

Oak Maths MTPs

Term 1 – Calculating using knowledge of structures

Unit	Objective	Ready to Progress Criteria	Assessment
Y6 Unit 1	Explain how a combination of different parts can be equivalent to the same whole	6AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number) 6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding	
	Identify structures within stories and use knowledge of structures to create stories		
	Identify the missing part using knowledge of relationships and structures		
	Use a model to interpret a part-part-whole problem with three addends		
	Create stories to match structures presented in a model		
	Use knowledge of additive structure to solve problems		
	Use mental strategies and known facts to calculate the value of a missing part		
	Use written strategies and known facts to calculate the value of a missing part		
	Represent an equation in a part-part-whole model correctly		
	Use part-part-whole structures to solve additive problems in a range of contexts		
Y6 Unit 2	Using redistribution with addition of integers		
	Using redistribution with addition of decimal fractions		
	Using balanced equations to calculate redistribution		
	Use a balanced equation to calculate unknown parts		
	Explain how adjusting one part affects the sum		
	Solve addition calculations mentally by using known facts		
	Solve addition calculations mentally by using known facts in a range of contexts		
	Solve calculations with missing parts		
	Use equivalence and compensation strategies to solve problems		
Y6 Unit 3	Use equivalence and compensation strategies to solve addition problems in a range of contexts		
	Explain and represent constant difference for subtraction		
	Explain how constant difference can make written calculations more efficient		
	Use constant difference to balance equations and find unknowns		
	Explain how increasing or decreasing the minuend affects the difference		
	Solve subtraction calculations mentally by using known facts		
	Explain how adjusting the minuend can make mental calculation easier		
	Explain how adjusting the subtrahend affects the difference: reduction structure		
	Explain how adjusting the subtrahend affects the difference: partitioning		
	Calculate the difference using knowledge of an adjusted subtrahend: difference structure		
	Use equivalence and compensation strategies to solve subtraction problems in a range of contexts		

Term 2 – Multiples of 1000 / Numbers up to 10,000,000 / Shape

Unit	Objective	Ready to Progress Criteria	Assessment
Y6 Unit 4	Explain how ten thousand can be composed		
	Explain how one hundred thousand can be composed		
	Read and write numbers up to one million using a place value chart		
	Read and write numbers up to one million in a range of contexts		
	Position five-digit multiples of 1,000 on a marked but unlabelled number line		
	Position 6-digit multiples of 1,000 on a marked but unlabelled number line		
	Count forwards and backwards in powers of 10 to and from any multiple of 1,000		
	Explain that 10,000 is composed of 5,000s, 2,500s and 2,000s		
	Explain that 100,000 is composed of 50,000s, 25,000s and 20,000s		
	Read the scales of graphs and measures using knowledge of the composition of 10,000 and 100,000		
Y6 Unit 5	Powers of 10 and their multiples	6NPV–1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000) 6NPV–2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning 6NPV–3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts 6NPV–4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts	
	Composition of one million and 10 million		
	Problem solving using knowledge of the composition of powers of 10		
	Read and write numbers up to 10 million		
	Representing numbers up to 10 million		
Y6 Unit 6	Determine the value of digits in numbers up to 10 million		
	Compare numbers with up to eight digits		
	Use knowledge of the composition of seven-digit numbers to solve problems		
	Add and subtract mentally without bridging a boundary		
	Add multiples of powers of 10 crossing the millions boundary		
	Subtract multiples of powers of 10 crossing the millions boundary		
	Composition of seven-digit numbers		
	Using patterns in counting sequences		
	Estimate and identify numbers on number lines		
Y6 Unit 7	Solving problems using column addition and subtraction		
	Rounding 7-digit numbers to the nearest million		
	Rounding seven-digit numbers to any power of 10		
	Solving calculations efficiently		
	Explore mental and written strategies to solve problems		
Y6 Unit 8	Solve problems explaining which strategy is most efficient		
	Use knowledge of shape properties to sketch and identify shapes	6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. (Including circles)	
	Use knowledge of shape properties to draw shapes accurately using rulers and protractors		
	3D shapes can be composed from 2D nets		
	The same 3D shapes can be composed from different 2D nets		
	When a 2D shape is decomposed and the parts rearranged, the areas remains the same		

