

Gilnow Primary School
Core Subject Assessment End Point Statements
Mathematics



The following statements relate to the topics laid out in our mathematics overview. All the statements are in line with the national curriculum, which outlines the skills that all children must be taught, and those in red are the skills outlined in the NCETM's 'ready to progress criteria'. They are the core skills children need to have secured in order to move on to the next parts of their learning.

They are recorded at the end of each topic in the White Rose Maths assessment grids, so teachers have clear assessment statements and end points for each topic to assess learning and achievement against.

	End of EYFS	End of KS1	End of LKS2	End of UKS2
Place Value		- Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward. - Recognise the place value of each digit in a two-digit number (10s, 1s). - Identify, represent and estimate numbers using different representations, including the number line. - Compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs. - Read and write numbers to at least 100 in numerals and in words. - Use place value and number facts to solve problems.	- Count in multiples of 6, 7, 9, 25 and 1000. - Find 1000 more or less than a given number. - Count backwards through zero to include negative numbers. - Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). - Order and compare numbers beyond 1000. - Identify, represent and estimate numbers using different representations. - Round any number to the nearest 10, 100 or 1000. - Solve number and practical problems that involve all of the above and with increasingly large positive numbers. - 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. - Understand the relationship between 10s, 100s and 1000s,	- Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. - Round any whole number to a required degree of accuracy. - Use negative numbers in context and calculate intervals across zero. - Solve number and practical problems that involve all of the above. - Understand the relationship between the different place value columns between hundredths and ten million. - Estimate the value of numbers on number lines up to ten million. - Split all place value columns into halves, quarters, fifths or tenths.

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			including how many 100s there are in bigger numbers. Split 1000 into halves, quarters, fifths or tenths.	
Addition and Subtraction		- 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. - 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 1s. - A two-digit number and 10s. 2 two-digit numbers. - Adding 3 one-digit numbers. - Show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 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. - Solve 'difference' and 'how many more' problems.	- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. - Estimate and use inverse operations to check answers to a calculation. - Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. - Link simple addition and subtraction facts to addition and subtraction of multiples of 100.	- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. - Solve problems involving addition and subtraction. - Perform mental calculations, including with mixed operations and large numbers. - Use their knowledge of the order of operations to carry out calculations involving the four operations. - Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - Understand the relationship between the four operations, including inverses, and use them to solve problems involving multiples, missing numbers, whole numbers and decimals.

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		• Fluently add and subtract within 10.		
Multiplication & Division		• 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 2 numbers can be done in any order (commutative) and division of 1 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. • Solve division problems by 'splitting into groups of'.	• Recall multiplication and division facts for multiplication tables up to 12×12. • Use place value, known and derived facts to multiply and divide mentally, including: ❖ multiplying by 0 and 1. ❖ dividing by 1. ❖ multiplying together three numbers. • Recognise and use commutativity and factor pairs in mental calculations. • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. • Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. • Multiply and divide by 10 and 100. • Link simple multiplication and division facts to multiplication and division of multiples of 100.	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. • 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. • 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. • Identify common factors, common multiples and prime numbers. • Perform mental calculations, including with mixed operations and large numbers. • Use their knowledge of the order of operations to carry out calculations involving the four operations. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • Understand the relationship between the four operations, including inverses, and use them to solve problems involving multiples,

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				missing numbers, whole numbers and decimals.
Fractions (including decimals and percentages)		- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ 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 $\frac{1}{2}$ and $\frac{2}{4}$.	- 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. - Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. - Add and subtract fractions, improper fractions and mixed numbers with the same denominator. - Recognise and write decimal equivalents of any number of tenths or hundredths. - Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$. - Find the effect of dividing a one- or two-digit number by 10 and 100 and identifying the values of the digits in the answer as ones, tenths and hundredths. - Round decimals with one decimal place to the nearest whole number. - Compare numbers with the same number of decimal places up to two decimal places.	- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. - Compare and order fractions, including fractions > 1. - Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. - Multiply simple pairs of proper fractions, writing the answer in its simplest form ($\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$). - Divide proper fractions by whole numbers ($\frac{1}{3} \div 2 = \frac{1}{6}$). - Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction (for example $\frac{3}{8} = 0.375$). - 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. - Multiply one-digit numbers with up to two decimal places by whole numbers. - Use written division methods in cases where the answer has up to two decimal places. - Solve problems which require answers to be rounded to specified degrees of accuracy.

