



## HVPA Maths Sequence of Learning Progression – Year 5

This overview breaks down each of the Programmes of Study and domains covered by Year 5 and shows the approximate amount of weeks expected in the teaching of each area. Time is built in for consolidation and extension (based on the security of pupils' understanding & readiness to move on, challenge through problem solving and reasoning) and assessment within each term.

Autumn Term	Domain	National Curriculum Programmes of Study	Specific Teaching Areas
<b>Number:</b> approx. 5½ weeks	Number and place value Place value within 100,000	Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit (10,000).	<ul style="list-style-type: none"> <li>Numbers to 1000</li> </ul>
		Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.	
		Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 (10, 100 and 1,000).	<ul style="list-style-type: none"> <li>Rounding to the nearest 10, 100 and 1,000</li> </ul>
		Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.	<ul style="list-style-type: none"> <li>10,000s, 1,000s, 100s, 10s and 1s</li> </ul>
		Solve number problems and practical problems that involve all of the above	
		Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit (10,000).	<ul style="list-style-type: none"> <li>The number line to 100,000</li> <li>Comparing and ordering numbers to 100,000</li> </ul>
		Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000	<ul style="list-style-type: none"> <li>Rounding numbers within 100,000</li> </ul>
		Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals	<ul style="list-style-type: none"> <li>Roman numerals to 10,000</li> </ul>
	Number and place value Place value within 1,000,000	Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.	<ul style="list-style-type: none"> <li>100,000s, 10,000s, 1,000s, 100s, 10s and 1s</li> <li>Number line to 1,000,000</li> <li>Comparing and ordering numbers to 1,000,000</li> </ul>
		Solve number problems and practical problems that involve all of the above.	
		Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000.	<ul style="list-style-type: none"> <li>Rounding numbers to a 1,000,000</li> </ul>
		Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.	<ul style="list-style-type: none"> <li>Negative numbers</li> </ul>
		Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.	<ul style="list-style-type: none"> <li>Counting in 10s, 100s, 1,000s, 10,000s</li> </ul>
		Solve number and practical problems that involve all of the above.	<ul style="list-style-type: none"> <li>Number sequences</li> </ul>
	Number – addition and subtraction	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	<ul style="list-style-type: none"> <li>Adding whole numbers with more than 4 digits</li> <li>Subtracting whole numbers with more than 4 digits</li> </ul>
		Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	<ul style="list-style-type: none"> <li>Using rounding to estimate and check answers</li> </ul>

		Add and subtract numbers mentally with increasingly large numbers.	<ul style="list-style-type: none"> <li>Mental addition and subtraction</li> </ul>
		Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	<ul style="list-style-type: none"> <li>Mental addition and subtraction</li> <li>Problem solving – addition and subtraction</li> </ul>
<b>Statistics:</b> approx. 1 week	Graphs and tables	Complete, read and interpret information in tables, including timetables.	<ul style="list-style-type: none"> <li>Interpreting tables</li> <li>Two-way tables</li> </ul>
		Solve comparison, sum and difference problems using information presented in a line graph.	<ul style="list-style-type: none"> <li>Interpreting line graphs</li> <li>Drawing line graphs</li> </ul>
<b>Number:</b> approx. 2 weeks	Multiplication and division	Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers	<ul style="list-style-type: none"> <li>Multiples</li> </ul>
		Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	
		Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.	<ul style="list-style-type: none"> <li>Factors</li> </ul>
		Establish whether a number up to 100 is prime and recall prime numbers up to 19.	
		Know and use the vocabulary of prime numbers, prime factors	<ul style="list-style-type: none"> <li>Prime numbers</li> </ul>
		Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	<ul style="list-style-type: none"> <li>Using factors</li> </ul>
		Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).	<ul style="list-style-type: none"> <li>Cubes</li> <li>Inverse operations</li> </ul>
		Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.	
		Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.	<ul style="list-style-type: none"> <li>Multiplying whole numbers by 10, 100 and 1,000</li> <li>Dividing whole numbers by 10, 100 and 1,000</li> <li>Multiplying and dividing by multiples of 10, 100 and 1,000</li> </ul>
<b>Measurement</b> approx. 1½ weeks	Area and perimeter	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	<ul style="list-style-type: none"> <li>Measuring perimeter</li> <li>Calculating perimeter</li> </ul>
		Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm <sup>2</sup> ) and square metres (m <sup>2</sup> ) and estimate the area of irregular shapes.	<ul style="list-style-type: none"> <li>Calculating area</li> <li>Comparing area</li> <li>Estimating area</li> </ul>

