Pathway to Excellence

Yearly Overview: EYFS – Year 6

Subject: Maths

At Waddesdon Village Primary School we teach a Maths Mastery Curriculum. Our curriculum has been designed using the National Centre for Excellence in the Teaching of Mathematics (NCETM) curriculum which is supplemented by the White Rose scheme of learning where indicated (WR). Pupils also take part in 'Mastering Number' sessions in EYFS, KS1 and in Year 4 and 5. These sessions are designed to ensure pupils have a strong understanding of additive and multiplicative relationships.

Early Years and Foundation Stage						
Number- Mastering Number (NCETM)	**Pupils will build on previous experiences of number from their home and nursery environments, and further develop their subitising and counting skills. They will explore the composition of numbers within 5. They will begin to compare sets of objects and use the language of comparison.** **Pupils will:** • identify when a set can be subitised and when counting is needed • subitise different arrangements, both unstructured and structured, including using the Hungarian number frame • make different arrangements of numbers within 5 and talk about what they can see, to develop their conceptual subitising skills	**Pupils will:** • connect quantities and numbers to finger patterns and explore different ways of representing numbers on their fingers • hear and join in with the counting sequence, and connect this to the 'staircase' pattern of the counting numbers, seeing that each number is made of one more than the previous number • develop counting skills and knowledge, including: that the last number in the count tells us 'how many' (cardinality); to be accurate in counting, each thing must be counted once and once only and in any order; the need for 1:1 correspondence; understanding that anything can be counted, including actions and sounds	**Pupils will continue to develop their subitising and counting skills and explore the composition of numbers within and beyond 5. They will begin to identify when two sets are equal or unequal and connect two equal groups to doubles. They will begin to connect quantities to numerals.** **Pupils will:** • continue to develop their subitising skills for numbers within and beyond 5, and increasingly connect quantities to numerals • begin to identify missing parts for numbers within 5 • explore the structure of the numbers 6 and 7 as '5 and a bit' and connect this to finger patterns and the Hungarian number frame • focus on equal and unequal groups when comparing numbers	**Pupils will:** • understand that two equal groups can be called a 'double' and connect this to finger patterns • sort odd and even numbers according to their 'shape' • continue to develop their understanding of the counting sequence and link cardinality and ordinality through the 'staircase' pattern • order numbers and play track games • join in with verbal counts beyond 20, hearing the repeated pattern within the counting numbers	**Pupils will consolidate their counting skills, counting to larger numbers and developing a wider range of counting strategies. They will secure knowledge of number facts through varied practice.** **Pupils will:** • continue to develop their counting skills, counting larger sets as well as counting actions and sounds • explore a range of representations of numbers, including the 10-frame, and see how doubles can be arranged in a 10-frame • compare quantities and numbers, including sets of objects which have different attributes	**Pupils will:** • continue to develop a sense of magnitude, e.g. knowing that 8 is quite a lot more than 2, but 4 is only a little bit more than 2 • begin to generalise about 'one more than' and 'one less than' numbers within 10 • continue to identify when sets can be subitised and when counting is necessary • develop conceptual subitising skills including when using a rekenrek

