

Mathematics Assessment grid

Year 3 Understanding and investigating within number

	Working towards Y3 expectations	Working at the expected Y3 expectations	Going to greater depth with Y3 expectations
Place value, ordering and rounding			
<ul style="list-style-type: none"> Counting, reading and writing numbers 	Counts, reads and writes numbers up to 1000 in numerals and words May lack confidence and have problems crossing boundaries.	Counts, reads and writes numbers up to 1000 in numerals and in words Connects and explains changes in numbers counted to place value	<p>Uses understanding of place value to identify numbers represented in different ways e.g. with base ten materials, place value cards, place value counters, spike abacus, as numbers partitioned in different ways to create the same total.. Relates these representations to each other.</p> <p>Identifies a number from a position marked on a number line which has some landmark numbers given and explains how they decided what the number is e.g. 250.....?.....300</p> <p>Explores a range of problems and puzzles using understanding of place value and explains thinking.</p> <p>Explores and responds to conjectures about numbers using place value understanding and poses own conjectures e.g. if I add two two-digit numbers I cannot make a number greater than 200</p>
<ul style="list-style-type: none"> Comparing, ordering and rounding numbers using place value 	Consolidates comparing and ordering numbers from 0 up to 100 and beyond.	Compares and orders numbers up to 1000	
	Continues to identify the number that is 10 more or less than any number to 1000	Identifies the number that is ten or one hundred more or less than any number up to 1000 and beyond.	
	Consolidates understanding of place value of each digit in a two-digit number, (tens, ones) and starts to extend to three digit numbers.	Recognises the place value of each digit in a three-digit number (hundreds, tens, ones) Develops partitioning e.g. $146 = 100 + 40 + 6 = 130 + 16$. Demonstrates understanding in a range of number problems.	
	Identifies and represents two digit and then three digit numbers using different representations.	Identifies, represents and estimates numbers up to and beyond 1000 using different representations.	
	<i>Starts to round numbers up to 100 to the nearest 10 in a range of contexts e.g. money or measures</i>	<i>Rounds numbers up to 1000 to the nearest 10 in a range of contexts and explains decisions.</i>	
<ul style="list-style-type: none"> Problem solving 	Solves number and practical problems	Solves number and practical problems	
Properties of numbers and number sequences			
<ul style="list-style-type: none"> Counting in multiples 	Confidently counts forwards and back in multiples of 2, 3, 5, 10 and 100	Counts from 0 in multiples of 4, 8, 50 and 100; from any given multiple of that number.	<p>Uses fluency with counting from 0 in multiples of 4, 8, 50 and 100 to explore and discuss patterns, properties and relationships between multiples</p>
<ul style="list-style-type: none"> Recognising and describing patterns 	<i>Recognizes patterns in sequences of multiples and connections between.</i>	<i>Recognizes and extends patterns in sequences of multiples and connections between them</i>	
Fractions	Recognises and finds unit fractions with small denominators of a discrete set of objects E.g. find $1/3$, $1/5$'s of a set of objects. Continue to recognise fractions as parts of a whole, measurement, shapes and as a division of a quantity	Recognises, finds and writes fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Understands the relation between unit fractions as operators and (fractions of) and division by integers.	<p>Identifies fractions of a whole from fraction diagrams where more complex reasoning is required about the relation of parts to the whole.</p> <p>Uses understanding of fractions to solve more complex problems. Use representations including drawings to explain their thinking.</p> <p>Starts to recognise families of equivalent fractions and uses this so solve problems.</p> <p>Solves problems requiring connections between fractions and tenths expressed as decimals.</p> <p>Understands fractions as numbers using a wider range of fractions: unit and non-unit fractions with small denominators. Deduces and explains relations</p>
	Starts to compare unit fractions E.g. Compares $1/3$ and $1/5$ and explains which is larger / smaller. Uses representations and diagrams to support thinking.	Compares and orders unit fractions, and fractions with the same denominators Explains how fractions are ordered using precise vocabulary. Identifies examples of different fractions, and non-examples using a range of diagrams.	
	Consolidates understanding of equivalence of fractions with $2/4$ and $1/2$, and starts to extend to other fractions.	Recognises and shows, using diagrams, equivalent fractions with small denominators.	

