

YEAR 4 MATHS CURRICULUM

Outlined below is the Year 4 Maths Curriculum which includes details of both the National Curriculum and the KPS Curriculum. The first column indicates what we have to teach with guidance for this given in the second column. The third column enhances the first by outlining our expectations based on our knowledge of the children of KPS and what we want them to learn and our expectations for their achievement and attainment.

	Programmes of Study STATUTORY	Notes and Guidance NON STATUTORY	Kexborough Primary School OUR EXPECTATIONS AND NON NEGOTIABLES
NUMBER – PLACE VALUE	<p>Pupils should be taught to</p> <ul style="list-style-type: none"> ▪ count in multiples of 6, 7, 9, 25 and 1000 ▪ find 1000 more or less than a given number ▪ count backwards through zero to include negative numbers ▪ recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) ▪ order and compare numbers beyond 1000 ▪ identify, represent and estimate numbers using different representations ▪ round any number to the nearest 10, 100 or 1000 ▪ solve number and practical problems that involve all of the above and with increasingly large positive numbers ▪ read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. 	<p>Using a variety of representations, including measures, pupils become fluent in the order and place value of numbers beyond 1000, including counting in tens and hundreds, and maintaining fluency in other multiples through varied and frequent practice.</p> <p>They begin to extend their knowledge of the number system to include the decimal numbers and fractions that they have met so far.</p> <p>They connect estimation and rounding numbers to the use of measuring instruments.</p> <p>Roman numerals should be put in their historical context so pupils understand that there have been different ways to write whole numbers and that the important concepts of zero and place value were introduced over a period of time.</p>	<p><i>Number and place value should be continually revisited during Mental Maths sessions in practical, investigative ways to ensure that chn retain and consolidate the concepts. The using and applying of these concepts to a range of contexts is essential.</i></p> <p><i>Chn should be able to count, read and write numbers from 0-10, 000 and know what each digit in at least a 4-digit (moving on to 5/6-digit where appropriate) number represents, including 0 as the place holder & partition into Th, H, T & U.</i></p> <p><i>There should be many opportunities for them to count on & back in 10s, 25s, 50s, 100s & 1000s from any number orally and when creating and extending number patterns.</i></p> <p><i>Chn should be introduced to multiplication and division of any number up to 1000 by 10 (whole number answers) using practical apparatus such as an abacus for support. They should know the rule for moving digits one place to the left for multiplication and to the right for division.</i></p> <p><i>Chn should be able to use equality symbols correctly, including less than (<), greater than (>) & equals (=).</i></p>

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NUMBER – ADDITION AND SUBTRACTION	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate ▪ estimate and use inverse operations to check answers to a calculation ▪ solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. 		<p><i>The 'Calculation Policy' is a non negotiable and MUST be followed to ensure consistency of approach and progression throughout school.</i></p> <p><i>Chn should be able to use a wider range of mental methods to add and subtract, which should be practised regularly. The relationship between addition and subtraction must be consolidated and referred to often during teaching and in Mental Maths sessions. To help with mental arithmetic, chn need to be able to derive quickly all number pairs that total 100, and multiples of 50 that total 1000. They should use known number facts and place value to add or subtract mentally, including any pair of 2-digit whole numbers.</i></p> <p><i>It is vital that calculations be taught in 'real life' contexts, with chn having a real purpose to their learning. They should be taught to develop and refine written methods for column addition and subtraction (including carrying & decomposition) of 2 whole numbers less than 1000, and addition of more than 2 such numbers.</i></p> <p><i>Whilst using and applying their calculation skills, chn should choose and use appropriate number operations & ways of calculating to solve problems and explain their methods and reasoning. The use of all four operations to solve word problems involving numbers in 'real life', money and measures (including time) involving one or more step must be covered through this unit.</i></p>

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NUMBER – MULT AND DIV	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ 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 ▪ recognise and use factor pairs and commutativity in mental calculations ▪ multiply two-digit and three-digit numbers by a one-digit number using formal written layout ▪ 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. 	<p>Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency.</p> <p>Pupils practise mental methods and extend this to three-digit numbers to derive facts, (for example $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$).</p> <p>Pupils practise to become fluent in the formal written method of short multiplication and short division with exact answers (see Mathematics Appendix 1).</p> <p>Pupils write statements about the equality of expressions (for example, use the distributive law $39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$). They combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations for example, $2 \times 6 \times 5 = 10 \times 6 = 60$.</p> <p>Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as the numbers of choices of a meal on a menu, or three cakes shared equally between 10 children.</p>	<p style="text-align: center;"><i>Calculation Policy MUST be followed</i></p> <p><i>The relationship between multiplication and division must be consolidated and referred to often during teaching and in Mental Maths sessions. Chn should be taught to use this knowledge during Mental Maths to solve calculations mentally and find remainders after division.</i></p> <p><i>The formal method should developed and refined to progress to dividing a 3-digit number by a 1-digit number (bus stop) and introduce remainders. It is essential that this be taught in a real life context.</i></p> <p><i>Whilst using and applying their calculation skills, chn should choose and use appropriate number operations & ways of calculating to solve problems and explain their methods and reasoning. The use of all four operations to solve word problems involving numbers in 'real life', money and measures (including time) involving one or more step must be covered through this unit.</i></p>