	• spot smaller numbers 'hiding' inside larger numbers	• compare sets of objects by matching • begin to develop the language of 'whole' when talking about objects which have parts				
Developing Spatial Awareness	***Children need opportunities to move both themselves and objects around, so they see things from different perspectives. This will support them in visualising how things will appear when turned around and imagining how things might fit together. They need to make constructions, patterns and pictures, and select shapes which will fit when rotated or flipped in insert boards, shape sorters and jigsaws. These experiences will support them in noticing the results of rotating and reflecting images, and in visualising these.*** **Activities:** • riding trikes around interesting routes • construction activities • printing and making pictures and patterns with shapes • jigsaws • making a complete circuit with a train track • directing a simple robot or remote-controlled toy vehicle along a route • • tangrams: 'Can you make a shape monster with the shapes?					
Developing Spatial vocabulary	***Children need opportunities to be exposed to and to use the language of position and direction: position: 'in', 'on', 'under' direction: 'up', 'down', 'across'. Children also need opportunities to use terms which are relative to the viewpoint: 'in front of', 'behind', 'forwards', 'backwards' ('left' and 'right' to be used later on as ideas develop). Create as many opportunities as possible to explore this language, taking advantage of play in the outdoors to explore sequences of body movements (following obstacle courses, directing a friend, etc.).*** **Activities:** • developing and talking about small-world scenarios, e.g. doll's house, miniature village, play park • hunting for hidden objects, with some prompts, e.g. 'Look behind the bicycle store, take three steps from the front of the art cupboard…' • acting out their own versions of well-known stories where characters negotiate routes and obstacles, for example 'We're Going on a Bear Hunt' • directing each other as robots.					
Shape awareness	***Through play – particularly in construction – children have lots of opportunities to explore shapes, the attributes of particular shapes, and to select shapes to fulfil a particular need. Support this exploration by discussing items built by children in terms of how towers are built and why certain shapes are chosen to make a tower, and the space that has been created within an enclosure. Ask: 'How did you make that tower?', 'Why were those blocks good ones to use?'*** **Activities:** • construction with structured and unstructured materials • • making dens with varied materials outdoors.					
Representing spatial relationships	***Small world play and model building provide lots of opportunities for children to describe things being 'in front of', 'behind', 'on top of' etc., and to consider objects from different perspectives. Drawing representations of these relationships is a further challenge. These drawings may include a simple representation of a three-dimensional object from a different viewpoint. For example, 'can you draw your construction from above, looking down on it?'*** **Activities:** • designing a plan for a garden or play area, using a small tray with sand, twigs, building bricks, etc • drawing or making a simple map of a route with 'landmarks', e.g. houses and trees					

Identifying similarities between shapes	***Children need opportunities to construct and create things that represent objects in their environment. As they do this, they should notice shape properties of the object that they want to represent; encourage them to think about the appropriateness of the shapes they choose. Examples of this may include representing a ball as a circle, building a train from wooden rectangular blocks, or using a curved block for the elephant's trunk.*** **Activities:** • stories as a prompt for creating representations, e.g. building a house for the three bears • • making pictures with found materials, as well as structured shapes and blocks.
Properties of Shapes	***Draw children's attention to specific properties by using specific language in everyday situations, while children may use informal language. Properties may include: • curvedness • numbers of sides and corners (2D) or edges, faces and vertices (3D) • equal sides • parallel sides • angle size, including right angles • 2D shapes as faces of 3D shapes. In play, children should show that they are utilising this knowledge by gathering specific items that are needed for their construction, e.g. making a bed for a teddy and gathering blocks of equal length to make the rectangle; taking time with constructing corners so the shapes fit together to make a right angle.*** ***With shapes such as triangles and rectangles, ensure that children are used to seeing a range of examples, and the same shape in different orientations, as well as different sizes, colours and materials.*** **Activities:** • making an insect hotel – selecting tube-like shapes from a collection of varied materials, some not fit for purpose • creating an extended channel for water to flow from a high container to a low one, some distance away • asking questions, for example: 'What shapes can you make with three people inside a loop of string? What about with four people?' 'What is the same and what is different about these?' • making shapes with sticks and with their own bodies • ***printing with shapes: 'What footprint do you think this cylinder will make? What about if you roll it?'*** • ***• making arrangements with a selection of different rectangles, including squares.***
Relationships between shapes	***As children become more confident with specific shapes, encourage them to spot shapes within shapes. You might talk about small triangles making a bigger triangle or identifying 2D faces of 3D shapes.*** **Activities:** • choosing 2D shapes to construct a 3D model, e.g. using triangles and rectangles to make a tent • making decorations by folding and cutting • • making 3D shapes using interlocking shapes.

Key Stage 1

Year 1- Maths Curriculum Pupils use language of dates, days of the week, months, years and seasons throughout the year.	Previous Reception experiences (5 weeks) Comparison of quantities and part–whole relationships (3 weeks)	Numbers 0 to 5 (2 weeks) Recognise, compose, decompose and manipulate 2D and 3D shapes (3 weeks) Measure (WR)	Numbers 0 to 10 (3 weeks) Additive structures (4 weeks)	Addition and subtraction facts within 10 (3 weeks) Numbers 0 to 20 (2 weeks) .	Numbers 0 to 20 contd. (2 weeks) Unitising and coin recognition (5 weeks)	Fractions (WR) (2 weeks) Position and direction (1 week) Time (2 weeks)