	Shows understanding of fractions as numbers and counts in halves and quarters up to 10, forwards and back, starting at different numbers and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line.	Recognises and uses fractions as numbers unit and non-unit fractions with small denominators. Places them on a number line and starts to deduce relations between them such as size and equivalence. Counts forwards and back.	between them such as size and equivalence. Goes beyond the 0 -1 range and in contexts such as measures. Makes connections with place value, decimal measures and division by 10.
	Starts to count up and down in tenths and to recognises that tenths arise from dividing an object into ten equal parts	Count up and down in tenths and recognises that tenths arise from dividing an object into ten equal parts and in dividing one-digit numbers or quantities by 10.	Solves problems involving addition and subtraction of fractions with the same denominator within one whole.
	Begins to add and subtract fractions with the same denominator within one whole starting with halves and quarters e.g. $\frac{1}{2} + \frac{1}{2} = 1$; $\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$; $1 - \frac{1}{4} = \frac{3}{4}$.	Adds and subtracts fractions with the same denominator within one whole e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$.	When solving problems and number puzzles using the appropriate range of fractions in a range of contexts gives clear explanations of reasoning and methods using precise mathematical vocabulary, diagrams and symbols
• Problem solving	Solves problems and number puzzles using the appropriate range of fractions in a range of contexts and solves them, giving clear explanations of reasoning and methods using precise mathematical vocabulary, diagrams and symbols	Solves problems and number puzzles using the appropriate range of fractions in a range of contexts and solves them, giving clear explanations of reasoning and methods using precise mathematical vocabulary, diagrams and symbols	

Mathematics Assessment grid
Year 3 Developing and applying calculation

	Working towards Y3 expectations	Working at the expected Y3 expectations	Going to greater depth with Y3 expectations
Addition and subtraction <ul style="list-style-type: none"> Understanding number operations and the links between them 	Continues to recognise and use the inverse relationship between addition and subtraction to check calculations and to solve missing number problems with appropriate numbers e.g. given $65 + 3 = 68$, complete $68 - \Delta = 65$ and $\Delta - 65 = \diamond$.	Continues to recognise and use the inverse relationship between addition and subtraction to check calculations and to solve missing number problems with appropriate e.g. given $165 + 30 = 195$, complete $195 - \Delta = 165$ and $\Delta - 165 = \diamond$. Explore and explain patterns in calculations and identify how one calculation can be used to generate others.	Compare different approaches to calculations and solutions to problems. Explain which are correct or which are more efficient for example. Identify which calculations are appropriate for a mental method and which would be more efficient with a written method, explaining thinking.
Addition and subtraction <ul style="list-style-type: none"> Mental calculation 	Consolidates use of addition and subtraction facts to derive or calculate sums and differences of two-digit numbers. Starts to work with three-digit numbers. <i>Explains strategies used supporting explanations with jottings or informal recording.</i>	Adds and subtracts numbers mentally including <ul style="list-style-type: none"> a three-digit number and ones a three-digit number and tens a three-digit number and hundreds two digit numbers with answers within 100 <i>Explains strategies used.</i>	Identify when calculations require the regrouping or decomposition of numbers Explore statements about results of adding and subtracting numbers and explain thinking e.g. the sum of 3 even number is always, adding two whole numbers with 5 in the ones place will give a multiple of ten.
Addition and subtraction <ul style="list-style-type: none"> Written methods 	Explore column methods for addition and subtraction that does not cross a ten e.g. $43+20$ or $65-14$	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. Including crossing tens. Demonstrate their understanding of a method with place value materials	Use addition and subtraction skills to explore problems and reasoning puzzles explaining thinking.
<ul style="list-style-type: none"> Problem solving 	Estimate answers to calculations and use inverse operations to check. Solve problems including missing number problems using number facts and place value in a range of contexts	Estimate answers to calculations and use inverse operations to check. Solve more complex problems including missing number problems using number facts and place value in a range of contexts.	
Multiplication and division <ul style="list-style-type: none"> Understanding number operations and the links between them 	Continues to show and understand that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Relates multiplication to repeated addition and division to repeated subtraction. Starts to recognise and use the inverse relationship to derive related facts, check calculations and to solve missing number problems in the appropriate range of numbers e.g. given $5 \times 3 = 15$, complete $3 \times \Delta = 15$ and $\Delta \div 5 = 3$	Continues to show and understand that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Starts to use the commutative and associative laws for efficient mental calculation e.g. $2 \times 7 \times 5 = 2 \times 5 \times 7$ Relates multiplication to repeated addition and division to repeated subtraction. Develops use the inverse relationship to derive related facts, check calculations and to solve missing number problems in the appropriate range of numbers e.g. given $4 \times 6 = 24$, complete $6 \times \Delta = 24$ and $\Delta \div 6 = 4$	Continues to show and understand that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Uses the commutative and associative laws for efficient mental calculation with a wider range of calculations. Relates repeated addition and multiplication in more complex ways e.g. $2 + 2 + 2 + 2 + 4 = 4 \times 3$ or $3 + 3 + 3 + 2 + 4 = 3 \times 5$. May use materials to represent thinking. Regularly uses the inverse relationship to derive related facts, check calculations and to solve missing number problems with more complex number sentences.
Multiplication and division <ul style="list-style-type: none"> Recall of number facts 	Continues to practice and shows rapid recall of 2, 5 and 10 multiplication tables. Starts to use doubling to connect the 2 and 4 multiplication tables. Continues to represent using arrays.	Recalls and uses multiplication and division facts for the 3, 4 and 8 multiplication tables. Connects 2, 4 and 8 tables through doubling. Uses arrays to explore problems within and beyond the tables.	Uses arrays to explore properties of numbers and to solve problems. Recognizes relationships between calculations and

