Maths Long Term Overview – Year 5

Curriculum Rationale

Our maths curriculum has been designed to support a mastery approach to teaching and learning whilst effectively meeting the National Curriculum aims and objectives. This curriculum aims to provide children with time to apply their skills, explore concepts thoroughly and to demonstrate a deeper understanding of mathematical concepts. This curriculum aims to support pupils and teachers in developing a greater confidence within mathematics and strives to provide children with the opportunities to become mathematicians.

A mathematician is somebody who: makes connections, shows fluency, can provide a reason for what they are doing, is creative, checks their work in a variety of ways, is resilient, explains, evaluates, models, invents, applies their learning to a range of contexts, is curious, has confidence, uses mistakes to improve, is resourceful and efficient.

At Whitemoor, we aim to provide a knowledge-rich curriculum, allowing time for pupils to develop a deeper understanding and make connections between new and prior learning. Therefore, our lessons are created with care and are constantly adapted over time (using input from staff, up-to-date research and observations of pupils) to meet the needs of our pupils and allow them to continue making progress over time. Lessons are designed to provide a variety of representations, which is vital to introduce and explore concepts effectively. All lessons will contain: recall of prior learning, a range of representations, fluency, problem solving and reasoning opportunities.

Key Documents

NCETM Calculations Guidance
NCETM Maths Guidance for KS1 and KS2
NCETM 5 Big Ideas for Mastery
NCETM Ready-to-progress criteria
White Rose Schemes of Learning
Maths steps to success and vocabulary

Maths Long Term Overview – Year 5

Yearly Overview												
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Place Value			Addition and Subtraction		Multiplication and Division			Fractions A			
Spring	Multiplication and Division			Fractions B		Decimals and Percentages			Perimeter and Area		Statistics	
Summer	Shape			Position and Direction		Decimals			Negative Numbers	Converting Units		Volume

Maths Long Term Overview – Year 5

Autumn Term Coverage and National Curriculum Objectives (13 weeks and 4 days)			
Week 1 – Week 3	**Week 4 – Week 5**	**Week 6 – Week 8**	**Week 9 – Week 12**
Place Value NCETM Resources: Tenths and hundredths Place value in decimal fractions Decimal fractions in the linear number system Recall: Autumn Block 1 Flashback 4 National Curriculum Objectives: Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit. Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.	Addition and Subtraction NCETM Resources: Recall: Autumn Block 2 Flashback 4 National Curriculum Objectives: Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). Add and subtract numbers mentally with increasingly large numbers. Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	Multiplication and Division NCETM Resources: Multiplying and dividing by 10 and 100 Find factors and multiples Multiply using a formal written method Divide using a formal written method Fluency in multiplication and division facts Scaling number facts by 0.1 and 0.01 Recall: Autumn Block 3 Flashback 4	Fractions A NCETM Resources: Find non-unit fractions of quantities Find equivalent fractions Recall decimal equivalents for common factors Recall: Autumn Block 4 Flashback 4 National Curriculum Objectives: Compare and order fractions whose denominators are multiples of the same number. Identify, name and write equivalent fractions of a given fraction,

Maths Long Term Overview – Year 5

Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0. Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000. Solve number problems and practical problems that involve all of the above. Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	<u>National Curriculum Objectives:</u> Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. Multiply and divide numbers mentally, drawing upon known facts. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.	represented visually including tenths and hundredths. Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number. Add and subtract fractions with the same denominator and denominators that are multiples of the same number.

Maths Long Term Overview – Year 5

		Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³). Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes.	

Autumn Small Steps			
Place Value (3 weeks)	**Addition and Subtraction (2 weeks)**	**Multiplication and Division (3 weeks)**	**Fractions A (4 weeks)**
Step 1: Roman numerals to 1,000 Step 2: Numbers to 10,000 Step 3: Numbers to 100,000 Step 4: Numbers to 1,000,000 Step 5: Read and write numbers to 1,000,000 Step 6: Powers of 10 Step 7: 10/ 100/ 1,000/ 10,000/ 100,000 more or less Step 8: Partition numbers to 1,000,000	Step 1: Mental strategies Step 2: Add whole numbers with more than four digits Step 3: Subtract whole numbers with more than four digits Step 4: Round to check answers Step 5: Inverse operations (add and subtract) Step 6: Multi-step addition and subtraction problems Step 7: Compare calculations	Step 1: Multiples Step 2: Common multiples Step 3: Factors Step 4: Common factors Step 5: Prime numbers Step 6: Square numbers Step 7: Cube numbers Step 8: Multiply by 10, 100 and 1,000 Step 9: Divide by 10, 100 and 1,000	Step 1: Find fractions equivalent to a unit fraction Step 2: Find fractions equivalent to a non-unit fraction Step 3: Recognise equivalent Step 4: Convert improper fractions to mixed numbers Step 5: Convert mixed numbers to improper fractions Step 6: Compare fractions less than 1

