number problems algebraically. <input type="checkbox"/> Find pairs of numbers that satisfy an equation with two unknowns. <input type="checkbox"/> Enumerate possibilities of combinations of two variables.

Year 6 Number and Place Value

	Number and Place Value	Addition, Subtraction, Multiplication and Division	Fractions	Ratio and Proportion	Algebra
Exceeding	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts using place value. ❑ Show very good understanding of place value and is able to apply this to working with larger numbers/decimals and in solving problems. ❑ Apply their understanding to solving increasingly complex problems, is able to reason and explain their thinking. 	<p>All aspects of addition, subtraction, multiplication and division at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts. ❑ Show a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems. ❑ Make choices regarding choice of strategies and explain reasoning. ❑ Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning. ❑ Explain why different methods give the same result ❑ Think creatively when problem solving and is able to justify & prove. ❑ Show rapid and fluent recall of all x facts to 12 x 12 and is able to use their knowledge to generate new facts and when working with larger numbers. ❑ Apply knowledge of factors, multiples, prime number, squares and commutativity to solving mental calculations of more complex problems. ❑ Show a clear understanding of the different structures of multiplication and division and related vocabulary and is able to apply this to solving increasingly complex problems. ❑ Apply the knowledge of the inverse operation and the links between division and multiplication to solving problems. 	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Apply knowledge of fractions to problems involving measures and shapes. ❑ Use their knowledge of decimals in problem involving measure to work with increased accuracy. ❑ Demonstrate a very good understanding of the connections between fractions decimals and percentages and is able to use their knowledge to translate between the three. ❑ Apply their knowledge of fractions, decimals and percentages to problems of increasing complexity and to explain their reasoning and thinking. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Demonstrate a very good understanding of the connections between fractions, decimals and percentages, ratio and proportion and is able to use their knowledge to translate between the three. ❑ Apply their knowledge of ratio and proportion to problems of increasing complexity and to explain their reasoning and thinking. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Use algebraic representation to illustrate relationships and patterns. ❑ Apply understanding of equivalence in calculation to solve problems with unknowns and more than one possibility. ❑ Use algebra to prove relationships and patterns. ❑ Explain the meaning of the mathematical notation.

Year 6 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Emerging	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). <input type="checkbox"/> Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. <input type="checkbox"/> Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. <input type="checkbox"/> Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes. <input type="checkbox"/> Estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]. <input type="checkbox"/> Solve problems involving converting between units of time. <input type="checkbox"/> Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. <input type="checkbox"/> Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. <input type="checkbox"/> Draw given angles, and measure them in degrees (°). <input type="checkbox"/> Identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and 2 1 a turn (total 180°) other multiples of 90°. <input type="checkbox"/> Use the properties of rectangles to deduce related facts and find missing lengths and angles. <input type="checkbox"/> Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Solve comparison, sum and difference problems using information presented in a line graph. <input type="checkbox"/> Complete, read and interpret information in tables, including timetables.

Year 6 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Expected	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. <input type="checkbox"/> 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. <input type="checkbox"/> Convert between miles and kilometres. <input type="checkbox"/> Recognise that shapes with the same areas can have different perimeters and vice versa. <input type="checkbox"/> Recognise when it is possible to use formulae for area and volume of shapes. <input type="checkbox"/> Calculate the area of parallelograms and triangles. <input type="checkbox"/> Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³]. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Draw 2-D shapes using given dimensions and angles. <input type="checkbox"/> Recognise, describe and build simple 3-D shapes, including making nets. <input type="checkbox"/> Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. <input type="checkbox"/> 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe positions on the full coordinate grid (all four quadrants). <input type="checkbox"/> Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Interpret and construct pie charts and line graphs and use these to solve problems. <input type="checkbox"/> Calculate and interpret the mean as an average.

Year 6 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
Exceeding	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply knowledge of other areas of the curriculum to their understanding of and problem solving with measures. E.g. squares, cubes, fractions, multiplication decimals. <input type="checkbox"/> Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures. <input type="checkbox"/> Use their understanding of the concepts related to measures to solve increasingly complex problems. <input type="checkbox"/> Communicate reasoning and talk about mathematics using sophisticated mathematical language. <input type="checkbox"/> Apply knowledge of measures to other areas of the curriculum such as science. 	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sort and classify shapes using a wide range of criterion using increasingly sophisticated mathematically appropriate vocabulary. <input type="checkbox"/> Creatively apply knowledge of shapes to solving problems with increasing complexity and be able to justify reasoning and communicate their thinking. <input type="checkbox"/> Make links and connections with other areas of the curriculum and be able to generalise their understanding. 	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Solve increasingly complex problems involving position and movement. <input type="checkbox"/> Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science. 	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data. <input type="checkbox"/> Draw conclusions based on data and be able to communicate reasoning. Be able to look for alternative explanations and hypothesis. <input type="checkbox"/> Use understanding of statistics in other curriculum areas.