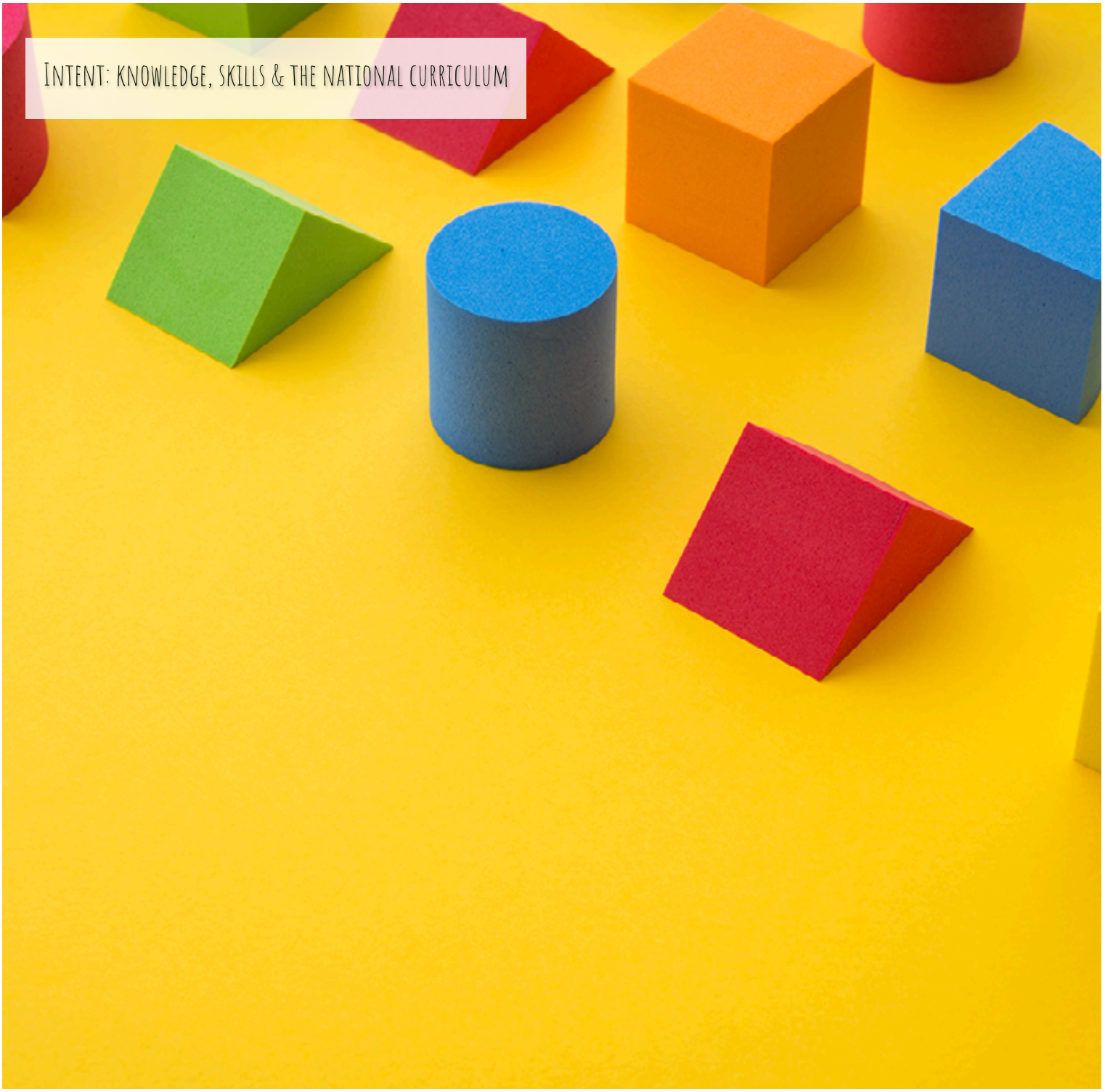
Mathematics Curriculum

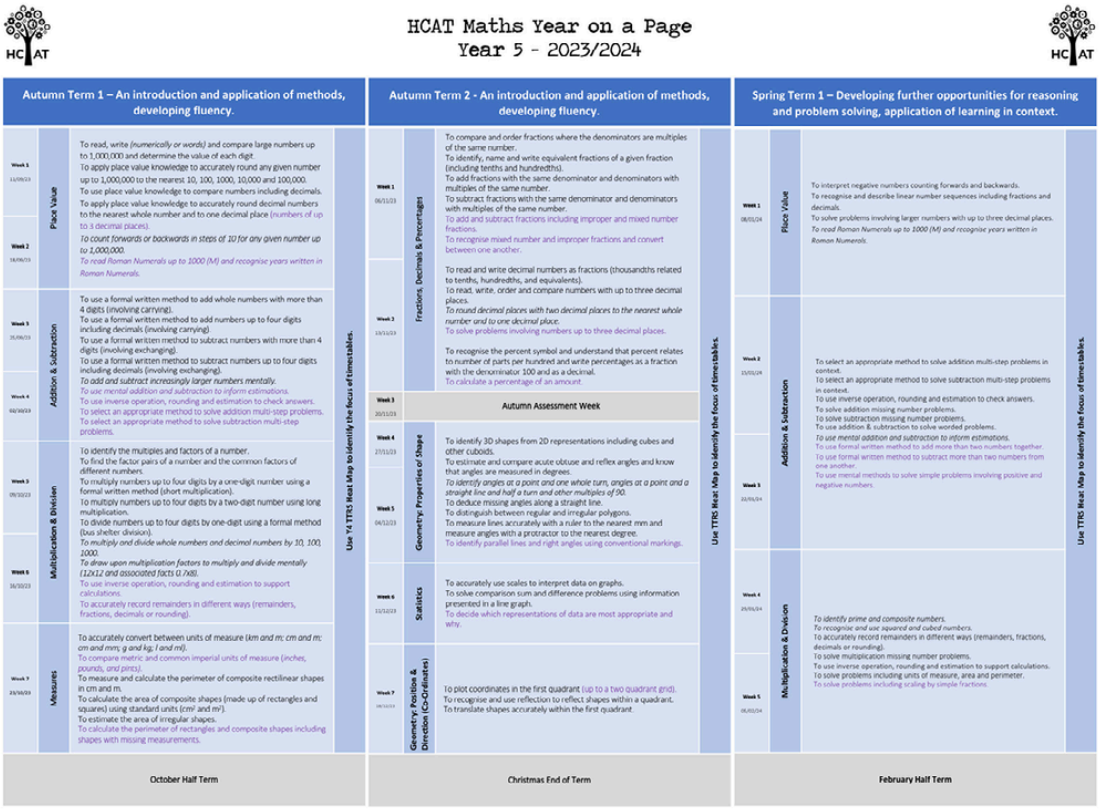
West Meadows Primary School

Intent: knowledge, skills & the national curriculum



At West Meadows Primary School, we endeavour to teach Maths so children are taught to apply their knowledge and skills to a range of practical, real life contexts, to ensure their learning is both purposeful and meaningful. Underpinning this is the requirement for fluency, which is a whole-school focus. Skills are linked and taught together to maximise teaching and learning time to give context to learning.

Our teaching is based on the recommended National Curriculum, which has been personalised to meet the needs of our learners. 'Maths Year on a Page' has been developed for each individual year group to ensure pace and progression across school. Sitting behind these are our 'Curriculum Guides', which aim to support key subject knowledge, address common misconceptions as well as make links with other maths concepts to support an integrated approach.



HCAT Maths Year on a Page
Year 5 - 2023/2024

Autumn Term 1 – An introduction and application of methods, developing fluency.

