Mathematics Assessment – Year 6 – Autumn Term

Working Towards	On Track	Greater Depth
Know the value of each digit up to 1,000,000.	Read, write, order and compare numbers up to 10,000, 000 and determine the value of each digit.	Use the pattern of place value language to read increasingly large numbers involving billions and trillions.
Know the method for rounding numbers and be able to round where only one digit needs contracting (e.g. 1420 to the nearest 100.)	Round any whole number to a required degree of accuracy.	Explain why different degrees of accuracy might be needed in different contexts, for example, why it is inappropriate to measure the distance between two cities to the nearest cm. Explore contexts when it might be necessary to round up or down disregarding rounding rules (e.g. how many cars to carry 11 people.)
	Use negative numbers in context, and calculate intervals across zero.	
Multiply a 4 digit number by a 2 digit number using expanded written methods.	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.	Use efficient methods to multiply and divide increasingly large numbers by 2 digit numbers.
Divide numbers up to 4 digits by a two-digit whole number using expanded written methods and jottings.	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	Explain how taught methods could be extended to multiply and divide by numbers with more than 2 digits or by decimals.
Interpret remainders as whole number remainders or fractions (eg r 3 or 3/8)	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	Use efficient short cuts to facilitate performing more complex mental calculations.
Begin to use efficient strategies to perform mental calculations.	Perform mental calculations, including with mixed operations and large numbers.	Investigate the range of possible answers using different operations with a fixed set of numbers, (e.g. use 5 2's to make all the numbers from 1 – 20).
Find common factors and multiples using knowledge of tables. Know what a prime factor is.	Identify common factors, common multiples and prime numbers.	Explain why some answers may not be possible.
Use the correct order of operations when carrying our multi-step calculations.	Use their knowledge of the order of operations to carry out calculations involving the four operations.	Explore patterns within sets of prime numbers, factors and multiples and use knowledge of these to help solve problems.
Begin to choose appropriate methods for solving addition and subtraction problems.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Create contexts for increasingly complex multistep problems involving addition, subtraction, multiplication and division.
Solve problems involving addition, subtraction, multiplication and division.	Solve problems involving addition, subtraction, multiplication and division.	Have a strong sense of number and use this to recognise when answers are obviously incorrect.
Use estimation to check answers to calculations and recognise when answers are obviously incorrect by a factor of 10 or more.	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	Explain why a given degree of accuracy is appropriate.
Use standard methods to simplify simple fractions dividing denominator and numerator by a common factor.	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.	Fluently express fractions, including those >1, in a range of equivalent forms and use these representations to evaluate differences.
Compare pairs of fractions by converting both to the same denominator.	Compare and order fractions, including fractions > 1.	
Add and subtract fractions with different denominators where these can be easily converted (e.g. fifths and tenths, thirds and sixths).	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. M	Use knowledge of addition and subtraction of fractions to solve problems and explore fractional number patterns.
	Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, ¼ × ½ = 1/8.	Multiply and divide pairs of fractions cancelling down answers to their simplest forms.
Find halves of unit fractions and know that 'x ½' is equivalent to '÷ 2'.	Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6].	
	Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8].	Use fractions to maintain accuracy when use of a decimal would result in recurring places (e.g. thirds, sevenths or ninths).

Recall equivalences between simple fractions, decimals and percentages.	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	Move fluently between different representations of fractional parts, (decimals, fractions and percentages) and justify which is appropriate to use in a given contexts.
Continue a number sequence according to a given rule.(with fractions)	Generate and describe linear number sequences.(with fractions)	Explain similarities and differences between number sequences.(with fractions)

Number	Calculation	Fractions	Measures	Geometry	Statistics	Once an objective has been covered it becomes Bold It is assumed child has achieved this objective at 'on track' unless they are indicated at either WT or GD

