Mathematics Assessment – Year 5 – Autumn Term

Working Towards	On Track	Greater Depth
Begin to read and write numbers bigger than 1000.	Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.	Explain the position of numbers on a line and add in missing numbers.
Count forwards and backwards in steps of 10s, 100s and 1000s (eg 127, 227, 337 / 1237, 1137, 1037, 937)	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.	Recognise when it would be useful to count in powers of 10.
Count forwards and backwards into negative numbers insteps of one.	Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.	Explore patterns and sequences using negative numbers and continue them e.g. -2, -5, -8
Round any number less than 10,000 to the nearest 10, 100 or 1000.	Round any number to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000.	Explain how/why to use rounding to solve problems in a range of contexts.
Solve simple number and practical problems that involve some of the above.	Solve number problems and practical problems that involve all of the above.	Justify the methods chosen to solve number problems.
Read Roman numerals to 500.	Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Teach someone how to write the date in Roman numerals.
Accurately add and subtract 4 digit numbers using formal written methods.	Add, subtract and multiply whole numbers with more than 4 digits, including using formal written methods.	Compare and contrast expanded and formal methods and explain when one is more efficient than the other and how they can be applied to numbers of any size.
Add and subtract some 3 or 4 digit numbers mentally. Multiply numbers mentally drawing on known facts.	Calculate mentally using all 4 operations with increasingly large numbers.	Defend the reasons for choosing one method over another being aware of any shortcomings.
Multiply and divide whole numbers by 10, 100 and 1000 where there are whole number answers.	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	Teach another child how to interpret remainders appropriately, linking them to fractions
Solve addition and subtraction multistep problems in context	Solve multi-step problems in contexts, deciding which operations and methods to use and why.	Invent contexts and stories to fit increasingly complex multistep problems. Solve problems involving multiplying and dividing any number by 10, 100 or 1000.
Know that a prime number has only 2 factors and recall prime numbers up to 10.	Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.	Use a systematic approach to identify whether or not a number is prime.
	Establish whether a number up to 100 is prime and recall prime numbers up to 19.	Multiply a 2 digit number by a 2 digit number using a formal written method.
Identify composite rectilinear shapes and split them into their composite parts.	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	Test conjectures about relationships between perimeter and area of given shapes, proving or disproving using algebraic language.
Calculate the perimeter and area of squares and oblongs in cms and metres.	Calculate and compare the area of rectangles (oblongs and squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes.	Articulate the difference between cm and cm^2 and cm^3 etc.
Know the key components of a line graph and when / where it is used.	Solve comparison, sum and difference problems using information presented in a line graph.	Solve multi-step problems that draw from more than one source of information.
Use line graphs to make direct conversions between metric and imperial measures with support.	Complete, read and interpret information in tables, including timetables.	

Number	Calculation	Fractions	Measures	Geometry	Statistics	Once an objective has been covered it becomes **Bold**
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Mathematics Assessment – Year 5 – Spring Term