Term 3 – Shape / Multiplication and division / Area, perimeter, position and direction

Unit	Objective	Ready to Progress Criteria	Assessment
Y6 Unit 8 (cont)	Any parallelogram can be decomposed and the parts rearranged to form a rectangular parallelogram	6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. (Including circles)	
	Two congruent triangles can be arranged to compose a parallelogram		
	Shapes with the same areas can have different perimeters and vice versa		
	Reason about shapes using the relationship between side lengths and area and perimeter		
	Reason about compound shapes using the relationship between side lengths and area and perimeter		
Y6 Unit 9	Explain why the product stays the same when one factor is doubled and the other is halved	6 AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding	
	Explain the effect on the product when scaling the factors up and down by the same amount		
	Use knowledge of equivalence when scaling factors to solve problems		
	Explain the effect on the quotient when scaling the dividend and the divisor by 10		
	Explain the effect on the quotient when scaling the dividend and the divisor by the same amount		
Y6 Unit 10	Explain how to multiply a 3-digit number by a 2-digit number		
	Explain how to use long multiplication to multiply two 2-digit numbers regrouping ones to tens		
	Explain how to use long multiplication to multiply two 2-digit numbers with regrouping		
	Explain how to use long multiplication to multiply a 3-digit by a 2-digit number		
	Explain how to use long multiplication to multiply a 4-digit by a 2-digit number		
	Explain how to use the associative law to multiply efficiently		
	Explain when it is efficient to use factorising or long multiplication to multiply by 2-digits		
	Dividing numbers with up to 4 digits by multiples of 10		
	Using short and long division to divide by a 2-digit divisor		
	Dividing by a 2-digit divisor including using long division		
	Solve problems with 4-digit dividends using factors and long division		
	Dividing by a 2-digit divisor with a remainder		
	Use long division with fraction remainders		
	Use long division with decimal remainders		
	Solve problems involving remainders in context		
Y6 Unit 11	Explain how to calculate the area of a parallelogram		
	Use the area of a parallelogram formula to calculate unknown measurements		
	Explain how to calculate the area of a triangle		
	Use the area of a triangle to calculate unknown measurements		
	Solve problems involving area and perimeter		
	Describe the relationship between scale factors and perimeters of two shapes		
	Draw and complete simple shapes by plotting positions on the full coordinate grid		
	Draw and translate simple shapes on the full coordinate grid		
	Reflect simple shapes in the axes on a full coordinate grid		
	Solve problems involving missing coordinates		

Term 4 – Fractions and percentages

Unit	Objective	Ready to Progress Criteria	Assessment
Y6 Unit 12	Explain how to write a fraction in its simplest form	6F–1 Recognise when fractions can be simplified, and use common factors to simplify fractions 6F–2 Express fractions in a common denominator and use this to compare fractions that are similar in value 6F–3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denominator as a comparison strategy	
	Reason about how to write a fraction in its simplest form		
	Use knowledge of fractions in their simplest form when solving addition and subtraction problems		
	Explain how to add related unit fractions with a representation or image		
	Explain how to add related unit fractions without a representation or image		
	Explain how to subtract related unit fractions		
	Use knowledge of adding and subtracting related unit fractions to solve problems		
	Explain with and without an image how to add and subtract related non-unit fractions		
	Explain with and without images how to add and subtract related non-unit fractions bridging a whole		
	Add and subtract non-related fractions with different denominators		
Y6 Unit 13	Explain how to compare non-related fractions finding equivalent fractions with common denominators		
	Explain how to compare pairs of non-related fractions by comparing to a half		
	Explain how to compare pairs of non-related fractions using fraction sense		
	Explain which strategy for comparing non-related fractions is most efficient		
	Order sets of non-related fractions using a range of strategies		
Y6 Unit 14	Explain how to multiply two unit fractions		
	Explain how to multiply two non-unit fractions		
	Explain how to divide a unit fraction by a whole number		
	Explain how to divide a non-unit fraction by a whole number		
	Explain how to divide a fraction by a whole number efficiently		
Y6 Unit 15	Explain what percent means and represent a percentage in different ways		
	Explain how to convert percentages to decimals and fractions with a denominator of 100		
	Explain how to convert a percentage to a fraction without a denominator of 100		
	Use knowledge of fraction-decimal-percentage conversions to solve problems in a range of contexts		
	Use knowledge of calculating 50%, 10% and 1% of a number to solve problems in a range of contexts		
	Use knowledge of calculating common percentages of a number to solve problems in a range of contexts		
	Use knowledge of calculating any percentage of a number to solve problems in a range of contexts		
	Explain how to solve problems where the percentage part and size is known but the whole is unknown		
	Solve problems where the known percentage part and size represents a change to the whole		
	Solve problems involving percentages in a range of contexts		

