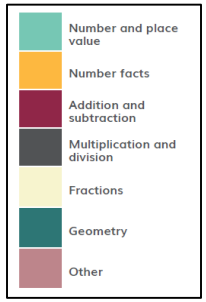
Year Six

Mullion Primary School

Mathematics Long Term Planning 2024 – 2025



Term	Unit name	Unit Source	Strand	Time frame	Small Steps
Autumn 1	Calculating using knowledge of structures	NCETM CP – Unit 1 https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-1-calculating-using-knowledge-of-structures/		6 weeks	1 Pupils explain how a combination of different parts can be equivalent to the same whole and can represent this in an expression 2 Pupils identify structures within stories and use their knowledge of structures to create stories 3 Pupils identify the missing part using their knowledge of part whole relationships and structures 4 Pupils interpret and represent a part-whole problem with 3 addends using a model 5 Pupils create stories to correctly match a structure presented in a model 6 Pupils use their knowledge of additive structures to solve problems 7 Pupils calculate the value of a missing part (1) 8 Pupils calculate the value of a missing part (2) 9 Pupils correctly represent an equation in a part-whole model 10 Pupils explain how adjusting both addends affects the sum (2 digit numbers) 11 Pupils explain how adjusting both addends affects the sum (decimal fractions) 12 Pupils use the 'same sum' rule to balance equations 13 Pupils use the 'same sum' rule to balance equations with an unknown 14 Pupils explain how adjusting one addend affects the sum 15 Pupils solve addition calculations mentally by using known facts 16 Pupils solve calculations with missing addends 17 Pupils explain how adjusting both the minuend and subtrahend by the same amount affects the difference 18 Pupils explain how using the 'same difference' rule can make mental calculation easier (1) 19 Pupils explain how using the 'same difference' rule can make written calculation easier (2) 20 Pupils use the 'same difference' rule to balance equations 21 Pupils explain how increasing or decreasing the minuend affects the difference (1) 22 Pupils explain how increasing or decreasing the minuend affects the difference (2) 23 Pupils solve subtraction calculations mentally by using known facts 24 Pupils explain how adjusting the minuend can make mental calculation easier 25 Pupils explain how adjusting the subtrahend affects the difference 26 Pupils explain how increasing or decreasing the subtrahend affects the difference 27 Pupils calculate the difference using their knowledge of an adjusted subtrahend (1) 28 Pupils calculate the difference using their knowledge of an adjusted subtrahend (2)

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Autumn 1	Multiples of 1,000	NCETM – CP Unit 2 https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-2-multiples-of-1-000/		2 weeks	1 Pupils explain how ten thousand can be composed 2 Pupils explain how one hundred thousand can be composed 3 Pupils read and write numbers up to one million (1) 4 Pupils read and write numbers up to one million (2) 5 Pupils identify and place the position of five-digit multiple of one thousand numbers, on a marked, but unlabelled number line 6 Pupils identify and place the position of six-digit multiple of one thousand numbers, on a marked, but unlabelled number line 7 Pupils count forwards and backwards in steps of powers of 10, from any multiple of 1,000 8 Pupils explain that 10,000 is composed of 5,000s 2,500s and 2,000s 9 Pupils explain that 100,000 is composed of 50,000s 25,000s and 20,000s 10 Pupils read scales in graphing and measures contexts, by using their knowledge of the composition of 10,000 and 100,000
Autumn 2	Numbers up to 10,000,000	NCETM – CP Unit 3 https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-3-numbers-up-to-10-000-000/		4 weeks	1 Pupils use representations to identify and explain patterns in powers of 10 2 Pupils compose seven or eight-digit numbers using common intervals 3 Pupils use their knowledge of the composition of up to eight-digit numbers to solve problems 4 Pupils explain how to read numbers with up to seven digits efficiently 5 Pupils recognise and create numbers that contain place-holding zeroes 6 Pupils determine the value of digits in numbers up to tens of millions 7 Pupils explain how to compare up to eight-digit numbers 8 Pupils use their knowledge of the composition of seven-digit numbers to solve problems 9 Pupils add and subtract mentally without bridging a boundary (only one and more than one digit changes) 10 Pupils add numbers whilst crossing the millions boundary 11 Pupils subtract numbers whilst crossing the millions boundary (multiples of 100,000 and different powers of 10) 12 Pupils explain how a seven-digit number can be composed and decomposed into parts 13 Pupils identify and explain a pattern in a counting sequence 14 Pupils identify numbers with up to seven digits on marked number lines 15 Pupils estimate the value and position of numbers on unmarked or partially marked number lines 16 Pupils explain why we round and how to round seven-digit numbers to the nearest million 17 Pupils explain how to round seven-digit numbers to the nearest hundred thousand 18 Pupils explain how to round up to seven-digit numbers to any power of 10 in context

