HVPA Maths Updated Sequence of Learning Progression – Year 4

This overview breaks down each of the Programmes of Study and domains covered by Year 4 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. Year 4 progression: there has been very little change to the progression of units but Area rather than Perimeter is now the Measure unit included in Term A. Area has been moved to the Autumn term. This now precedes the multiplication and division block as at this stage children are exploring the idea of area (by counting squares) rather than the formula, so multiplication facts are not a pre-requisite. Length and perimeter has been moved to the Spring term. Resources to have ready: in the Autumn term you are mostly going to need place value counters and grids

<u>Changes within the Learning Progressions:</u>

Place Value Within 1000

- The steps on rounding have been put together at the end of the block rather than interspersed as present.
- This, together with the final extra step which explores rounding to different degrees of accuracy, will allow a more focused look at the concept of rounding.
- The block starts with revision of the numbers to 1,000 studied in Year 3 to make sure these are secure before moving to 4-digit numbers.
- The study of negative numbers has been moved to Year 5 where it can be explored in greater depth rather than a single step.

Addition and subtraction

- There is a more gradual introduction to the addition and subtraction of numbers with four digits, with consideration of numbers with fewer digits revisited first in the steps.
- There is more explicit consideration of cases where there are no tens and no hundreds when subtracting to support the difficulties sometimes encountered by children when exchanging in calculations like these.

Area

- Note that this block now precedes the multiplication and division block. At this stage children are exploring the idea of area (by counting squares) rather than the formula, so multiplication facts are not a prerequisite.

Multiplication & Division

- Many steps have been swapped with the other multiplication and division block in Year 4 in the previous version of the schemes. For example, multiplication by 10 and 100 has been moved to the later block where understanding of this is needed to support the formal method of short multiplication.
- Multiples of 3 are revisited before exploring the related 6- and 9-times tables, and a step is included to look at the connections between these.

Autumn Term					
Strand	**PM Unit**	**PM Unit Title**	**Lesson**	**NC Objective 1**	**NC Objective 2**
Number – Number and Place Value (approx. 3½ weeks)	1	Place Value – 4-digit numbers (1) (8 lessons)	Represent and partition numbers to 1,000	Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)	
			Number line to 1,000		
			Multiples of 1,000	Count in multiples of 6, 7, 9, 25 and 1,000	
			4-digit numbers	Identify, represent and estimate numbers using different representations	
			Partition 4-digit numbers flexibly	Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)	
			Partition 4-digit numbers flexibly	Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)	Identify, represent and estimate numbers using different representations
			1, 10, 100, 1,000 more or less	Find 1,000 more or less than a given number	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
			1,000s, 100s, 10s and 1s	Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)	Identify, represent and estimate numbers using different representations
	2	Place Value – 4-digit numbers (2) (8 lessons)	Number line to 10,000	Identify, represent and estimate numbers using different representations	Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)
			Between two multiples	Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)	Count in multiples of 6, 7, 9, 25 and 1000
			Estimate on a number line to 10,000	Order and compare numbers beyond 1,000	Identify, represent and estimate numbers using different representations
			Compare and order numbers to 10,000	Order and compare numbers beyond 1,000	Identify, represent and estimate numbers using different representations
			Round to the nearest 1,000	Round any number to the nearest 10, 100 or 1,000	

			Round to the nearest 100		
			Round to the nearest 10		
			Round to the nearest 1,000, 100 or 10		
Number – Addition & Subtraction (approx. 3½ weeks)	**3**	Addition and subtraction (2) (16 lessons)	Add and subtract 1s, 10s, 100s, 1,000s	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	Solve number and practical problems that involve all of the above and with increasingly large positive numbers
			Add two 4-digit numbers – one exchange		
			Add two 4-digit numbers – one exchange		
			Add with more than one exchange		
			Subtract two 4-digit numbers		
			Subtract two 4-digit numbers – one exchange		
			Subtract two 4-digit numbers – more than one exchange		
			Exchange across two columns		
			Efficient methods	Estimate and use inverse operations to check answers to a calculation	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
			Equivalent difference		
			Estimate answers		
			Check strategies		
			Problem solving – one step	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	
			Problem solving – comparison		
			Problem solving – two steps		
			Problem solving – multi-step problems		
Measurement – (approx. 1 week)	**4**	Measure - Area (5 lessons)	What is area? Count squares	Find the area of rectilinear shapes by counting squares	
			Measure area using squares		
			Count squares		
			Make shapes		
			Compare area	Estimate, compare and calculate different measures, including money in pounds and pence	
Number – multiplication and division (approx. 2 ½ weeks)	**5**	Multiplication and Division (12 lessons)	Multiples of 3	Recall multiplication and division facts for multiplication tables up to 12 × 12	
			Multiply and divide by 6		
			6 times-table and division facts		
			Multiply and divide by 9		
			9 times-table and division facts		
			The 3, 6 and 9 times-tables		
			Multiply and divide by 7		
			7 times-table and division facts		
			11 and 12 times-tables and division facts		
			Multiply by 1 and 0	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers	
			Divide by 1 and itself		
			Multiply three numbers		

Spring Term

Strand	**PM Unit**	**PM Unit Title**	**Lesson**	**NC Objective 1**	**NC Objective 2**
Number – multiplication and division (approx. 3½ weeks)	**6**	Multiplication & Division (2) (16 lessons)	Factor pairs	Recognise and use factor pairs and commutativity in mental calculations	
			Multiply and divide by 10	Recall multiplication and division facts for multiplication tables up to 12 × 12	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
			Multiply and divide by 100		
			Related facts – multiplication		
			Related facts - division		
			Multiply and add	Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	
			Informal written methods	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	