Year 1 Mastering Number	**Pupils will have an opportunity to consolidate the Early Learning Goals and continue to explore the composition of numbers within 10, and the position of these numbers in the linear number system.** Pupils will: • subitise within 5, including when using a rekenrek, and re-cap the composition of 5 • develop their understanding of the numbers 6 to 9 using the '5 and a bit' structure • compare numbers within 10 and use precise mathematical language when doing so • re-cap the order of numbers within 10 and connect this to '1 more' and '1 less' than a given number • explore the structure of even numbers (including that even numbers can be composed by doubling any number, and can be composed of 2s) • explore the structure of the odd numbers as being composed of 2s and 1 more • explore the composition of each of the numbers 6, 8, and 10 • explore number tracks and number lines and identify the differences between them		**Pupils will continue to explore the composition of numbers within 10 and explore addition and subtraction structures and the related language (without the use of symbols).** Pupils will: • explore the composition of each of the numbers 7 and 9 • explore the composition of odd and even numbers, seeing that even numbers can be made of two odd or two even parts, and that odd numbers can be composed of one odd part and one even part • identify the number that is two more or two less than a given odd or even number, identifying that two more/ less than an odd number is the next/ previous odd number, and two more/ less than an even number is the next/ previous even number • explore the aggregation and partitioning structures of addition and subtraction through systematically partitioning and re-combining numbers within 10 and connecting this to the part-part-whole diagram, including using the language of parts and wholes • explore the augmentation and reduction structures of addition and reduction using number stories, including introducing the 'first, then, now' language structure		**Pupils will explore the composition of numbers within 20 and their position in the linear number system. They will connect addition and subtraction expressions and equations to 'number stories').** Pupils will: • explore the composition of the numbers 11 to 19 as '10 and a bit' and compare numbers within 20 • connect the composition of the numbers 11 to 19 to their position in the linear number system, including identifying the midpoints of 5, 10 and 15 • compare numbers within 20 • understand how addition and subtraction equations can represent previously explored structures of addition and subtraction (aggregation/ partitioning/ augmentation/ reduction) • practise retrieving previously taught facts and reason about these	
Year 2- Maths Curriculum In Year 2, some units may move or be prioritised depending on teacher assessment and the handing-in of end of keys stage data.	Numbers 10 to 100 (4 weeks) Money (1 week) Calculations within 20 (2 weeks)	Fluently add and subtract within 10 (1 week) Addition and subtraction of 2 digit numbers (1) (2 weeks) Introduction to multiplication (4 weeks)	Introduction to multiplication (3 weeks) Introduction to division structures (2 weeks)	Fractions (2 weeks) Addition and subtraction of 2 digit numbers (3 weeks)	Shape (2 weeks) Time (1 week) Position and direction (1 week) Multiplication and division – doubling, halving, quotitive and partitive division (3 weeks)	Measure- Height and length WR (1 week) Measure- Capacity, volume, mass, temperature WR (2 weeks) Statistics WR (1 week)