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					19 Pupils identify and explain the most efficient way to solve a calculation 20 Pupils add and subtract numbers with up to seven digits using column addition and subtraction 21 Pupils explore and explain different written and mental strategies to solving addition and subtraction problems 22 Pupils solve addition and subtraction problems and explain whether a mental or written strategy would be most efficient
Autumn 2	Multiplication and division	NCETM – CP Unit 5 (moved forwards to Unit 4) https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-5-multiplication-and-division/		4 weeks	1 Pupils explain why the product stays the same when one factor is doubled and the other is halved 2 Pupils explain the effect on the product when scaling the factors by the same amount 3 Pupils use their knowledge of equivalence when scaling factors to solve problems 4 Pupils explain the effect on the quotient when scaling the dividend and divisor by 10 5 Pupils explain the effect on the quotient when scaling the dividend and divisor by the same amount 6 Pupils explain how to multiply a three-digit by a two-digit number 7 Pupils explain how to accurately use the method of long multiplication to multiply two, two-digit numbers (no regrouping of ones to tens) 8 Pupils explain how to accurately use the method of long multiplication (with regrouping of ones to tens) 9 Pupils explain how to accurately use the method of long multiplication (with regrouping of ones to tens & tens to hundreds) 10 Pupils explain how to accurately use the method of long multiplication to multiply a three-digit by a two-digit number 11 Pupils explain how to accurately use the method of long multiplication to multiply a four-digit by a two-digit number 12 Pupils explain how to use the associative law to multiply efficiently 13 Pupils explain when it is more efficient to use long multiplication or factorising to multiply by two-digit numbers 14 Pupils explain how to use accurately the methods of short and long division (two and three-digit number by multiples of 10) 15 Pupils explain how to use accurately the method of long division with and without remainders (two-digit by two-digit numbers) 16 Pupils use knowledge of long division to solve problems in a range of contexts (with and without remainders) 17 Pupils explain how to use a ratio chart to solve efficiently: short division 18 Pupils explain how to use a ratio chart to solve efficiently: long division 19 Pupils explain how to use a ratio chart to solve efficiently: long division (II) 20 Pupils explain how to use accurately the method of long division with and without remainders (three-digit by two-digit, four-digit by two-digit numbers) 21 Pupils use long division with decimal remainders (1 decimal place)