Spring Term	Domain	National Curriculum Programmes of Study	Specific Teaching Areas
<b>Number:</b> approx. 2½ weeks          approx. 5 weeks	Number - Multiplication & division (2)	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	<ul style="list-style-type: none"> <li>Multiplying numbers up to 4 digits by a 1-digit number</li> </ul>
		Multiply and divide numbers mentally drawing upon known facts.	<ul style="list-style-type: none"> <li>Multiplying 2-digit numbers</li> </ul>
		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.	<ul style="list-style-type: none"> <li>Multiplying 2-digit numbers</li> <li>Multiplying a 3-digit number by a 2-digit number</li> <li>Multiplying a 4-digit number by a 2-digit number</li> </ul>
		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	<ul style="list-style-type: none"> <li>Dividing up to a 4-digit number by a 1-digit number</li> <li>Division with remainders</li> <li>Problem solving – division with remainders</li> </ul>
	Fractions (including decimals and percentages)	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.	<ul style="list-style-type: none"> <li>Equivalent fractions</li> </ul>
		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, $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$ ).	<ul style="list-style-type: none"> <li>Converting improper fractions to mixed numbers</li> <li>Converting mixed numbers to improper fractions</li> </ul>
		Compare and order fractions whose denominators are all multiples of the same number.	<ul style="list-style-type: none"> <li>Number sequences</li> <li>Comparing and ordering fractions</li> </ul>
		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, $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$ ).	<ul style="list-style-type: none"> <li>Fractions as division</li> </ul>
		Add and subtract fractions with the same denominator and denominators that are multiples of the same number.	<ul style="list-style-type: none"> <li>Adding and subtracting fractions with the same denominator</li> <li>Adding and subtracting fractions</li> </ul>
		Add and subtract fractions with the same denominator and denominators that are multiples of the same number.	<ul style="list-style-type: none"> <li>Adding fractions</li> <li>Subtracting fractions</li> <li>Problem solving – mixed word problems</li> </ul>
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, $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$ ).			
Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.		<ul style="list-style-type: none"> <li>Multiplying fractions</li> <li>Calculating fractions of amounts</li> </ul>	
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, $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$ ).	<ul style="list-style-type: none"> <li>Using fractions as operators</li> <li>Problem solving – mixed word problems</li> </ul>		

approx. 2½ weeks	Decimals and percentages	Read, write, order and compare numbers with up to three decimal places.	<ul style="list-style-type: none"> <li>• Writing decimals</li> </ul>
		Read and write decimal numbers as fractions (for example, $0.71 = 71/100$ ).	<ul style="list-style-type: none"> <li>• Decimals as fractions</li> <li>• Understanding thousandths</li> <li>• Writing thousandths as decimals</li> </ul>
		Read, write, order and compare numbers with up to three decimal places.	<ul style="list-style-type: none"> <li>• Ordering and comparing decimals</li> </ul>
		Round decimals with two decimal places to the nearest whole number and to one decimal place.	<ul style="list-style-type: none"> <li>• Rounding decimals</li> </ul>
		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.	<ul style="list-style-type: none"> <li>• Understanding percentages</li> <li>• Percentages as fractions and decimals</li> <li>• Equivalent fractions, decimals and percentages</li> </ul>
		Solve problems which require knowing percentage and decimal equivalents of $1/2$ , $1/4$ , $1/5$ , $2/5$ , $4/5$ and those fractions with a denominator of a multiple of 10 or 25.	