Multiplication and division <ul style="list-style-type: none"> Mental calculation 	Start to develop efficient mental methods for multiplication and division using known tables facts, commutative and associative laws and place value e.g. $40 \times 2 = 80$, $50 \times 3 = 150$, $5 \times 15 \times 2 = 5 \times 2 \times 15$.	Continues to develop efficient mental methods for multiplication and division using known tables facts, commutative and associative laws and place value e.g. $40 \times 4 = 160$, $80 \div 4 = 20$	suggests how one calculation can be used to generate. Recognises a wider range of connections in tables e.g. uses the 5 and 3 tables to relate to 8 table. Continues to develop efficient mental methods for multiplication and division using known facts, commutative, associative and distributive laws e.g. $4 \times 12 \times 5 = 20 \times 12 = 240$, $15 \times 3 = (10 + 5) \times 3$ perhaps represented with an array or the grid method.
Multiplication and division <ul style="list-style-type: none"> Written methods 	Writes and calculates mathematical statements for multiplication and division using the multiplication tables that are known.	Writes and calculate mathematical statements for multiplication and division using the multiplication tables that are known, including two-digit numbers times one-digit numbers, using mental methods and informal recording (such as the grid method, linked to understanding of partitioning arrays) and progressing to formal written methods with appropriate numbers.	Uses fluency with written methods to solve missing digit problems in a formal calculations and explains methods. e.g. $\begin{array}{r} 2 \square \\ \times 8 \\ \hline 176 \end{array}$ E.g. Create different TU x U calculations using the digits 3, 5 and 7. What different answers can you make? How can you make the greatest answer using any 3 given digits?
<ul style="list-style-type: none"> Problem solving 	Solve problems involving appropriate multiplications and division facts including <ul style="list-style-type: none"> missing number problems, positive integer scaling problems (using doubling and halving....draw a line two times as long) and correspondence problems in which n objects are connected to m objects and problems in a range of contexts including measures 	Solve problems involving appropriate multiplications and division facts and calculation methods including <ul style="list-style-type: none"> missing number problems, reasoning puzzles positive integer scaling problems e.g. 4 times as high, twice as long correspondence problems in which n objects are connected to m objects and problems in a wider range of contexts including measures 	Solve more complex problems in contexts deciding which of the four operations to use and why. Pose own problems to reflect a given calculation e.g. 13×4 . Explore problems involving remainders including open questions e.g. John has fewer than 50 marbles. If he puts them in bags of 5 he has 1 left over, if he puts them in bags of 4 he has 2 left. How many might he have?
	Solve simple problems in contexts deciding which of the four operations to use and why.	Solve simple problems in a wider range of contexts deciding which of the four operations to use and why.	

