

## YEAR 2 MATHS CURRICULUM

*Outlined below is the Year 2 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
<b>NUMBER – PLACE VALUE</b>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</li> <li>• recognise the place value of each digit in a two-digit number (tens, ones)</li> <li>• identify, represent and estimate numbers using different representations, including the number line</li> <li>• compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</li> <li>• read and write numbers to at least 100 in numerals and in words</li> <li>• use place value and number facts to solve problems.</li> </ul>	<p>Using materials and a range of representations, pupils practise counting, reading, writing and comparing numbers to at least 100 and solving a variety of related problems to develop fluency. They count in multiples of three to support their later understanding of a third.</p> <p>As they become more confident with numbers up to 100, pupils are introduced to larger numbers to develop further their recognition of patterns within the number system and represent them in different ways, including spatial representations.</p> <p>Pupils should partition numbers in different ways (for example, <math>23 = 20 + 3</math> and <math>23 = 10 + 13</math>) to support subtraction. They become fluent and apply their knowledge of numbers to reason with, discuss and solve problems that emphasise the value of each digit in two-digit numbers. They begin to understand zero as a place holder.</p>	<p><i>This section should be revisited often throughout the year, ensuring that the concept of partitioning, in particular, is secured. This should initially be supported through the use of arrow cards, but quickly move on to being done mentally. When asked, chn should be able to give the value of each digit, naming 'units' as 'ones'.</i></p> <p><i>Chn should also have a secure ability to use a number square to quickly find 1 more or less and multiples of 10 more and less, which will support mental calculations further on in school.</i></p> <p><i>Chn should be able to describe and extend number sequences: counting on and back in ones, twos, threes, fives or tens from any given 2-digit number. They should be taught to test for and recognise odd and even numbers.</i></p> <p><i>See note about Calendar Work.</i></p>

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NUMBER – ADDITION AND SUBTRACTION	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ solve problems with addition and subtraction: <ul style="list-style-type: none"> <li>▪ using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>▪ applying their increasing knowledge of mental and written methods</li> </ul> </li> <li>▪ recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> <li>▪ add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> <li>▪ a two-digit number and ones</li> <li>▪ a two-digit number and tens</li> <li>▪ two two-digit numbers</li> <li>▪ adding three one-digit numbers</li> </ul> </li> <li>▪ show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> <li>▪ recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul>	<p>Pupils extend their understanding of the language of addition and subtraction to include sum and difference.</p> <p>Pupils practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using <math>3 + 7 = 10</math>; <math>10 - 7 = 3</math> and <math>7 = 10 - 3</math> to calculate <math>30 + 70 = 100</math>; <math>100 - 70 = 30</math> and <math>70 = 100 - 30</math>. They check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (for example, <math>5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5</math>). This establishes commutativity and associativity of addition.</p> <p>Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers.</p>	<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>The continuation of teaching maths in context is vital to aid chn's understanding and enable them to apply their knowledge more easily. They should choose and use appropriate operations and calculation strategies to solve problems involving 'real life', money or measures and explain their strategies. To aid this understanding chn need to recognise and order all coins and notes and begin to use £.p notation. Through practical activities, they should find totals, give change and work out which coins to pay with.</i></p> <p><i>Building on teaching from the previous year, chn must have a secure understanding of the fact that subtraction is the inverse of addition and be able to use the vocabulary of addition and subtraction, knowing that addition can be done in any order.</i></p> <p><i>To aid mental calculation, chn should know all pairs of multiples of 10 with a total of 100 and the corresponding subtraction fact.</i></p> <p><i>By the end of Y2 children should be confident with using column method to add two 2 digit numbers (carrying only in the 0 column). With subtraction children should be able to use column method but without the element of decomposition.</i></p>

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NUMBER – MULT AND DIV	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs</li> <li>show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</li> <li>solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>	<p>Pupils use a variety of language to describe multiplication and division.</p> <p>Pupils are introduced to the multiplication tables. They practise to become fluent in the 2, 5 and 10 multiplication tables and connect them to each other. They connect the 10 multiplication table to place value, and the 5 multiplication table to the divisions on the clock face. They begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations.</p> <p>Pupils work with a range of materials and contexts in which multiplication and division relate to grouping and sharing discrete and continuous quantities, to arrays and to repeated addition. They begin to relate these to fractions and measures (for example, <math>40 \div 2 = 20</math>, 20 is a half of 40). They use commutativity and inverse relations to develop multiplicative reasoning (for example, <math>4 \times 5 = 20</math> and <math>20 \div 5 = 4</math>).</p>	<p><i>Calculation Policy MUST be followed</i></p> <p><i>Times tables form the building blocks of many different mental mathematics strategies and by the end of Year 2, it is vital that chn know by heart the 2, 5 and 10 times tables along with their corresponding division facts. They should be able to count in steps of 2, 5 and 10 and recognise multiples of 2, 5 and 10. As chn reach security in these tables, further ones should be explored, beginning with the 3 and 4 times tables.</i></p> <p><i>In conjunction with learning related facts, chn should be taught that division is the inverse of multiplication and be able to use the vocabulary of multiplication and division.</i></p> <p><i>To aid with mental calculating, chn need to Know all doubles and halves to at least 20.</i></p> <p><b>See Singapore Bar Method for teaching arrays. MUST NOT be set out <math>4 \times 5 = 20</math> with four rows of 5 for example.</b></p>
NUMBER - FRACTIONS	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</li> <li>write simple fractions for example, <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</li> </ul>	<p>Pupils use fractions as ‘fractions of’ discrete and continuous quantities by solving problems using shapes, objects and quantities. They connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes. They meet <math>\frac{3}{4}</math> as the first example of a non-unit fraction.</p> <p>Pupils should count in fractions up to 10, starting from any number and using the <math>\frac{1}{2}</math> and <math>\frac{2}{4}</math> equivalence on the number line (for example, <math>1\frac{1}{4}</math>, <math>1\frac{2}{4}</math> (or <math>1\frac{1}{2}</math>), <math>1\frac{3}{4}</math>, 2). This reinforces the concept of fractions as numbers and that they can add up to more than one</p>	<p><i>Working practically remains the key consolidating chn’s basic understanding of fractions. Building on from finding halves and quarters (including three quarters) of shapes, chn should use apparatus to support the calculating halves and quarters of small numbers of objects.</i></p> <p><i>As part of class counting, chn should count in halves &amp; quarters to 10.</i></p>