Year 2 Mastering Number	**Pupils will have an opportunity to consolidate their understanding and recall of number bonds within 10; they will re-cap the composition of the numbers 11 to 20 and reason about their position within the linear number system.** Pupils will: • review the composition of the numbers 6 to 9 as '5 and a bit' • compare numbers using the language of comparison and use the symbols < > = • review the structure of even numbers (including exploring how even numbers can be composed of two odd parts or two even parts) and the composition of each of 6, 8 and 10 • review the structure of odd numbers (including exploring how odd numbers can be composed of one odd part and one even part) and the composition of each of 7 and 9 • consolidate their understanding of the numbers 10 and 20 as '10 and a bit' • consolidate their understanding of the linear number system to 20 and reason about midpoints		**Pupils will have an opportunity to use their knowledge of the composition of numbers within 10 to calculate within 20; they will explore the links between the numbers in the linear number system within 10 to numbers within 100, focusing on multiples of 10 and the midpoint of 50.** Pupils will: • explore how the numbers 6 to 9 can be doubled using the '5 and a bit' and '10 and a bit' structure • use doubles to calculate near doubles • use bonds of 10 to reason about bonds of 20, in which the given addend is greater than 10 • use known number bonds within 10 to calculate within 20, working within the 10-boundary • use their knowledge of bonds of 10 to find three addends that sum to 10 • use their knowledge of the composition of numbers within 20 to add and subtract across the 10-boundary • use their understanding of the linear number system to 10 to position multiples of 10 on a 0 - 100 number line and reason about midpoints		**Pupils will have further opportunities to use their knowledge of the composition of numbers within 10 to calculate within 20 and to reason about equations and inequalities.** Pupils will: • continue to explore a range of strategies to subtract across the 10-boundary • review bonds of 20 in which the given addend is greater than 10, and reason about bonds of 20, in which the given addend is less than 10 • practise previously explored strategies to support their reasoning about inequalities and equations • review doubles and near doubles and transform additions in which two addends are adjacent odd/ even numbers into doubles • consolidate previously taught facts and strategies through continued, varied practice	
Lower Key Stage 2						
Year 3- Maths Curriculum Roman Numerals to be taught through History and time	Adding and subtracting across 10 (2 weeks) Numbers to 1,000 (5 weeks)	Numbers to 1,000 contd. (3 weeks) Right angles (2 weeks) Measure WR (2 weeks)	Manipulating the additive relationship and securing mental calculation (4 weeks) Column Addition (1 weeks)	Column Addition (1 weeks) 2, 4, 8 times tables (3 weeks) Column Subtraction (1 week) Unit Fractions (1 week)	Unit Fractions (4 weeks) Non- unit Fractions (4 weeks)	Parallel and perpendicular sides in polygons + (2 weeks) Recognise, Describe and make 3D shapes WR Time (1 week) Statistics WR (1 Week)
Year 4- Maths Curriculum	Column Addition and Subtraction (2 weeks) Numbers to 10,000 (4 weeks) Roman Numerals WR (1 week)	Perimeter (2 weeks) 3, 6, 9 times tables (4 weeks) 7 times table and patterns (2 weeks)	Understanding and manipulating multiplicative relationships (5 weeks)	Coordinates (2 weeks) Review of fractions (1 week) Fractions greater than 1 (3 weeks)	Fractions greater than 1 (2 weeks) Time (1 week) Division with remainders (2 weeks) Statistics WR (1 week)	Shape and angles WR (1 week) Symmetry in 2D shapes (2 weeks) Measure WR (1 week)

Year 4- Mastering Number KS2	Pupils will have an opportunity to consolidate multiplication facts that have been the focus of learning in KS1 and Year 3, such as doubles and the 5 and 10 times tables. They will explore multiplicative contexts and apply these facts to them and explore relationships between factors and associated products when looking at larger numbers. The use of gesture by the teacher and pupil will support with making connections. **Pupils will:** • consider 'many as 1' - seeing that a 'unit' can represent more than 1 • Sort and classify factors and products using multiplicative number sense • recap doubles • recap × 10 and × 5 (connect to halving and doubling) • explore square numbers • use the distributive property to explore the facts in the 11 and 12 times table • use the distributive property to explore the facts in the 9 times table • use the commutative property of multiplication to reorder factors to reduce the number of facts that need to be learnt and start to explore the core multiplication facts table (CMF).		Pupils will explore the core multiplication facts focusing on becoming secure with two facts per week, so that all are known and can be retrieved in a random order. As a class they will support one another to retrieve these facts and use a 'Going for Gold' approach, so that all facts are known as an oral response rather than having to be derived. They will continue to develop multiplicative number sense looking at, for example, the magnitude and/or relationship of related products. **Pupils will:** • sort and classify factors and products using multiplicative number sense • practise retrieving multiplication facts using the oral pattern • know all the core multiplication facts and those related to the 11 and 12 times table • represent the structure of a maths story.		Pupils will continue to retrieve known facts focussing on those that are less secure. They will continue to apply facts to multiplicative contexts and connect both multiplication and division equations to represent the maths story. In particular, they will connect missing factor equations to division. They will sort and classify products into multiples and not multiples of a given number knowing that for example 38 ÷ 4 will not result in a whole number quotient because 38 is not a multiple of 4. **Pupils will:** • practise retrieving multiplication facts using the oral pattern • sort and classify factors and products using multiplicative number sense connect multiplicative contexts to writing and interpreting equations and connect multiplication equations, and multiplication equations with a missing factor, to division, knowing that the product in a multiplication equation is equivalent to the dividend in the corresponding division equation.	
Upper Key Stage 2						
Year 5- Maths Curriculum	Composition and calculation: Multiples of 1,000 up to 1,000,000 (1 week) Roman Numerals WR (1 week) Decimal Fractions (4 weeks) Money (1 week)	Negative Numbers (2 weeks) Short Multiplication and Division (3 weeks) Short Multiplication and Division (2 weeks)	Short Multiplication and Division (1 weeks) Area and Scaling (3 weeks) Perimeter and Shape WR (1 week)	Calculating with Decimal Fractions (3 weeks) Factors, Multiples and Primes (3 weeks)	Factors, Multiples and Primes (1 weeks) Fractions (5 weeks)	Fractions (2 weeks) Converting units (2 weeks) Angles (2 weeks) Statistics WR (1 week)