Mathematics Assessment – Year 6 – Spring Term

Working Towards	On Track	Greater Depth
Continue number patterns using given ratio	Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts	Fluently express fractions, including those >1, in a range of equivalent forms and use these representations to evaluate differences.
Can calculate simple %s of amounts with support (eg 10% of 100, 20% of 1000)	Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison	Use knowledge of addition and subtraction of fractions to solve problems and explore fractional number patterns.
Use standard methods to simplify simple fractions dividing denominator and numerator by a common factor.	Solve problems involving similar shapes where the scale factor is known or can be found	
Know how scale factors are used in everyday life (eg scale drawings, maps)	Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	
Identify digits in the tenths, hundredths and thousandths column.	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.	Use fractions to maintain accuracy when use of a decimal would result in recurring places (e.g. thirds, sevenths or ninths).
Multiply and divide numbers by 10, 100 and 1000 where up to one decimal place will result.	Multiply numbers with up to two decimal places by whole numbers.	
Multiply numbers with up to one decimal place by whole numbers.	Use written division methods in cases where the answer has up to two decimal places.	
Use written division methods and begin to use decimal results instead of remainders.	Solve problems which require answers to be rounded to specified degrees of accuracy.	Explore patterns with recurring decimals (e.g. sevenths).
Solve problems which require answers to be rounded.	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	Move fluently between different representations of fractional parts, (decimals, fractions and percentages) and justify which is appropriate to use in a given contexts.
Convert between metric units of measure up to 2 decimal places.	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	Construct conversion charts using their understanding of two different units of measure (e.g., miles and kilometres) and explain direct relationships using ratios.
Explain relationships between metric measures and how these are used to convert (e.g. I need to multiply m by 100 to convert into cms).	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	Create their own multi-step problems based on conversion graphs.
Convert between metric and imperial measures using conversion charts.	convert between miles and kilometres	
	recognise that shapes with the same areas can have different perimeters and vice versa	

Sort metric measures into families based on function (e.g. cm3, m3, km3 = volume, ml, cl, l= capacity).	recognise when it is possible to use formulae for area and volume of shapes	Test conjectures involving volume (e.g. This cube has a volume of 729 cm^3 sides. I think I could fit 3 cubes which have a side length of 3cm inside my bigger cube. Am I right?)
Select the correct measurement for the task in hand (e.g. mm for small perimeter or litres for larger capacity).	calculate the area of parallelograms and triangles	Begin to use formulae to calculate the area of triangles and parallelograms.
	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].	Justify why the formulae for area or volume of certain shapes always work, regardless of size.
Begin to use symbols to describe a generalised relationship.	Use simple formulae	Explain similarities and differences between number sequences.
Continue a number sequence according to a given rule.	Generate and describe linear number sequences.	Use algebraic notation to describe a number sequence in more than one way and explain why the expressions are equivalent.
Check if a pair of numbers satisfies an equation with two unknowns.	Express missing number problems algebraically.	Explain and demonstrate how algebraic expressions can be used to model real life situations.
Know that there can be more than one pair of numbers satisfying a rule with two variables.	Find pairs of numbers that satisfy an equation with two unknowns	
	Enumerate possibilities of combinations of two variables	
Know there is 360o in a circle and the edge is called the circumference.	illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius	Articulate the relationship between radius, diameter and circumference. Generalise about parts of a circle (e.g. if the diameter is three times as big, the circumference must also be three times as big).
Interpret and construct tables, bar charts and line graphs and use these to solve problems. Read pie charts.	Interpret and construct pie charts and line graphs and use these to solve problems.	Solve multi-step problems that draw across more than one information source, including pie charts.
Know that mean is one type of average.	Calculate and interpret the mean as an average.	Prove or disprove conjectures using a range of information sources.

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Mathematics Assessment– Year 6 – Summer Term

Working Towards	On Track	Greater Depth
Draw 2-D shapes using given side dimensions.	draw 2-D shapes using given dimensions and angles	Link 3-D shapes with their net and explain why a given net would not properly form the desired shape.
Know that a net is the 2-D pattern that creates a 3-D figure.	recognise, describe and build simple 3-D shapes, including making nets	
Use the properties of rectangles (oblongs/squares) to deduce related facts and find missing lengths and angles.	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons	Classify geometric shapes on multiple criteria and justify their thinking using precise mathematical language.
Know there are 180o in a straight line and 360o in a full turn and use this to identify missing angles.	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	Prove why vertically opposite angles are always equal.
Read coordinates in all four quadrants. Know that the x and y axes can be positive or negative.	describe positions on the full coordinate grid (all four quadrants)	Predict the location of a shape after a series of translations or reflections in all four quadrants, visualising the sequence in their heads and recording the final location using precise co-ordinates.
Confidently plot coordinates and translate shapes in the first quadrant.	draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	

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