






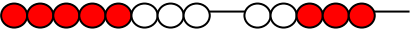

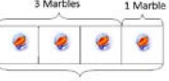
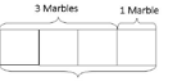
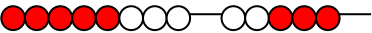

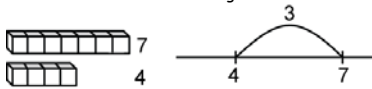
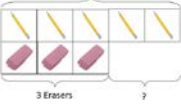

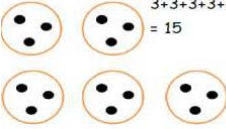

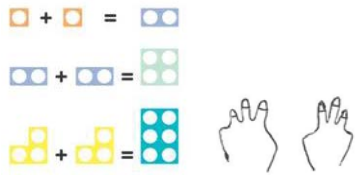
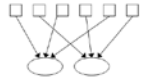




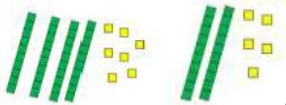
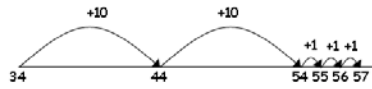
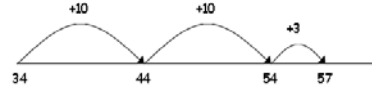
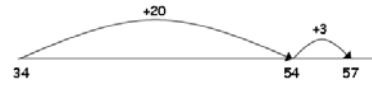
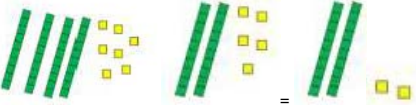
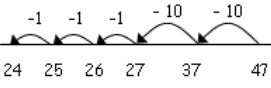
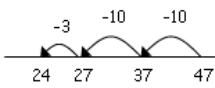
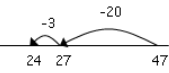



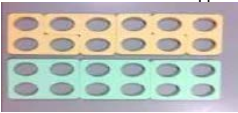
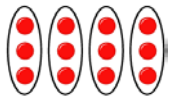

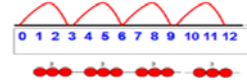
# The Stour Academy Trust Mathematics Calculation Policy

	Addition	Subtraction	Multiplication	Division
<b>Rec</b>	<p><b>Counting:</b> Children to count forwards in 1s, 2s, and 10s.</p> <p>Children will practically count and add concrete objects. There will be a variety of real life objects (stones, marbles etc.) and specialised equipment are available including: bead string, counters, cubes and Numicon.</p> <p>Children begin by '<b>counting all</b>' of the objects or physically counting jumps add. When ready, they are shown how to use numberlines and practical resources to support calculation by <b>counting on</b> from the first number. <i>Teachers will need to demonstrate finding the first number on the numberline and counting on to arrive at the answer, linking back to physical actions which the children have explored.</i></p> <p>Children can say which number is one more than a given number, up to 20.</p> <p>Children begin to recall number bonds to 10, using Numicon, multilinks, compare bears, number lines, multilink, wiggly worms or beadstrings to provide the children with a visual and tactile representation of number bonds. Visual images will also be used to support along with physical everyday objects (for example, hangar and pegs, fingers, flip flap cards, counting sticks, dice and dominoes).</p>  <p style="text-align: right;"><math>8+2=10</math></p> <p>Using quantities and objects the children can add 2 single-digit numbers and count on to find the answer.</p> <p><u>The Bar Model</u> (Singapore maths) will be introduced to solve simple addition problems using physical objects and moving onto pictorial representations  <i>There are 4 blue elephants and 2 yellow elephants. How many elephants are there altogether?</i></p>  <p><b>Key vocabulary</b>  add, more, plus, and, make, altogether, total, count on, number line, one more, equals, count on, part, part, whole</p>	<p><b>Counting:</b> Children to count backwards in 1s.</p> <p>Children are taught to practically subtract one amount from another and to find the difference between two concrete amounts. A variety of real life objects (stones, marbles etc.) and specialised equipment are available including: bead strings, counters, cubes and Numicon.</p> <p>Children to start with physically <b>taking away</b> objects and <b>counting what's left</b>, and, when ready, move on to <b>counting backwards</b> on a numberline to arrive at the answer.</p>  <p><math>6-2=4</math></p> <p>Visual images will also be used:</p>  <p style="text-align: center;"><math>10-2=8</math></p> <p>Children can say which number is one less than a given number from 20.</p> <p>Children will be taught to find the difference between two amounts practically and using the bar model to support.  <i>Lucy had 4 elephants and Sophie had two. How many more elephants did Lucy have?</i></p>  <p><b>Key vocabulary</b>  take-away, less, leaves, count back, how many left, fewer, one less, equals, difference</p>	<p><b>Counting:</b> Children will begin to count in 2s and 10s.</p> <p>Children will experience equal groups of objects; they will work on practical problem solving activities involving equal sets or groups.</p> <p>They will explore '<b>1 to many</b>' situations in practical contexts:  Eg. 1 person - 2 eyes, 2 people - 7 eyes, using real objects to aid understanding.</p>  <p>They will solve practical problems involving doubling.</p> <p><b>Key vocabulary</b>  groups of, lots of, altogether, double</p>	<p>Children will understand equal groups and share items out in play and problem solving.</p> <p>Children will use real objects or representations of them in solving real life-problems involving sharing, halving and equal grouping.</p>  <p>Children will explore halving real-life everyday objects including fruit during snack-time maths.</p> <p><b>Key vocabulary</b>  share, share equally, one each, two each..., group, groups of, lots of, halve</p>