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<td><u>Year 5- Mastering Number KS2</u></td>
<td colspan="2">Pupils will have an opportunity to consolidate multiplication facts that have been the focus of learning in previous years and use the core multiplication facts table (CMF) to practise those that are less secure. They will explore multiplicative contexts and scale known facts by 10 and 100 and explore relationships between factors and associated products when looking at larger numbers. The use of representations, such as arrays, and the use of gesture by the teacher and pupil will support pupils to see structure and to make connections.
Pupils will:
• continue to practise retrieving multiplication facts using their oral pattern and focus on those that are less secure
• explore contexts where 1 is a factor
• recap scaling by 10 and then apply to scaling by 100 (creating multiples of 10 and 100 - not looking at decimals)
• applying scaling in the contexts of ratios
• make links between multiplication and division expressions as well as equations in different multiplicative contexts
• write an improper fraction and as a whole number such as $\frac{36}{6}$ = 6.The dividend is a multiple of the divisor.
• find a unit fraction of a number to connect the known division fact to scaling down. The dividend is a multiple of the divisor.
continue to explore multiplicative contexts.</td>
<td colspan="2">Pupils will continue to retrieve the core multiplication facts in a random order. They will practise these facts when using the written algorithms for multiplication and division. They will continue to develop multiplicative number sense and connect contexts to equations. When looking at division there will be a focus on remainders and knowledge of when a number is 1 more, 2 more, etc., than a given multiple. They will continue to sort improper fractions into those that will give a whole number quotient and those that do not, and use this knowledge to write improper fractions as mixed numbers and vice versa.
Pupils will:
• continue to practise retrieving multiplication facts using their oral pattern so that they know all the core multiplication facts
• connect a multiplication and addition equation to a division equation with a remainder
• develop multiplicative number sense through using knowledge of divisibility laws
• sort and classify improper fractions into those that give a whole number quotient and those that do not.</td>
<td colspan="2">Pupils will focus on multiplicative composition of number. When a context gives rise to more than two factors, they will use the associative and the commutative property of multiplication to make calculations more accessible. When working with larger numbers they will be encouraged to consider how they see the maths as you shift from one expression to another, for example 3 × 72 to 3 × 73, and 3 × 72 to 4 × 72, being able to explain what each number represents. They will also make connections when number facts have been scaled by 10 (or 100). For example, 5 × 6 = 30; 30 ÷ 5 = 6 and 50 × 6 = 300; 300 ÷ 5 = 6. They will also apply known facts to when a factor is $\frac{1}{10}$ the size making connections to decimal fractions where the denominator of a unit fraction is a multiple of 10.
Pupils will:
• continue to connect multiplicative contexts to writing and interpreting equations
• apply scaling by, 10, 100, $\frac{1}{10}$ or $\frac{1}{100}$ to known facts
• look at the multiplicative composition of number
• explore expressions with three factors and use brackets, considering how the associative property and commutative property can be used to make calculations easier to solve.</td>
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<td><u>Year 6- Maths Curriculum</u>

In Year 6 some units may move or be prioritised depending on teacher assessment and to ensure pupils</td>
<td>Calculating using knowledge of structures (5 Weeks)

Multiples of 1,000 (2 weeks)</td>
<td>Numbers up to 10,000,000 (4 weeks)

Draw, compose and decompose shapes (2 weeks)

Multiplication and Division (1 weeks)</td>
<td>Multiplication and Division contd. (3 weeks)

Area, perimeter, position and direction (2 weeks)</td>
<td>Area, perimeter, position and direction (2 weeks)

Fractions and percentages (4 weeks)

Statistics (1 week)</td>
<td>Fractions and percentages (2 weeks)

Statistics (1 week)

Ratio and proportion (2 weeks)

Calculating using knowledge of structures (1 week)

KS2 SATs</td>
<td>Solving problems with two unknowns (2 weeks)

Order of operations (1 week)

Mean Average (1 week)

Shape WR (2 weeks)</td>
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are prepared for SATs						