Maths Long Term Overview – Year 5

Step 9: Number line to 1,000,000 *Step 10: Compare and order numbers to 100,000* *Step 11: Compare and order numbers to 1,000,000* *Step 12: Round to the nearest 10, 100 or 1,000* *Step 13: Round within 100,000* *Step 14: Round to 1,000,000*	*Step 8: Find missing numbers*	*Step 10: Multiples of 10, 100 and 1,000*	*Step 7: Order fractions less than 1* *Step 8: Compare and order fractions greater than 1* *Step 9: Add and subtract fractions with the same denominator* *Step 10: Add fractions within 1* *Step 11: Add fractions with total greater than 1* *Step 12: Add to mixed number* *Step 13: Add two mixed numbers* *Step 14: Subtract fractions* *Step 15: Subtract from a mixed number* *Step 16: Subtract from a mixed number – breaking the whole* *Step 17: Subtract two mixed numbers*

Maths Long Term Overview – Year 5

Spring Term Coverage and National Curriculum Objectives (11 weeks 2 days)				
Week 1 – Week 3	**Week 4 – Week 5**	**Week 6 – Week 8**	**Week 9 – Week 10**	**Week 11 – Week 12**
Multiplication and Division NCETM Resources: Multiplying and dividing by 10 and 100 Find factors and multiples Multiply using a formal written method Divide using a formal written method Fluency in multiplication and division facts Scaling number facts by 0.1 and 0.01 Recall: Spring Block 1 Flashback 4	Fractions B NCETM Resources: Find non-unit fractions of quantities Find equivalent fractions Recall decimal equivalents for common factors Recall: Spring Block 2 Flashback 4 National Curriculum Objectives: Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	Decimals and Percentages NCETM Resources: Decimal fractions in the linear number system Recall decimal equivalents for common factors Recall: Spring Block 3 Flashback 4 National Curriculum Objectives: Read, write, order and compare numbers with up to three decimal places. Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.	Perimeter and Area NCETM Resources: Compare and calculate areas Recall: Spring Block 4 Flashback 4 National Curriculum Objectives: Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate and compare the area of rectangles (including squares), and including using standard units, cm^2, m^2.	Statistics NCETM Resources: Reading scales with 2, 4, 5 or 10 intervals Recall: Spring Block 5 Flashback 4 National Curriculum Objectives: Solve comparison, sum and difference problems using information presented in a line graph. Complete, read and interpret information in tables including timetables.

Maths Long Term Overview – Year 5

National Curriculum Objectives: Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. 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. Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.	Read and write decimal numbers as fractions [for example 0.71 = 71 100] Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	Round decimals with two decimal places to the nearest whole number and to one decimal place. Solve problems involving number up to three decimal places. Recognise the percent symbol (%) and understand that percent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}$ and those fractions with a	Estimate the area of irregular shapes.	

Maths Long Term Overview – Year 5

Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.		*denominator of a multiple of 10 or 25.*		

Spring Small Steps				
Multiplication and Division	***Fractions B***	***Decimals and Percentages***	***Perimeter and Area***	***Statistics***
Updated when new steps are released (November 2022)	*Updated when new steps are released (November 2022)*	*Updated when new steps are released (November 2022)*	*Updated when new steps are released (November 2022)*	*Updated when new steps are released (November 2022)*

Maths Long Term Overview – Year 5

Summer Term Coverage and National Curriculum Objectives (13 weeks 4 days)					
Week 1 – Week 3	**Week 4 – Week 5**	**Week 6 – Week 8**	**Week 9**	**Week 10 – Week 11**	**Week 12**
Shape NCETM Resources: Compare, estimate, measure and draw angles Recall: Summer Block 1 Flashback 4 National Curriculum Objectives: Identify 3D shapes, including cubes and other cuboids, from 2D representations. Use the properties of rectangles to deduce related facts and find missing lengths and angles.	Position and Direction NCETM Resources: Draw polygons specified by coordinates or by translation (Y4) Recall: Summer Block 2 Flashback 4 National Curriculum Objectives: 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.	Decimals NCETM Resources: Place value in decimal fractions Decimal fractions in the linear number system Recall decimal equivalents for common factors Recall: Summer Block 3 Flashback 4 National Curriculum Objectives: Solve problems involving number up	Negative Numbers NCETM Resources: Recall: Summer Block 4 Flashback 4 National Curriculum Objectives: Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0.	Converting Units NCETM Resources: Convert between units of measure Recall: Summer Block 5 Flashback 4 National Curriculum Objectives: Convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml]. Understand and use approximate equivalences between metric units and	Volume NCETM Resources: Recall: Summer Block 6 Flashback 4 National Curriculum Objectives: Estimate volume [for example using 1cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]. Use all four operations to solve problems involving measure.

Maths Long Term Overview – Year 5

Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. *Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.* *Identify: angles at a point and one whole turn (total 360°), angles at a point on a straight line and ½ a turn (total 180°) other multiples of 90°*		*to three decimal places.* *Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.* *Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.*		*common imperial units such as inches, pounds and pints.* *Solve problems involving converting between units of time.*	

Summer Small Steps					
Shape	**Position and Direction**	**Decimals**	**Negative Numbers**	**Converting Units**	**Volume**

Maths Long Term Overview – Year 5

Updated when new steps are released (March 2023)	*Updated when new steps are released (March 2023)*	*Updated when new steps are released (March 2023)*	*Updated when new steps are released (March 2023)*	*Updated when new steps are released (March 2023)*	*Updated when new steps are released (March 2023)*