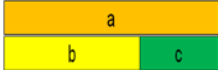
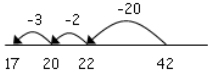
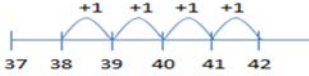
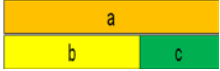
# The Stour Academy Trust Mathematics Calculation Policy

	Addition	Subtraction	Multiplication	Division
Y1	<p style="text-align: center; color: red;"><b>Addition</b></p> <p><u>To add one-digit and two-digit numbers to 20, including zero.</u>  <u>To solve one-step problems that involve addition and using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math>.</u>  <i>Children to be encouraged to move from 'counting all' to 'counting on' and eventually to starting from the larger number.</i></p> <p>Labelled beadbars or numberlines can be used to illustrate addition including bridging through ten by counting on 2 then counting on 3.</p>  <p style="text-align: center;"><math>8 + 5 = 8 + 2 + 3 = 13</math></p> <p>Children then begin to use numbered lines independently to support their own calculations by <b>counting on</b> in ones.</p>  <p style="text-align: center;"><math>6 + 3 = 9</math></p> <p>They will practise their calculations through games and problem solving activities.</p> <p><u>The Bar Model</u> (Singapore maths) will be continued from EYFS as a method to support problem solving involving addition, continuing with the concrete representations and moving onto using pictorial representations of objects. Some children will also move onto the abstract.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>3 Marbles    1 Marble</p> <p>7</p> <p>Pictorial (concrete)</p> </div> <div style="text-align: center;">  <p>3 Marbles    1 Marble</p> <p>7</p> <p>Abstract</p> </div> </div> <p>Children will learn to recall represent and use number bonds within 20.</p> <p>Children will:</p> <ul style="list-style-type: none"> <li>Have access to a variety of manipulatives and visual images will be used, including: double sided counters, Numicon, ten frames, hangar and pegs, bead strings, flip flaps, counting sticks, coins and a money box, dice and dominoes, songs or raps, number trios and sliding box cards.</li> <li>be shown numbers in a range of contexts</li> <li>Read and write number sentences using the = and + signs</li> <li>Interpret number sentences including missing number problems eg. <math>3 + \square = 8</math></li> </ul> <p><b>Key vocabulary</b>  <span style="color: red;">add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, balancing, part, part, whole</span></p>	<p style="text-align: center; color: blue;"><b>Subtraction</b></p> <p><u>To subtract one-digit and two-digit numbers to 20, including zero.</u>  <u>To solve one-step problems that involve subtraction and using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math>.</u></p> <p>Labelled bead bars or number lines can be used to illustrate subtraction including bridging through ten by counting back e.g. counting back 3 then counting back 2.</p>  <p style="text-align: right;"><math>13 - 5 = 8</math></p> <p>Children then begin to use numberlines to support their own calculations - using a numbered line to count back in ones.</p>  <p>The numberline should also be used to show that 6 - 3 means the 'difference between 6 and 3' or 'the difference between 3 and 6' and how many jumps they are apart. Children will count on from the smaller number to the larger number to find the difference.