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MEASUREMENT	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</li> <li>▪ compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =</li> <li>▪ recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>▪ find different combinations of coins that equal the same amounts of money</li> <li>▪ solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</li> <li>▪ compare and sequence intervals of time</li> <li>▪ tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times</li> <li>▪ know the number of minutes in an hour and the number of hours in a day.</li> </ul>	<p>Pupils use standard units of measurement with increasing accuracy, using their knowledge of the number system. They use the appropriate language and record using standard abbreviations.</p> <p>Comparing measures includes simple multiples such as 'half as high'; 'twice as wide'.</p> <p>They become fluent in telling the time on analogue clocks and recording it.</p> <p>Pupils become fluent in counting and recognising coins. They read and say amounts of money confidently and use the symbols £ and p accurately, recording pounds and pence separately.</p>	<p><i>To follow on from FS/Year 1 practice, after daily registration there should be a five minute "calendar time". This should include</i></p> <ul style="list-style-type: none"> <li>- Day</li> <li>- Date (both 'short' and 'long')</li> <li>- Time</li> <li>- Weather / season</li> </ul> <p><i>This should then lead into Q&amp;A around the vocabulary of dates.</i></p> <p><i>Eg If it is Wednesday today what day will it be in one weeks' time?</i></p> <p><i>How many days in this month?</i></p> <p><i>It is April now, what month comes next?</i></p> <p><i>What will the date be in two weeks?</i></p> <p><i>What is the time now? What time will it be in half an hour? How long until playtime?</i></p> <p><i>As in Year 1, the practical aspect of Maths is key and children should be learning measures in real life contexts at all times. They should have opportunities to practise a wide range of measuring equipment, including different types of weighing scales and measuring equipment.</i></p> <p><i>Telling the time is a vital skill for life and daily 'calendar time' and classroom talk should support the chn in telling the time to the nearest 5 minutes on analogue and 12 hour digital clocks.</i></p> <p><i>All coins and notes should be recognised.</i></p>

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GEOMETRY – PROPS OF SHAPE	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</li> <li>identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</li> <li>identify 2-D shapes on the surface of 3-D shapes [for example, a circle on a cylinder and a triangle on a pyramid]</li> <li>compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul>	<p>Pupils handle and name a wide variety of common 2-D and 3-D shapes including: quadrilaterals and polygons, and cuboids, prisms and cones, and identify the properties of each shape (for example, number of sides, number of faces). Pupils identify, compare and sort shapes on the basis of their properties and use vocabulary precisely, such as sides, edges, vertices and faces.</p> <p>Pupils read and write names for shapes that are appropriate for their word reading and spelling.</p> <p>Pupils draw lines and shapes using a straight edge.</p>	<p><i>Building on from Year 1, chn should be able to name and describe Rectangle, Square, Circle, Triangle, Pentagon, Hexagon. Octagon, along with quadrilaterals such as parallelogram, kite, trapezium and rhombus.</i></p> <p><i>Children should be able to recognise and describe the properties of cubes, cuboids, cylinders, spheres, pyramids and prisms.</i></p>
GEOMETRY – POS AND DIR	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>order and arrange combinations of mathematical objects in patterns and sequences</li> <li>use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).</li> </ul>	<p>Pupils should work with patterns of shapes, including those in different orientations.</p> <p>Pupils use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles).</p>	<p><i>The teaching of this section should be mainly carried out as part of the computing curriculum, using practical devices, such as floor and on-screen turtles.</i></p> <p><i>Clear links should be made between turns and telling the time, talking about full turns, half turns &amp; quarter turns.</i></p> <p><i>Chn should know that there are 90 degrees in a right angle.</i></p>
STATISTICS	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>interpret and construct simple pictograms, tally charts, block diagrams and simple tables</li> <li>ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li> <li>ask and answer questions about totalling and comparing categorical data.</li> </ul>	<p>Pupils record, interpret, collate, organise and compare information (for example, using many-to-one correspondence in pictograms with simple ratios 2, 5, 10).</p>	<p><i>Much of this section should be taught in other areas of the curriculum as part of topics, for example when finding out about the differences between seasons.</i></p> <p><i>There are also clear links to the computing curriculum, in the creating and organising of digital content.</i></p>