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					22 Pupils use long division with fraction remainders 23 Pupils use long division with decimal remainders (2 decimal places) 24 Pupils use knowledge of the best way to interpret and represent remainders from a range of division contexts 25 Pupils explain how and why a product changes when a factor changes multiplicatively 26 Pupils use their knowledge of multiplicative change to solve problems efficiently (multiplication) 27 Pupils explain how and why a quotient changes when a dividend changes multiplicatively (increase or decrease) 28 Pupils explain how and why a quotient changes when a divisor changes multiplicatively 29 Pupils identify and explain the relationship between divisors and quotients
Spring 1	Fractions and percentages	NCETM – CP Unit 7 (moved forwards to Unit 5) https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-7-fractions-and-percentages/		6 weeks	1 Pupils explain how to write a fraction in its simplest form 2 Pupils reason and apply their knowledge of how to write a fraction in its simplest form 3 Pupils use their knowledge of how to write a fraction in its simplest form when solving addition and subtraction problems (1) 4 Pupils use their knowledge of how to write a fraction in its simplest form when solving addition and subtraction problems (2) 5 Pupils use their knowledge of how to write a fraction in its simplest form when solving multiplication problems 6 Pupils explain, using an image, how to add related fractions (unit fractions) 7 Pupils explain what is meant by 'related fractions' 8 Pupils explain, without using an image, how to add related fractions 9 Pupils use their knowledge of adding related fractions to solve problems in a range of contexts 10 Pupils explain, with and without using an image, how to subtract related fractions (unit fractions) 11 Pupils use their knowledge of adding and subtracting related fractions to solve problems in a range of contexts 12 Pupils explain, with and without using an image, how to add and subtract related fractions (non-unit fractions) 13 Pupils explain, with and without using an image, how to add and subtract related fractions (non-unit fractions that bridge the whole) 14 Pupils use their fraction sense to fraction addition, subtraction and comparison 15 Pupils explain how to add or subtract non-related fractions with different denominators

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						16 Pupils use their knowledge of adding or subtracting non-related fractions with different denominators to solve problems in a range of contexts (non related fractions) 17 Pupils explain how to compare pairs of non-related fractions (converting to common denominators) 18 Pupils explain how to compare pairs of non-related fractions (using fraction sense) 19 Pupils explain how to compare pairs of non-related fractions (using common numerators) 20 Pupils explain which method for comparing non-related fractions is most efficient 21 Pupils explain how to multiply two unit fractions 22 Pupils explain how to multiply two non-unit fractions 23 Pupils explain how to divide a unit fraction by a whole number 24 Pupils explain how to divide a non-unit fraction by a whole number 25 Pupils explain when and how to divide efficiently a fraction by a whole number 26 Pupils explain what percent means 27 Pupils explain how to represent a percentage in different ways 28 Pupils explain how to convert percentages to decimals and fractions (with a denominator of 100) 29 Pupils explain how to convert a percentage to a fraction (without denominator of 100) 30 Pupils use their knowledge of fraction-decimal-percentage conversions to solve conversion problems in a range of contexts 31 Pupils use their knowledge of calculating 50%, 10% and 1% of a number to solve problems in a range of contexts 32 Pupils use their knowledge of calculating common percentages of a number to solve problems in a range of contexts 33 Pupils use their knowledge of calculating any percentage of a number to solve problems in a range of contexts 34 Pupils explain how to solve problems where the percentage part and the size of the part is known and the whole is unknown 35 Pupils explain how to solve problems where the known percentage part and the size of the part changes the whole
Spring 1 into Spring 2	Ratio and proportion	NCETM – CP Unit 9 (moved forward to Unit 6) https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-9-ratio-and-proportion/			2 weeks	1 Pupils describe the relationship between two factors (in a ratio context) 2 Pupils explain how to use multiplication and division to calculate unknown values (two variables) 3 Pupils explain how to use multiplication and division to calculate unknown values (three variables) 4 Pupils explain how to use a ratio grid to calculate unknown values 5 Pupils explain how to use multiplication to solve correspondence problems