</p>  <p style="text-align: center;">The difference between 7 and 4 is 3.</p> <p><b>Ensure children experience both models for subtraction: taking away and finding a difference.</b></p> <p><u>The Bar Model</u> will be introduced to support problem solving and finding the difference between how many less/the difference between. Children will continue with the pictorial representations and move onto the abstract. Numicon can be used to support this.</p> <p><i>Peter has 5 pencils and 3 erasers. How many less erasers than pencils does he have?</i></p>  <p><b>Key vocabulary</b>  <span style="color: blue;">equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is...</span></p>	<p style="text-align: center; color: green;"><b>Multiplication</b></p> <p><u>To solve one-step problems involving multiplication and division, calculating the answer by using concrete objects, pictorial representations and arrays with the support of the teacher.</u>          Children will experience equal groups of objects.</p> <p>They will count on and back in 2s, 5s and 10s and can use numberlines to support this.</p> <p>They will work on practical problem solving activities involving equal sets or groups. They will use objects and draw pictures to show equal groups.</p> <p><i>How many legs are there on 3 teddies?</i></p>  <p style="text-align: center;"><math>2 + 2 + 2 = 6</math></p> <p>Children will also use manipulatives such as use of bead strings to model groups of and Numicon.</p> <p>Children to continue to explore '1 to many' situations' in practical contexts: 1 cat has 4 legs, how many legs on 3 cats?  <i>There are 3 apples in one bag, how many apples are there in 5 bags?</i></p>  <p style="text-align: center;"><math>3 + 3 + 3 + 3 + 3 = 15</math></p> <p>Children to arrange objects in an <b>array</b> to help show the link between multiplication and division.</p> <p><i>e.g. 2 lots of 3</i></p>  <p>Numicon, fingers of cubes can be used to support children with finding doubles</p>  <p><b>Key vocabulary</b>  <span style="color: green;">groups of, lots of, times, array, altogether, multiply</span></p>	<p style="text-align: center; background-color: yellow;"><b>Division</b></p> <p><u>To solve one-step problems involving multiplication and division, calculating the answer by using concrete objects, pictorial representations and arrays with the support of the teacher.</u>          Children will understand <b>equal groups</b> and <b>share</b> items out in play and problem solving.</p> <p>✓ <b>Sharing equally</b>          6 sweets shared between 2 people, how many do they each get?</p>  <p>✓ <b>Grouping</b>          There are 6 sweets, how many people can have 2 sweets each?</p>  <p>They will count in 2s and 10s and later in 5s.</p>  <p>Pupils will :</p> <ul style="list-style-type: none"> <li>use lots of practical apparatus, arrays and picture representations</li> <li>Be taught to understand the difference between „grouping“ objects (How many groups of 2 can you make?) and „sharing“ (Share these sweets between 2 people)</li> <li>Find half of a group of objects by sharing into 2 equal group</li> </ul> <p><b>Key vocabulary</b>  <span style="background-color: yellow;">share, share equally, one each, two each..., group, groups of, lots of, array</span></p>