			Multiply 2 digits by 1 digit		
			Multiply 3 digits by 1 digit		
			Solve multiplication problems	Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	
			Basic division	Recognise and use factor pairs and commutativity in mental calculations	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
			Division and remainders	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	
			Divide 2-digit numbers	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers	
			Divide 3-digit numbers		
			Correspondence problems	Recognise and use factor pairs and commutativity in mental calculations	Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects
			Efficient multiplication	Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	Recognise and use factor pairs and commutativity in mental calculations
Measurement (approx. 1½ weeks)	**7**	Length & Perimeter (6 lessons)	Measure in km and m	Convert between different units of measure [for example, kilometre to metre; hour to minute]	
			Perimeter on a grid	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	
			Perimeter of a rectangle		
			Perimeter of rectilinear shapes		
			Find missing lengths in rectilinear shapes		
			Perimeter of polygons		
Number – Fractions - (including decimals and percentages) (approx. 5 weeks)	**8**	Fractions (1) (9 lessons)	Count beyond 1	Non-statutory guidance: They practise counting using simple fractions and decimals, both forwards and backwards	Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
			Partition a mixed number	Ready to progress criteria (4F–1): Reason about the location of mixed numbers in the linear number system	
			Number lines with mixed numbers		Compare and order unit fractions, and fractions with the same denominators
			Compare and order mixed numbers		
			Convert mixed numbers to improper fractions		Recognise and show, using diagrams, equivalent fractions with small denominators
			Convert improper fractions to mixed numbers		
			Equivalent fractions	Recognise and show, using diagrams, families of common equivalent fractions	Compare and order unit fractions, and fractions with the same denominators
			Equivalent fraction families		Recognise and show, using diagrams, equivalent fractions with small denominators
			Simplify fractions		Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
	9	Fractions (2) (8 lessons)	Add and subtract two or more fractions	Add and subtract fractions with the same denominator	
			Add fractions and mixed numbers		
			Subtract from mixed numbers		
			Subtract from whole amounts		
			Problem solving – add and subtract fractions (1)	Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number	
			Problem solving – add and subtract fractions (2)		
			Fraction of an amount	Non-stat lesson. It is not specifically mentioned in the curriculum	Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
			Problem solving – fraction of an amount	Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number	
	10	Decimals (1) (12 lessons)	Tenths as fractions	Recognise and write decimal equivalents of any number of tenths or hundredths	
			Tenths as decimals		
			Tenths on a place value grid		
			Tenths on a number line (1)		
			Tenths on a number line (2)		
			Divide 1 digit by 10	Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths	
			Divide 2 digits by 10		
			Hundredths as fractions	Recognise and write decimal equivalents of any number of tenths or hundredths	

			Hundredths as decimals		
			Hundredths on a place value grid		
			Divide 1 or 2 digits by 100	Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths	
			Divide by 10 and 100		
Summer Term					
Strand	**PM Unit**	**PM Unit Title**	**Lesson**	**NC Objective 1**	**NC Objective 2**
Number – fractions (including decimals & percentages) (approx. 1½ weeks)	**11**	Decimals (2) (7 lessons)	Make a whole	Recognise and write decimal equivalents of any number of tenths or hundredths	
			Partition decimals		
			Flexibly partition decimals		
			Compare decimals	Compare numbers with the same number of decimal places up to two decimal places	
			Order decimals		
			Round to the nearest whole	Round decimals with one decimal place to the nearest whole number	
			Halves and quarters as decimals	Recognise and write decimal equivalents to ½, ¾, ¼	
Measurement – money & time (approx. 2 ½ weeks)	**12**	Money (6 lessons)	Write money using decimals	Estimate, compare and calculate different measures, including money in pounds and pence	
			Convert between pounds and pence		
			Compare amounts of money		
			Estimate with money		
			Calculate with money		
			Solve problems with money		
	13	Time (5 lessons)	Years, months, weeks and days	Convert between different units of measure [for example, kilometre to metre; hour to minute]	
			Hours, minutes and seconds		
			Convert between analogue and digital times		
			Convert to the 24-hour clock		
			Problem solving – convert units of time		
Geometry – properties of shapes (approx. 1½ weeks)	**14**	Geometry – angles and 2D shapes (8 lessons)	Identify angles	Identify acute and obtuse angles and compare and order angles up to two right angles by size	
			Compare and order angles		
			Triangles	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	
			Quadrilaterals		
			Polygons		
			Reason about polygons		
			Lines of symmetry	Identify lines of symmetry in 2D shapes presented in different orientations	
			Complete a symmetric figure	Complete a simple symmetric figure with respect to a specific line of symmetry	
Statistics (approx. 1½ weeks)	**15**	Statistics (6 lessons)	Interpret charts	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	
			Solve problems with charts (1)	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	
			Solve problems with charts (2)	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	
			Interpret line graphs (1)		
			Interpret line graphs (2)	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	
			Draw line graphs	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	
Geometry – position and direction (approx. 1½ weeks)	**16**	Geometry – position and direction (6 lessons)	Describe position	Describe positions on a 2D grid as coordinates in the first quadrant	
			Describe position using coordinates		
			Plot coordinates	Plot specified points and draw sides to complete a given polygon	Describe positions on a 2D grid as coordinates in the first quadrant
			Draw 2D shapes on a grid		
			Translate on a grid	Describe movements between positions as translations of a given unit to the left/right and up/down	
			Describe translation on a grid		