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			- Solve simple measure and money problems involving fractions and decimals to two decimal places. - Place mixed numbers on a number line. - Convert between improper fractions and mixed numbers.	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
Measurement		- Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. - Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$ - Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. - Find different combinations of coins that equal the same amounts of money. - Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. - Compare and sequence intervals of time. - Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.	- Convert between different units of measure (for example, kilometre to metre; hour to minute). - Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. - Find the area of rectilinear shapes by counting squares. - Estimate, compare and calculate different measures, including money in pounds and pence. - Read, write and convert time between analogue and digital 12- and 24-hour clocks. - Solve problems involving converting from: - Hours to minutes. - Minutes to seconds. - Years to months. - Weeks to days.	- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. - Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. - Convert between miles and kilometres. - Recognise that shapes with the same areas can have different perimeters and vice versa. - Recognise when it is possible to use formulae for area and volume of shapes. - Calculate the area of parallelograms and triangles. - Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres and cubic metres, and extending to other units (for

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		Know the number of minutes in an hour and the number of hours in a day.		example, cubic millimetres and cubic millimetres).
Geometry (properties of shapes)		- Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line. - Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. - Identify 2D shapes on the surface of 3D shapes (for example, a circle on a cylinder and a triangle on a pyramid). - Compare and sort common 2D and 3D shapes and everyday objects.	- Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. - Identify acute and obtuse angles and compare and order angles up to two right angles by size. - Identify lines of symmetry in 2-D shapes presented in different orientations. - Complete a simple symmetric figure with respect to a specific line of symmetry.	- Draw 2-D shapes using given dimensions and angles. - Recognise, describe and build simple 3-D shapes, including making nets. - Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. - Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. - Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
Geometry (position and direction)		- Order and arrange combinations of mathematical objects in patterns and sequences. - 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).	- Describe positions on a 2D grid as coordinates in the first quadrant. - Describe movements between positions as translations of a given unit to the left/right and up/down. - Plot specified points and draw sides to complete a given polygon.	- Describe positions on the full coordinate grid (all four quadrants) - Draw and translate simple shapes on the coordinate plane and reflect them in the axes.
Statistics		- Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. - Ask and answer simple questions by counting the	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	- Interpret and construct pie charts and line graphs and use these to solve problems. - Calculate and interpret the mean as an average.

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		number of objects in each category and sorting the categories by quantity. Ask and answer questions about totalling and comparing categorical data.	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	
Ratio & Proportion				- Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. - Solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison. - Solve problems involving similar shapes where the scale factor is known or can be found. - Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
Algebra				- Use simple formulae - Generate and describe linear number sequences. - Express missing number problems algebraically. - Find pairs of numbers that satisfy an equation with two unknowns. - Enumerate possibilities of combinations of two variables.

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To assist with assessment, it will also be useful for teacher's to consider the minimum expected standard for arithmetic for pupils to be considered to be working at an age related level.

Pupils should be fluent with:

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
- Numbers to 100. - Adding and subtracting within 10. - Counting in 2s, 5s and 10s.	- Adding and subtracting 2-digit numbers. - Multiplying and dividing with arrays. - Comparing and ordering 2-digit numbers.	- 2, 3, 4, 5 and 10 times tables & division facts. - Written methods for addition and subtraction.	- Times tables & division facts to 12. - Written methods for addition, multiplication and division.	- Times tables & division facts to 12. - Written methods for addition and subtraction with decimals. - Written methods for multiplication and division.	- Times tables & division facts to 12. - Written methods for addition and subtraction with decimals. - Written methods for multiplication and division. - Convert between and solve arithmetic problems involving fractions.

These statements have been informed by the NCETM Ready to Progress criteria, and the White Rose maths LTP.

Please note, that a pupil hitting these statements alone does not mean that they are definitely working at an age related level, rather if they are not it is unlikely that they should be considered age related.