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	Addition	Subtraction	Multiplication	Division
<b>Y2</b>	<p><b>To add numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers.</b></p> <p>In preparation for adding 2 digit numbers, children will count in sequences which add 10 repeatedly: 23, 33, 43, 53, 63, etc. Hundred squares may be used to support learning.</p> <p>They should also be taught partitioning as a mental strategy for adding 2 digit numbers. This can be recorded informally:  <math>21+35 = 20+30 + 1+5 = 56</math></p> <p>A variety of manipulatives and visual images will be used, such as Dienes rods/Base 10, Numicon, bead strings to 100, ITPs, place value grids, place value cards and 100 squares.</p> <div style="text-align: center;">  <p>E.g. <math>47 + 25 = 72</math></p> </div> <p>Children will then move on to using empty numberlines to develop their mental addition skills. Initially, these will be recorded but as children gain confidence they will begin to perform some calculations mentally.</p> <ul style="list-style-type: none"> <li>✓ First counting on in tens and ones.</li> </ul> <div style="text-align: center;"> <math>34 + 23 = 57</math>  </div> <ul style="list-style-type: none"> <li>✓ Then helping children to become more efficient by adding the units in one jump (by using the known fact <math>4 + 3 = 7</math>).</li> </ul> <div style="text-align: center;"> <math>34 + 23 = 57</math>  </div> <ul style="list-style-type: none"> <li>✓ Followed by adding the tens in one jump and the units in one jump.</li> </ul> <div style="text-align: center;"> <math>34 + 23 = 57</math>  </div>	<p><b>To subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers</b></p> <p>In preparation for subtracting 2 digit numbers, children will count in sequences which take away 10 repeatedly: 87, 77, 67, 57, 47, 37, etc. Hundred squares may be used to support their learning.</p> <p>A variety of manipulatives and visual images should be used to support this, including: Dienes rods/Base 10, Numicon, bead strings to 100, straws, ITPs, place value grids, place value cards and 100 squares.</p> <div style="text-align: center;">  <p>E.g. <math>47 - 23 = 24</math></p> </div> <p>Children will continue to use numberlines to take away and find the difference, and begin to subtract 2 digit numbers by jumping in tens, then 1s.</p> <p>Then children will use an empty numberline to support subtraction problems they come across in their work, and also to develop their mental subtraction skills.</p> <ul style="list-style-type: none"> <li>✓ First counting back in tens and ones.</li> </ul> <div style="text-align: center;"> <math>47 - 23 = 24</math>  </div> <ul style="list-style-type: none"> <li>✓ Then helping children to become more efficient by subtracting the units in one jump (by using the known fact <math>7 - 3 = 4</math>).</li> </ul> <div style="text-align: center;"> <math>47 - 23 = 24</math>  </div> <ul style="list-style-type: none"> <li>✓ Subtracting the tens in one jump and the units in one jump.</li> </ul> <div style="text-align: center;"> <math>47 - 23 = 24</math>  </div> <ul style="list-style-type: none"> <li>✓ Bridging through ten can help children become more</li> </ul>	<p><b>To calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs</b></p> <p>Children will continue to count in 2s, 5s and 10s and begin to count in 3s and 4s.</p> <p>Children will develop their understanding of multiplication and use jottings to support calculation:</p> <ul style="list-style-type: none"> <li>✓ <b>Repeated addition</b>              3 times 5 is <math>5 + 5 + 5 = 15</math> or 3 lots of 5 or <math>5 \times 3</math></li> </ul> <p>Children should support their multiplication with concrete objects, arrays and pictorial representations. Repeated addition can be shown easily on a number line:</p> <div style="text-align: center;"> <math>5 \times 3 = 5 + 5 + 5</math>  </div> <p>Or using Numicon equipment, Cuisenaire rods, beadstrings or 100 squares.</p> <div style="text-align: center;"> <math>5 \times 3 = 5 + 5 + 5</math>  </div> <ul style="list-style-type: none"> <li>✓ <b>Commutativity</b>              Children should know that <math>3 \times 5</math> has the same answer as <math>5 \times 3</math>. This is shown most easily through an array (below).</li> <li>✓ <b>Arrays</b>              Children should be able to model a multiplication calculation using an array. Initially this will be practical using cake tins, cans of drink, tins of beans, toilet rolls.</li> </ul> <p>This knowledge will support with the development of mental multiplication and their understanding of multiplication and division as inverse operations.</p> <div style="text-align: center;">  <p>Numicon can be used to support this</p>  </div> <p><b>Key vocabulary</b>              groups of, lots of, times, array, altogether, multiply, multiplied by, repeated addition, sets of, equal groups, times</p>	<p><b>To calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs</b></p> <p>Children will develop their understanding of division and use jottings to support calculation</p> <ul style="list-style-type: none"> <li>✓ Children will continue to use grouping and sharing continuing from year 1, moving onto arrange objects in an array to help show the link between multiplication and division.</li> </ul> <div style="text-align: center;">  <p><math>12 \div 3 = 4</math></p> </div> <ul style="list-style-type: none"> <li>✓ Use manipulatives e.g. numicon to support their division. E.g. 24 divided into groups (chunks) of 6</li> </ul> <div style="text-align: center;">  <p>There are 4 groups of 6 in 24</p> </div> <ul style="list-style-type: none"> <li>✓ Making equal jumps using a number line or bead bar (counting up)</li> </ul> <div style="text-align: center;"> <math>12 \div 3 = 4</math>  <p><math>12 \div 3 = 4</math></p> </div> <ul style="list-style-type: none"> <li>✓ Using symbols to stand for unknown numbers to complete equations using inverse operations</li> </ul> <div style="text-align: center;"> <math>\square \div 2 = 4</math>      <math>20 \div \Delta = 4</math>      <math>\square \div \Delta = 4</math> </div> <p><b>Key vocabulary</b>              share, share equally, one each..., group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over</p>