Mathematics Assessment grid
Year 3 Measurement

	Working towards Y3 expectations	Working at the expected Y3 expectations	Going to greater depth with Y3 expectations
Measurement			
<ul style="list-style-type: none"> length mass capacity 	Uses appropriate tools and standard units to measure <ul style="list-style-type: none"> (m /cm) lengths / heights (kg / g) to measure mass (l/ml) to measure volume / capacity 	Chooses and uses appropriate tools and standard units to measure with increasing accuracy <ul style="list-style-type: none"> (m /cm/mm) lengths / heights accurately. (kg / g) to measure mass accurately. (l/ml) to measure volume / capacity accurately 	Explains why one unit is more appropriate than another and shows some understanding of the need for different levels of accuracy. Uses understanding of fractions and decimal tenths in measuring and to solve problems in a measures context.
		Measures the perimeter of simple 2-D shapes	
	Starts to find equivalent <ul style="list-style-type: none"> lengths e.g. 5m = 500cm masses e.g. 1kg = 1000g capacities e.g. 1l = 1000ml 	Finds a greater range of equivalences <ul style="list-style-type: none"> lengths e.g. 5m and 50cm = 550cm masses e.g. 1kg and 200g = 1200g capacities e.g. 1l and 500ml = 1500ml Explains why they are equivalent using mathematical vocabulary and showing fluency with measures facts.	Solve more complex measures problems e.g. with more than one step and involving more than one number operation. Explain methods clearly. Pose own measures problems in a given context or to reflect a given calculation e.g. 1.5×3 or $2.5 - 1.9$.
	Compares and orders measures <ul style="list-style-type: none"> Length e.g. 2m / 1m and 30cm / 95cm. Mass e.g. 1kg / 200g. Capacity e.g. 1l / 200ml Records results of comparisons using >, < and = symbols and appropriate comparative language.	Compares and orders measures including those involving mixed units for <ul style="list-style-type: none"> Length e.g. 1m and 50cm / 125cm. Mass e.g. 1kg and 500g / 2000g. Capacity e.g. 1l and 100ml / 750ml Records results of comparisons using >, < and = symbols and appropriate comparative language <i>Explains how they have been ordered using mathematical vocabulary and showing fluency with measures facts</i>	Reason about measuring situations presented with practical materials or in picture formats that may involve for example understanding of balance and equivalence, reading of different types of scales or making connections with fractions and decimals. Explain reasoning.
	Starts to identify relationships and comparisons involving simple scaling by integers, connecting this to multiplication using known tables e.g. this ribbon is 5 times as long as one, this parcel is twice as heavy as this one. May need support.	Confident in identifying relationships and comparisons involving simple scaling by integers, connecting this to multiplication using known tables e.g. this ribbon is 8 times as long as one, this jug holds four times as much as this one.	
	Solves simple problems in a range of measures contexts using practical materials to support.	Solves a range of problems in measures contexts involving all four operations and often in practical situations. Explain thinking.	
<ul style="list-style-type: none"> Temperature 	<i>Continues to measure and record temperature (°C)</i>	<i>Continues to measure and record temperature (°C) and to solve problems in a measures context.</i>	

<ul style="list-style-type: none"> Time 	<p>Starts to</p> <ul style="list-style-type: none"> Tell and write the time from an analogue clock to the nearest minute. Record and compare time in terms of minutes and hours; use vocabulary such as o'clock, morning, afternoon, noon and midnight. Estimate time e.g. when has one minute passed? <p>Starts to know the number of seconds in a minute and the number of days in each month.</p> <p>Compares duration of events e.g. the time taken by a particular event or task</p>	<p>Tells and write the time to the nearest minute from an analogue clock, including using Roman numerals from I to XII, and the 12-hour clocks. Use the digital 12 hour clock.</p> <p>Estimates and reads time with increasing accuracy to the nearest minute. Records and compares time in terms of seconds, minutes and hours; uses vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.</p> <p>Knows the number of seconds in a minute and the number of days in each month, a year and leap year.</p> <p>Compare duration of events e.g. the time taken by a particular event or task</p> <p>Solves simple problems in the context of time including using information in timetables and calendars</p>	<p>Applies skills of reading the time from different clocks and understanding of units of time to measure duration of events to solve problems in a time context and to explain their methods.</p> <p>Interprets clocks, calendars and timetables and uses them to solve and pose problems.</p>
<ul style="list-style-type: none"> Money 	<p>Continues to show recognition of all values of coins and notes when using both £ and p in practical situations, showing different ways to create sums of money, including using the fewest coins.</p> <p>Record £ and p separately. Solve simple money problems.</p>	<p>Fluent with coin / note recognition and recording of amounts of money through adding and subtracting amounts of money, including calculating change, in the appropriate number range and using appropriate calculation methods.</p> <p>Solves problems in the context of money including problems with more than one step and using values expressed in a mixture of £ and p notation.</p>	<p>Applies understanding of money to solve more complex problems and explains reasoning. Problems may involve several steps, be non-routine or involve comparison of different shopping 'deals' for example</p> <p>Poses own problems in a given context or to fit a given calculation e.g. $£2.60 + \Delta = £5.00$</p>