Week 1 11/09/23	Place Value	To read, write *(numerically or words)* and compare large numbers up to 1,000,000 and determine the value of each digit. To apply place value knowledge to accurately round any given number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000. To use place value knowledge to compare numbers including decimals. To apply place value knowledge to accurately round decimal numbers to the nearest whole number and to one decimal place *(numbers of up to 3 decimal places).* *To count forwards or backwards in steps of 10 for any given number up to 1,000,000.* *To read Roman Numerals up to 1000 (M) and recognise years written in Roman Numerals.*
Week 2 18/09/23		
Week 3 25/09/23	Addition & Subtraction	To use a formal written method to add whole numbers with more than 4 digits (involving carrying). To use a formal written method to add numbers up to four digits including decimals *(involving carrying).* To use a formal written method to subtract numbers with more than 4 digits (involving exchanging). To use a formal written method to subtract numbers up to four digits including decimals (involving exchanging). *To add and subtract increasingly larger numbers mentally.* *To use mental addition and subtraction to inform estimations.* To use inverse operation, rounding and estimation to check answers. To select an appropriate method to solve addition multi-step problems. To select an appropriate method to solve subtraction multi-step problems.
Week 4 02/10/23		
Week 5 09/10/23	Multiplication & Division	To identify the multiples and factors of a number. To find the factor pairs of a number and the common factors of *different numbers.* To multiply numbers up to four digits by a one-digit number using a formal written method (short multiplication). To multiply numbers up to four digits by a two-digit number using long multiplication. To divide numbers up to four digits by one-digit using a formal method (bus shelter division). *To multiply and divide whole numbers and decimal numbers by 10, 100, 1000.* *To draw upon multiplication factors to multiply and divide mentally (12x12 and associated facts (1.7x8).* To use inverse operation, rounding and estimation to support calculations. To accurately record remainders in different ways (remainders, fractions, decimals or rounding).
Week 6 16/10/23		
Week 7 23/10/23	Measures	To accurately convert between units of measure (*km and m; cm and m; cm and mm; g and kg; l and ml*). To compare metric and common imperial units of measure (*inches, pounds, and pints*). To measure and calculate the perimeter of composite rectilinear shapes in cm and m. To calculate the area of composite shapes (made up of rectangles and squares) using standard units (cm² and m²). To estimate the area of irregular shapes. To calculate the perimeter of rectangles and composite shapes including shapes with missing measurements.

Use Y4 TTRS Beat Map to identify the focus of timestables.

October Half Term

Autumn Term 2 - An introduction and application of methods, developing fluency.

Week 1 06/11/23	Fractions, Decimals & Percentages	To compare and order fractions where the denominators are multiples of the same number. To identify, name and write equivalent fractions of a given fraction (including tenths and hundredths). To add fractions with the same denominator and denominators with multiples of the same number. To subtract fractions with the same denominator and denominators with multiples of the same number. To add and subtract fractions including improper and mixed number fractions. To recognise mixed number and improper fractions and convert between one another.
Week 2 13/11/23		To read and write decimal numbers as fractions (thousandths related to tenths, hundredths, and equivalents). To read, write, order and compare numbers with up to three decimal places. *To round decimal places with two decimal places to the nearest whole number and to one decimal place.* To solve problems involving numbers up to three decimal places. To recognise the percent symbol and understand that percent relates to number of parts per hundred and write percentages as a fraction with the denominator 100 and as a decimal. To calculate a percentage of an amount.
Week 3 20/11/23		
Week 4 27/11/23	Geometry: Properties of Shape	To identify 3D shapes from 2D representations including cubes and other cuboids. To estimate and compare acute obtuse and reflex angles and know that angles are measured in degrees. *To identify angles at a point and one whole turn, angles at a point and a straight line and half a turn and other multiples of 90.* To deduce missing angles along a straight line. To distinguish between regular and irregular polygons. To measure lines accurately with a ruler to the nearest mm and measure angles with a protractor to the nearest degree. To identify parallel lines and right angles using conventional markings.
Week 5 04/12/23		
Week 6 11/12/23	Statistics	To accurately use scales to interpret data on graphs. To solve comparison sum and difference problems using information presented in a line graph. To decide which representations of data are most appropriate and why.
Week 7 18/12/23	Geometry: Position & Direction (Co-Ordinates)	To plot coordinates in the first quadrant (up to a two quadrant grid). To recognise and use reflection to reflect shapes within a quadrant. To translate shapes accurately within the first quadrant.