Term 5 – Statistics / Ratio and proportion / Calculating knowledge of structures / Solving problems with two unknowns

Unit	Objective	Ready to Progress Criteria	Assessment
Y6 Unit 16	Use understanding of angles, fractions and percentages to interpret pie charts		
	Use understanding of angles, fractions and percentages to construct pie charts		
	Interpret line graphs representing two variables in familiar contexts		
	Construct line graphs representing two variables in familiar contexts		
	Interpret the scales used in graphs, including pie charts, to solve problems		
Y6 Unit 17	Describe the relationship between two factors in a ratio context	6AS/MD–3 Solve problems involving ratio relationships	
	Representing ratio in different ways		
	Explain how to represent ratio and to calculate unknown values		
	Use multiplication and division to calculate unknown values in ratio problems		
	Solve problems involving ratio		
	Explain how and why scaling is used to make and interpret maps		
	Use knowledge of multiplication and division to solve scaling problems in a range of contexts		
	Solve problems involving scaling and ratio		
	Identify and describe the relationship between regular polygons using scale factors		
	Identify and describe the relationship between irregular polygons using scale factors		
Y6 Unit 18	Explain how to balance equations with addition expressions	6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding	
	Explain how to balance equations with subtraction expressions		
	Explain how to balance equations with addition or subtraction expressions		
	Explain how to balance equations with addition and subtraction expressions		
	Use knowledge of balancing equations to solve problems		
Y6 Unit 19	Compare the structure of problems with one or two unknowns	6AS/MD–4 Solve problems with 2 unknowns	
	Represent the structure of a problem with two unknowns in context		
	Explain why there is sometimes only one solution to a problem		
	Represent and solve problems with two unknowns efficiently		
	Use a bar model to represent spatial problems with two unknowns		
	Explain how to represent an equation with a bar model		
	Solve problems with two unknowns in a range of contexts		
	Explain how you know you have found all the possible solutions to a problem with two unknowns		
	Explain how to balance an equation with two unknowns		
	Solve problems with two unknowns with one, several and infinite solutions		

Term 6 – Order of operations / Mean average

Unit	Objective	Ready to Progress Criteria	Assessment
Y6 Unit 20	Combine multiplication with addition and subtraction		
	Explain how the distributive law applies to multiplication expressions with a common factor		
	Combine division with addition and subtraction		
	Explain how the distributive law applies to division expressions with a common divisor		
	Use knowledge of the order of operations to solve equations		
Y6 Unit 21	Explain the relationship between the mean and sharing equally		
	Explain how to calculate the mean of a set of data including a value of zero		
	Explain how the mean changes when the total quantity or number of values changes		
	Explain how to use the mean to make comparisons between two sets of data		
	Explain why the mean is useful and when it is not appropriate		
Burst Project	Y6 Units and Objectives that require further coverage		