Mathematics Assessment grid
Year 3 Geometry

	Working towards Y3 expectations	Working at the expected Y3 expectations	Going to greater depth with Y3 expectations
Geometry			
<ul style="list-style-type: none"> properties of shapes 	Continues to identify and describe using precise mathematical vocabulary the properties of a wide variety of regular and irregular 2D and 3D shapes.	Extends knowledge of the properties of shapes to symmetrical and non-symmetrical polygons and polyhedra. <i>Recognise 3-D and 2-D shapes in different orientations and describe them.</i>	<p>Confidently uses properties of 2D and 3D shapes, regular and irregular, in different orientations to describe and classify them and to solve problems involving reasoning about their properties. Accurately uses mathematical vocabulary.</p> <p>Explore shapes through activities using approaches such as which is the odd one out; what is the same /different; convince me that../ is it always, sometimes, never true that...</p> <p>Solves problems involving position and direction and that combine this understanding with knowledge of properties of shapes.</p> <p>Develops mental imagery skills to support work with shapes, position and direction.</p>
<ul style="list-style-type: none"> 	<i>Draws 2-D shapes</i> using a ruler and measure accurately in centimetres.	<i>Draws 2-D shapes</i> using a ruler and measures with accurately in centimetres and millimetres. <i>Makes 3-D shapes using modelling materials</i> and describes their properties.	
<ul style="list-style-type: none"> 	<i>Recognises angles as a property of shape or a description of turn</i> <i>Identifies whether angles are greater or less than a right angle.</i>	<i>Recognises angles as a property of shapes and as a description of turn.</i> <i>Identifies right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn.</i> <i>Uses the language of acute and obtuse.</i>	
Geometry:	<i>Starts to identify horizontal and vertical lines</i>	<i>Identifies horizontal and vertical lines and pairs of perpendicular and parallel lines.</i>	
<ul style="list-style-type: none"> Position and direction 		<i>Recognises angles as a description of a turn.</i> <i>Describes position, direction and movement including movement in a straight line and quarter, half, three quarter and full turns both clockwise and anti-clockwise.</i>	
		<i>Identify the position of a square on a grid using references e.g. A3. B6 and describe ways to move between squares.</i>	

Mathematics Assessment grid
Year 3 Statistics

	Working towards Y3 expectations	Working at the expected Y3 expectations	Going to greater depth with Y3 expectations
	<p>Continues to interpret and present data using bar charts, pictograms and tables in different contexts Understands and use simple scales e.g. 2, 5, 10 units per cm in pictograms and bar charts with increasing accuracy.</p> <p>Solve simple problems using information for charts and tables.</p> <p><i>Understand and use Venn and Carroll diagrams to support reasoning about appropriate numbers or shapes.</i></p>	<p>Interprets and presents data using a wider range of bar charts, pictograms and tables in different contexts.</p> <p>Understands and uses simple scales e.g. 2, 5, 10 units per cm in pictograms and bar charts with increasing accuracy.</p> <p>Solve one and two-step questions e.g. 'How many more?' and 'How many fewer?' 'How many altogether?' using information presented in scaled bar charts and pictograms and tables.</p> <p><i>Understand and use Venn and Carroll diagrams to support reasoning about appropriate numbers or shapes</i></p>	<p>Start to suggest which form of presentation might be more appropriate. Transfers information from one form to another.</p> <p>Suggest scales and pictogram ratios to use when construction charts from their own data.</p> <p>Poses their own questions that can be answered using information presented in different bar charts pictograms and tables. Can identify when questions have more than one step and suggest which questions may be more challenging to solve than others.</p> <p><i>Understand and use Venn and Carroll diagrams to support extended reasoning about appropriate numbers or shapes e.g. describe the properties of a shape that would be placed in this region of the diagram or explain why there is no number that could be placed in this region of the diagram.</i></p>