Autumn Assessment Week

Use TTRS Beat Map to identify the focus of timestables.

Christmas End of Term

Spring Term 1 – Developing further opportunities for reasoning and problem solving, application of learning in context.

Week 1 08/01/24	Place Value	To interpret negative numbers counting forwards and backwards. To recognise and describe linear number sequences including fractions and decimals. To solve problems involving larger numbers with up to three decimal places. *To read Roman Numerals up to 1000 (M) and recognise years written in Roman Numerals.*
Week 2 15/01/24	Addition & Subtraction	To select an appropriate method to solve addition multi-step problems in context. To select an appropriate method to solve subtraction multi-step problems in context. To use inverse operation, rounding and estimation to check answers. To solve addition missing number problems. To solve subtraction missing number problems. To use addition & subtraction to solve worded problems. *To use mental addition and subtraction to inform estimations.* To use formal written method to add more than two numbers together. To use formal written method to subtract more than two numbers from one another. To use mental methods to solve simple problems involving positive and negative numbers.
Week 3 22/01/24		
Week 4 29/01/24	Multiplication & Division	*To identify prime and composite numbers.* *To recognise and use squared and cubed numbers.* To accurately record remainders in different ways (remainders, fractions, decimals or rounding). To solve multiplication missing number problems. To use inverse operation, rounding and estimation to support calculations. To solve problems including units of measure, area and perimeter. To solve problems including scaling by simple fractions.
Week 5 05/02/24		

Use TTRS Beat Map to identify the focus of timestables.

February Half Term

HCAT Maths Year on a Page Document

Implementation: Accelerated Learning

The Accelerated Learning Cycle, based on the work of Alastair Smith, is applied in all lessons. It stems from the idea of a supportive and challenging learning environment. Implementation of accelerated learning, supported by EEF metacognition research, has ensured the pace of learning is appropriate and has enabled pupils to secure rapid and sustained progress which has improved outcomes and standards within each lesson.

Within maths sessions, adaptive teaching is effective through the use of progressive and open-ended problems. Pupils are provided with the opportunity to move through carefully selected tasks starting at the level most appropriate to their starting point. Activities are adapted to meet the needs of each individual child, with scaffolds and challenges available for children to use to guide their own learning journey. Through this adaptive approach, we aim to support pupils to take ownerships of their learning and develop independence.

Impact: Assessment

Formative assessment is ongoing throughout each lesson. It judges progress and enables the teacher to make flexible adaptations to their planned teaching.

Effective formative assessment, daily marking and feedback and adult interaction within lessons is firmly embedded into our approach when teaching maths. All pupils are supported to develop, progress and move their learning forward through support, questioning and feedback. Pupils demonstrate the impact this has on improving their learning through editing and response.

The use of clear learning objectives and success criteria ensures pupils to understand their learning and become self-regulated learners who aspire to achieve to their full potential.

Maths is assessed by teachers who use the HCAT trackers for their year groups to allocate a level and next steps for each pupil. Cross moderation occurs in school to ensure moderation is carried out correctly.