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					6 Pupils explain how and why scaling is used to make and interpret maps 7 Pupils will use their knowledge of multiplication and division to solve scaling problems in a range of contexts 8 Pupils identify and describe the relationship between two shapes using scale factors (squares) 9 Pupils identify and describe the relationship between two shapes using scale factors and ratios (regular polygons) 10 Pupils identify and describe the relationship between two shapes using scale factors and ratios (irregular polygons)
Spring 2	Area, perimeter, position and direction	NCETM – CP Unit 6 (moved to Unit 7) https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-6-area-perimeter-position-and-direction/ *Include recap on Unit 4 – Draw, compose and decompose shapes within this Unit as SATS revision.*		2 weeks	1 Pupils explain how to calculate the area of a parallelogram 2 Pupils explain how to calculate the area of a triangle 3 Pupils explain why shapes can have the same perimeters but different areas 4 Pupils explain why shapes can have the same areas but different perimeters 5 Pupils describe the relationship between scale factors and side lengths of two shapes 6 Pupils describe the relationship between scale factors and perimeters of two shapes 7 Pupils describe positions on the full coordinate grid (all four quadrants) 8 Pupils draw and translate simple shapes on the coordinate plane and reflect them in the axes
Spring 2	Statistics	White Rose Spring Statistics Block NCETM guidance: https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-8-statistics/		1 week	White Rose small steps: 1 Pupils interpret line graphs 2 Pupils interpret dual bar charts 3 Pupils read and interpret pie charts, including using percentages 4 Pupils calculate using the mean
Spring 2	Order of operations	NCETM – CP Unit 12 (moved to Unit 9) https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-12-order-of-operations/		1 week	1 Pupils explain how addition and subtraction can help to solve multiplication problems efficiently (I) 2 Pupils explain how addition and subtraction can help to solve multiplication problems efficiently (II) 3 Pupils explain how the distributive law applies to multiplication expressions with a common factor (addition) 4 Pupils use their knowledge of the distributive law to solve equations including multiplication, addition and subtraction 5 Pupils explain how addition and subtraction can help to solve division problems efficiently 6 Pupils explain how the distributive law applies to division expressions with a common divisor (addition)

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					7 Pupils explain how the distributive law applies to division expressions with a common divisor (subtraction) 8 Pupils use their knowledge of the distributive law to solve equations including division, addition and subtraction
Summer 1	SATS Revision – post-Easter break in the lead up to SATS.				
Summer 2	Calculating using knowledge of structures (2)	NCETM – CP Unit 10 https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-10-calculating-using-knowledge-of-structures/		1 week	1 Pupils explain how to balance equations with addition expressions 2 Pupils explain how to balance equations with subtraction expressions 3 Pupils explain how to balance equations with addition or subtraction expressions 4 Pupils explain how to balance equations with addition and subtraction expressions 5 Pupils use their knowledge of balancing equations to solve problems
Summer 2	Solving problems with 2 unknowns	NCETM – CP Unit 11 https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-11-solving-problems-with-two-unknowns/		2 weeks	1 Pupils compare the structure of problems with one or two unknowns 2 Pupils compare the structure of problems with two unknowns 3 Pupils represent the structure of contextual problems with two unknowns 4 Pupils represent a problem with two unknowns using a bar model 5 Pupils explain why sometimes there is only one solution to a sum and difference problem 6 Pupils explain why sometimes there is only one solution to a sum and multiple problem 7 Pupils explain the values a part-whole model could represent 8 Pupils use a bar model to visualise how to solve a problem with two unknowns 9 Pupils use diagrams to explain how to solve a spatial problem 10 Pupils explain how to represent an equation with a bar model 11 Pupils solve problems with two unknowns in a range of contexts 12 Pupils systematically solve problems with two unknowns using 'trial and improvement' (one and several solutions) 13 Pupils explain how I know I have found all possible solutions to problems with two unknowns 14 Pupils explain how to balance an equation with two unknowns 15 Pupils systematically solve problems with two unknowns using 'trial and improvement' (one, several and infinite solutions)
Summer 2	Preparation for Year 7: transition mathematics projects	*Projects to include:* Financial sense and budgeting Key skills using a scientific calculator			

Assessment questions, linked to the DFE's Ready-to-Progress Criteria: https://www.ncetm.org.uk/classroom-resources/cp-year-6-curriculum-map/