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<p>✓ Bridging through ten can help children become more efficient.</p> <p><math>37 + 15 = 52</math></p>  <p>Children should recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p><b>No number line</b>  <math>35 + 47 = 82</math>  <math>47 + 30 = 77</math>  <math>77 + 3 = 80</math>  <math>80 + 2 = 82</math></p> <p><b>Partitioning</b>  <math>35 + 47 = 82</math>  <math>40 + 30 = 70</math>  <math>7 + 5 = 12</math></p> <p><i>Recording addition in columns supports place value and prepares for formal written methods with larger numbers.</i>          Toward the end of the year, children move to more formal recording using partitioning method:</p> $\begin{array}{r} 40 + 7 \\ 30 + 5 \\ \hline 70 + 12 \end{array}$ <p style="text-align: center;">Dienes rods can be used to support</p> <p><b>The Bar Model</b> (Singapore maths) will be used to support problem solving moving onto the generalisation that <math>b+c=a</math>. Children will focus on using the abstract representation with the pictorial to support where necessary.</p>  <p><b>Key vocabulary</b>          add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, <b>sum, tens, units, partition, addition, column, tens boundary</b></p>	<p>efficient.</p> <p><math>42 - 25 = 17</math></p>  <p>Children should recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p><b>No number line</b>  <math>84 - 36 = 48</math>  <math>84 - 30 = 54</math>  <math>54 - 4 = 50</math>  <math>50 - 2 = 48</math></p> <p><b>Mental strategy</b> - subtract numbers close together by counting on:</p> <p><math>42 - 38 = 4</math></p>  <p>Children should also learn how to count on in order to find the difference. They should be given opportunities to explore when to count on and when to count back.</p> <p><i>Recording subtraction in columns supports place value and prepares for formal written methods with larger numbers.</i>          Toward the end of the year, children move to more formal recording using partitioning method:</p> <p>e.g. <math>98 - 35 = 63</math></p> <p>90 and 8  <del>30</del> and <del>5</del>  <u>60</u> and <u>3</u></p> <p><b>The Bar Model</b> (Singapore maths) will be used to support problem solving moving onto the generalisation that <math>a-b=c</math> and <math>a-c=b</math>. Children will focus on using the abstract representation with the pictorial to support where necessary.</p>  <p><b>Key vocabulary</b>          equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is...<b>difference, count on, strategy, partition, tens units</b></p>	<p>as big as, commutative.</p>
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