Name		Class of		
Mathematics: Assessment Year 3				
Statements	5-10	11-22	23-33	34+
Attainment	**Year 3 Emerging**	**Year 3 Developing**	**Year 3 Secure**	**Year 4 Emerging (GDS end of year)**

Year 3: Maths Assessment: 43 Statements	
Number & Place Value	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.
	Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
	Compare and order numbers up to 1000.
	Identify, represent and estimate numbers using different representations.
	Read and write numbers up to 1000 in numerals and in words.
	Solve number problems and practical problems involving these ideas.
Addition & Subtraction	Add and subtract numbers mentally, including: a three-digit number and ones;
	Add and subtract numbers mentally, including: a three-digit number and tens;
	Add and subtract numbers mentally, including: a three-digit number and hundreds.
	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.
	Estimate the answer to a calculation and use inverse operations to check answers.
	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.
Multiplication & Division	Recall and use multiplication and division facts for the multiplication tables: x3
	Recall and use multiplication and division facts for the multiplication tables: x4
	Recall and use multiplication and division facts for the multiplication tables: x8.
	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.
	Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
Fractions	Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.
	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.
	Recognise and use fractions as numbers: unit fractions (numerator of 1) and non-unit fractions with small denominators.
	Recognise and show, using diagrams, equivalent fractions with small denominators.
	Add and subtract fractions with the same denominator within one whole [for example,5/7 + 1/7 = 6/7].
	Compare and order unit fractions, and fractions with the same denominators.
	Solve problems that involve all of the above.
Measurement	Measure, compare, add and subtract: lengths (m/cm/mm);
	Measure, compare, add and subtract: mass (kg/g);
	Measure, compare, add and subtract: volume/capacity (l/ml).
	Measure the perimeter of simple 2-D shapes.
	Add and subtract amounts of money to give change, using both £ and p in practical contexts.
	Tell and write the time from: an analogue clock and 12-hour and 24-hour clocks;
	Estimate and read time with increasing accuracy to the nearest minute
	Record and compare time in terms of seconds, minutes and hours
	Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.
	Know the number of seconds in a minute and the number of days in each month, year and leap year
	Compare durations of events [for example to calculate the time taken by particular events or tasks].
	Tell and write the time from: an analogue clock, including using Roman numerals from I to XII.
Geometry: Properties of shapes	Draw 2-D shapes and make 3-D shapes using modelling materials.
	Recognise 3-D shapes in different orientations and describe them.
	Recognise angles as a property of shape or a description of a turn.
	Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.
	Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
Statistics	Interpret and present data using bar charts, pictograms and tables.
	Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.

Example of a HCAT Maths Tracker

Our Progressive Curriculum

Progression through addition

EYFS:

- Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

Year 1:

- Read, write and interpret mathematical statements involving addition (+) and equals (=) signs.
- Represent and use number bonds and related subtraction facts within 20.
- Add one-digit and two-digit numbers to 20 including zero.
- Solve one-step problems that involve addition using concrete objects and pictorial representations and missing number problems.

Year 2:

- Solve problems with addition using concrete objects and pictorial representations.
- Apply increasing knowledge of mental and written methods.
- Recall & use addition facts to 20 fluently, and derive and use related facts up to 100.
- Add numbers using concrete objects, pictorial representations, and mentally: a two-digit number and ones, a two-digit number and tens, two two-digit numbers and add three one-digit numbers.
- Show that addition of two numbers can be done in any order (commutative).
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations.

Year 3:

- Add numbers mentally, including: a three-digit number and ones, a three-digit number and tens and a three-digit number and hundreds.
- Add numbers with up to three digits, using formal written methods.
- Estimate the answer to a calculation and use inverse operations to check answers.
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Year 4:

- Add numbers with up to 4 digits using the formal written methods of columnar addition where appropriate.
- Estimate and use inverse operations to check answers to a calculation
solve addition two-step problems in contexts, deciding which operations and methods to use and why.

Year 5:

- Add whole numbers with more than 4 digits, including using formal written methods (column addition).
- Add numbers mentally with increasingly large numbers.
- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.
- Solve addition multi-step problems in contexts, deciding which operations and methods to use and why.

Year 6:

- Use their knowledge of the order of operations to carry out calculations involving the four operations.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- Solve problems involving addition, subtraction, multiplication and division.
- Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.