Working Towards	On Track	Greater Depth
Order pairs of fractions with the same denominator.	Compare and order fractions whose denominators are all multiples of the same number.	Place a range of fractions in order and justify their position using equivalence.
Find families of equivalent fractions using diagrams.	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.	Explain how equivalence is helpful when adding or subtraction fractions with different denominators.
Recognise that improper fractions can be written as mixed numbers and that they represent numbers >1.	Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5).	Explore number patterns involving fractions including top heavy fractions or mixed numbers.
Begin to add fractions with denominators that are multiples of the same number with support.	Add and subtract fractions with the same denominator and denominators that are multiples of the same number.	
Multiply proper fractions by 2 or 3 with support.	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]	Explore fractions that result in recurring decimals (e.g. 1/3
Read and write single digit decimals as fractions (e.g. 0.8; 0.02).	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.	Explain how to extend the decimal system using the patterns of the place value system.
Begin to recognise thousandths as the third decimal place.	Round decimals with two decimal places to the nearest whole number and to one decimal place.	Defend the reason for rounding up/down to a specific number of decimal places in different contexts.
Round decimals with 2 decimal places to the nearest whole number.	Read, write, order and compare numbers with up to three decimal places.	Justify reasons for one number being of higher/lower value than another using knowledge of place value.
Read write order and compare numbers up to 2 decimal places.	Solve problems involving number up to three decimal places.	Demonstrate how to solve a problem using up to 3 decimal places.
Solve problems with numbers up to 2 decimal places in the context of money.	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.	Work efficiently with percentages in a range of representations, %, decimal or fraction and justify the use of each or any of these.
	Solve problems which require knowing percentage and decimal equivalents.	Create suitable contexts for a range of different levels of accuracy (e.g. metres and centimetres: 2 dp).
Know that scaling and rates problems involve multiplication and division.	Solve scaling problems by simple fractions and problems involving simple rates.	Create problems requiring addition, subtraction, multiplication and division and any combinations of these.
Divide a 3 digit number by a one digit number using a formal written method of short division where there is a whole number answer.	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.	Explain chosen mental strategies when calculating with large numbers.
Consolidation of time	Consolidation of time (more practise required!)	Consolidation of time

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Label 2-D pictures of common 3-D shapes.	Identify a range of 3-D shapes from 2-D representations (eg nets).	Justify multiple possibilities as what a 3-D shape may be when only one or two faces are shown in a 2-D representation (i.e. It could be a .....OR a ..... because....)
Know the properties of rectangles (oblongs/squares) and use this to label missing lengths in parallel sides.	Use the properties of rectangles (oblongs/squares) to deduce related facts and find missing lengths and angles.	Use algebraic expressions to justify their solutions to missing length and angle problems (including when only given the perimeter of a square).
Know what regular and irregular means in relation to shapes.	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	
Translate simple shapes based on given instructions. Know that when translating a shape its position changes but its appearance does not.	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.	Predict the location of a shape after a series of translations or reflections, visualising the sequence in their heads and recording the final location using precise co-ordinates.
Know that angles are measured in degrees. Order given angles and correctly categorise them as acute, obtuse, reflex or right angles.	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.	Link missing angle problems with inverse operations and express their thinking algebraically.
	Draw given angles, and measure them in degrees (o).	Create their own missing angle problems.
Identify the missing angles in a square or rectangle. Calculate missing angles to total a right angle.	Identify angles at a point and one whole turn (total 360o), angles at a point on a straight line and ½ a turn (total 180o) and other multiples of 90o.	
Order families of metric measures by size (e.g. mm < cm < m < km).	Convert between different units of metric measure (e.g., kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).	Order a range of different mixed metric and imperial measures e.g. 192cm, 1.3 m and 124mm using formula or conversion charts to help them.
Know that we commonly use metric units today, but some imperial measures are still in use. Identify metric and imperial units in everyday contexts.	Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	Explain approaches to solving problems which involve mixed imperial and metric measures (e.g. Patrick says 'I travelled 9 miles to school'. Bob says 'I travelled 18km'. Who travelled the furthest?)
Identify composite rectilinear shapes and split them into their composite parts.	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	Test conjectures about relationships between perimeter and area of given shapes, proving or disproving using algebraic language.
Calculate the perimeter and area of squares and oblongs in cms and metres.	Calculate and compare the area of rectangles (oblongs and squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes.	Articulate the difference between cm and cm^2 and cm^3 etc.
	Estimate volume [e.g., using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [e.g., using water].	
	Use all four operations to solve problems involving measure [e.g., length, mass, volume, money] using decimal notation, including scaling and converting units of time.	Begin to use formula when calculating volumes in real life and problem solving contexts.
Know that scaling and rates problems involve multiplication and division.	Solve scaling problems by simple fractions and problems involving simple rates.	Create problems requiring addition, subtraction, multiplication and division and any combinations of these.
Know that a prime number has only 2 factors and recall prime numbers up to 10.	Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.	Use a systematic approach to identify whether or not a number is prime.
	Establish whether a number up to 100 is prime and recall prime numbers up to 19.	

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