Summer Term	Domain	National Curriculum Programmes of Study	Specific Teaching Areas
<b>Number:</b> approx. 3 weeks	Fractions (including decimals) Decimals	Solve problems involving number up to three decimal places.	<ul style="list-style-type: none"> <li>Adding and subtracting decimals</li> </ul>
		Read, write, order and compare numbers with up to three decimal places.	<ul style="list-style-type: none"> <li>Decimal sequences</li> </ul>
		Solve problems involving number up to three decimal places.	<ul style="list-style-type: none"> <li>Problem solving – decimals</li> </ul>
		Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.	<ul style="list-style-type: none"> <li>Multiplying decimals by 10</li> </ul>
		Solve problems involving number up to three decimal places	<ul style="list-style-type: none"> <li>Multiplying decimals by 10, 100 and 1,000</li> </ul>
		Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.	<ul style="list-style-type: none"> <li>Dividing decimals by 10</li> <li>Dividing decimals by 10, 100 and 1,000</li> </ul>
<b>Geometry:</b> approx. 3½ weeks	Properties of shapes (1)	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.	<ul style="list-style-type: none"> <li>Measuring angles in degrees</li> </ul>
		Identify - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and 1/2 a turn (total 180°) - other multiples of 90°	
		Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	<ul style="list-style-type: none"> <li>Measuring with a protractor</li> </ul>
		Draw given angles, and measure them in degrees (°).	<ul style="list-style-type: none"> <li>Drawing lines and angles accurately</li> </ul>
		Identify - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and 1 2 a turn (total 180°) - other multiples of 90°.	<ul style="list-style-type: none"> <li>Calculating angles on a straight line</li> <li>Calculating angles around a point</li> </ul>
		Use the properties of rectangles to deduce related facts and find missing lengths and angles.	<ul style="list-style-type: none"> <li>Calculating lengths and angles in shapes</li> </ul>
	Properties of shapes (2)	Identify - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and 1/2 a turn (total 180°) - other multiples of 90°	<ul style="list-style-type: none"> <li>Recognising and drawing parallel lines</li> </ul>
		Use the properties of rectangles to deduce related facts and find missing lengths and angles	<ul style="list-style-type: none"> <li>Recognising and drawing perpendicular lines</li> <li>Reasoning about parallel and perpendicular lines</li> </ul>
		Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	<ul style="list-style-type: none"> <li>Regular and irregular polygons</li> </ul>
		Identify 3D shapes, including cubes and other cuboids, from 2D representations	<ul style="list-style-type: none"> <li>Reasoning about 3D shapes</li> </ul>
	Position and direction	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.	<ul style="list-style-type: none"> <li>Reflection</li> <li>Reflection with coordinates</li> <li>Translation</li> <li>Translation with coordinates</li> </ul>
	<b>Measure:</b> approx. 3 weeks	Converting units	Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).
Use all four operations to solve problems involving measure (for example, length, mass, volume, money) using decimal notation, including scaling			

		Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	<ul style="list-style-type: none"> <li>• Imperial units of length</li> <li>• Imperial units of mass</li> <li>• Imperial units of capacity</li> </ul>
		Solve problems involving converting between units of time.	<ul style="list-style-type: none"> <li>• Converting units of time</li> <li>• Timetables</li> </ul>
		Complete, read and interpret information in tables, including timetables.	
		Use all four operations to solve problems involving measure (for example, length, mass, volume, money) using decimal notation, including scaling.	<ul style="list-style-type: none"> <li>• Problem solving – measure</li> </ul>
	Volume and capacity	Estimate volume (for example, using 1 cm <sup>3</sup> blocks to build cuboids (including cubes)) and capacity (for example, using water).	<ul style="list-style-type: none"> <li>• What is volume?</li> <li>• Comparing volumes</li> <li>• Estimating volume</li> <li>• Estimating capacity</li> </ul>