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NUMBER – FRACTIONS (INCLUDING DECIMALS)	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ recognise and show, using diagrams, families of common equivalent fractions ▪ count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. ▪ 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 ▪ add and subtract fractions with the same denominator ▪ recognise and write decimal equivalents of any number of tenths or hundredths ▪ recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ ▪ 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 ▪ round decimals with one decimal place to the nearest whole number ▪ compare numbers with the same number of decimal places up to two decimal places <p>solve simple measure and money problems involving fractions and decimals to two decimal places.</p>	<p>Pupils should connect hundredths to tenths and place value and decimal measure.</p> <p>They extend the use of the number line to connect fractions, numbers and measures.</p> <p>Pupils understand the relation between non-unit fractions and multiplication and division of quantities, with particular emphasis on tenths and hundredths.</p> <p>Pupils make connections between fractions of a length, of a shape and as a representation of one whole or set of quantities. Pupils use factors and multiples to recognise equivalent fractions and simplify where appropriate (for example, $\frac{6}{9} = \frac{2}{3}$ or $\frac{1}{4} = \frac{2}{8}$).</p> <p>Pupils continue to practise adding and subtracting fractions with the same denominator, to become fluent through a variety of increasingly complex problems beyond one whole.</p> <p>Pupils are taught throughout that decimals and fractions are different ways of expressing numbers and proportions.</p> <p>Pupils' understanding of the number system and decimal place value is extended at this stage to tenths and then hundredths. This includes relating the decimal notation to division of whole number by 10 and later 100.</p> <p>They practise counting using simple fractions and decimals, both forwards and backwards.</p> <p>Pupils learn decimal notation and the language associated with it, including in the context of measurements. They make comparisons and order decimal amounts and quantities that are expressed to the same number of decimal places. They should be able to represent numbers with one or two decimal places in several ways, such as on number lines.</p>	<p><i>Decimals should be introduced in Year 4 and chn's understanding aided with apparatus such a counting sticks and diagrams. In 'real life' contexts, the chn should be taught to recognise simple equivalence of decimals and fractions (Eg. $\frac{1}{2}$, $\frac{1}{4}$ $\frac{3}{4}$ & tenths).</i></p> <p><i>Using the support of diagrams and pictures where necessary, chn should be taught to recognise and find simple fractions that are several parts of a whole and mixed numbers. Their recognition of the equivalence of simple fractions should be developed from Year 3, in investigations and collaborative work.</i></p>

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MEASUREMENT	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Convert between different units of measure [for example, kilometre to metre; hour to minute] measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres find the area of rectilinear shapes by counting squares estimate, compare and calculate different measures, including money in pounds and pence read, write and convert time between analogue and digital 12- and 24-hour clocks solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. 	<p>Pupils build on their understanding of place value and decimal notation to record metric measures, including money.</p> <p>They use multiplication to convert from larger to smaller units.</p> <p>Perimeter can be expressed algebraically as $2(a + b)$ where a and b are the dimensions in the same unit.</p> <p>They relate area to arrays and multiplication.</p>	<p><i>It is essential that measures always be taught in real life contexts, with chn applying their knowledge to investigating and solving problems.</i></p> <p><i>They should be encouraged to work in collaboration, using all four operations to solve problems to involving one or more step.</i></p>
GEOMETRY – PROPS OF SHAPE	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes identify acute and obtuse angles and compare and order angles up to two right angles by size identify lines of symmetry in 2-D shapes presented in different orientations complete a simple symmetric figure with respect to a specific line of symmetry. 	<p>Pupils continue to classify shapes using geometrical properties, extending to classifying different triangles (for example, isosceles, equilateral, scalene) and quadrilaterals (for example, parallelogram, rhombus, trapezium).</p> <p>Pupils compare and order angles in preparation for using a protractor and compare lengths and angles to decide if a polygon is regular or irregular.</p> <p>Pupils draw symmetric patterns using a variety of media to become familiar with different orientations of lines of symmetry; and recognise line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape.</p>	<p><i>Chn should be provided with opportunities to draw reflective symmetry involving shapes of an appropriate level of complexity.</i></p> <p><i>Building on their shape knowledge from KS1 and Year 3, chn should be able to classify polygons using criteria such as number of right angles, regular/irregular, lines of symmetry.</i></p>

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GEOMETRY – POS AND DIR	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> describe positions on a 2-D grid as coordinates in the first quadrant describe movements between positions as translations of a given unit to the left/right and up/down plot specified points and draw sides to complete a given polygon. 	<p>Pupils draw a pair of axes in one quadrant, with equal scales and integer labels. They read, write and use pairs of coordinates, for example (2, 5), including using coordinate-plotting ICT tools.</p>	<p><i>With obvious links to the Geography curriculum, chn should be taught to recognise and use positions and directions, including the eight compass directions. This should be taught as part of map work, enabling chn to gain a greater understanding of the location of places within the UK and around the world.</i></p> <p><i>Chn must be taught that angles are measured in degrees and that: one whole turn is 360° or 4 right angles, a quarter turn is 90° or 1 right angle and half a right angle is 45°. They may be given more opportunities to investigate using a protractor to aid the visualisation of these concepts.</i></p>
STATISTICS	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. 	<p>Pupils understand and use a greater range of scales in their representations.</p> <p>Pupils begin to relate the graphical representation of data to recording change over time.</p>	