



Calculation Policy – Multiplication & Division

Our calculation policy is in line with the White Rose Math’s Calculation Policy and has been adapted for St Gregory’s Catholic Primary School to meet the needs of our children.



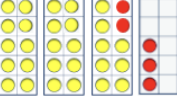

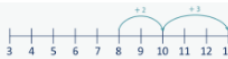

Reviewed and updated September 2025

Guidance for Teachers: The calculation policy is focused on two sections: **multiplication** and **division** and separated by primary phase. At the start of this document, you will find an overview of the **progression of skills** across year groups. Calculations involving **decimal numbers** and **fractions** are included.

The calculation policy follows the same **concrete, pictorial, abstract** approach as our main schemes of learning, adapted to meet the needs of our children throughout. Where appropriate, **sentence stems** and **key questions** are included alongside the **key representations**.

Where skills are divided into more than one section across the page, there is a progression in the level of difficulty from left to right. For example, when adding across a 10, children need to be able to add across 10 itself, before making links with related facts.

** Our Calculation Policy for Multiplication and Division is still in draft and will be reviewed in line with our curriculum as and when we pilot our updated Long Term Overviews for multiplication and division.*

| | | | |
|---|--|---|--|
| <p>Add across a 10</p> <p>Partition the number being added to make a full 10.</p> <p>'make ten' strategy.</p> | <p>... can be partitioned into ... and ...</p>  <p>$8 + 5$</p>  | <p>I add ... to get to ... then I add...</p>  <p>$28 + 5$</p>  | <p>$8 + 5 = 13$</p> <p>$28 + 5 = 33$</p>   |
|---|--|---|--|



Progression of Skills - Multiplication



| Year group | Skill |
|------------|--|
| Nursery | <ul style="list-style-type: none">• Continue with counting and subitising skills as a foundation for later work on equal groups. (see addition and subtraction sections) |
| Reception | <ul style="list-style-type: none">• Double to 10• Make equal groups |
| Year 1 | <ul style="list-style-type: none">• Count in 2s, 5s and 10s• Add equal groups• Make arrays• Make doubles |



Progression of Skills - Multiplication



| Year group | Skill |
|------------|---|
| Year 2 | <ul style="list-style-type: none">• Link repeated addition and multiplication• Use arrays• Double• The 2 times-table• The 10 times-table• The 5 times-table• Missing numbers |
| Year 3 | <ul style="list-style-type: none">• The 3 times-table• The 4 times-table• The 8 times-table• Related facts• Multiply a 2-digit number by a 1-digit number - no exchange• Multiply a 2-digit number by a 1-digit number - with exchange• Scaling• Correspondence problems |



Progression of Skills - Multiplication



| Year group | Skill |
|------------|--|
| Year 4 | <ul style="list-style-type: none">• Times-table facts to 12×12• Multiply by 1 and 0• Multiply 3 numbers• Factor pairs• Multiply by 10 and 100• Related facts• Mental strategies• Multiply a 2 or 3-digit number by a 1-digit number• Scaling• Correspondence problems |



Progression of Skills - Multiplication



| Year group | Skill |
|------------|--|
| Year 5 | <ul style="list-style-type: none">• Multiples and factors• Square and cube numbers• Multiply numbers up to 4 digits by a 1-digit number• Multiply numbers up to 4 digits by a 2-digit number• Multiply by 10, 100 and 1,000• Mental strategies• Multiply fractions by a whole number• Multiply mixed numbers by a whole number• Find the whole |



Progression of Skills - Multiplication



| Year group | Skill |
|------------|---|
| Year 6 | <ul style="list-style-type: none">• Multiply numbers up to 4 digits by a 2-digit number• Multiply by 10, 100 and 1,000• Order of operations• Multiply decimals by integers• Multiply fractions by fractions• Find the whole• Calculations involving ratio |



Progression of Skills - Division

| Year group | Skill |
|------------|--|
| Nursery | <ul style="list-style-type: none">Continue with counting and subitising skills as a foundation for later work on equal groups. (see addition and subtraction sections) |
| Reception | <ul style="list-style-type: none">SharingGrouping |
| Year 1 | <ul style="list-style-type: none">Make equal groups – groupingMake equal groups – sharingFind a halfFind a quarter |



Progression of Skills - Division



| Year group | Skill |
|------------|---|
| Year 2 | <ul style="list-style-type: none">• Divide by 2• Divide by 10• Divide by 5• Missing numbers• Unit fractions• Non-unit fractions |
| Year 3 | <ul style="list-style-type: none">• Divide by 3• Divide by 4• Divide by 8• Related facts• Divide a 2-digit number by a 1-digit number - no exchange• Divide a 2-digit number by a 1-digit number - with remainders• Unit fractions of a set of objects• Non-unit fractions of a set of objects |



Progression of Skills - Division

| Year group | Skill |
|------------|---|
| Year 4 | <ul style="list-style-type: none">• Division facts to 12×12• Divide a number by 1 and itself• Related facts• Divide a 2 or 3-digit number by a 1-digit number• Divide by 10 and 100 |
| Year 5 | <ul style="list-style-type: none">• Mental strategies• Divide numbers up to 4 digits by a 1-digit number• Divide by 10, 100 and 1,000• Fraction of an amount |



Progression of Skills - Division



| Year group | Skill |
|------------|--|
| Year 6 | <ul style="list-style-type: none">• Short division• Mental strategies• Long division• Order of operations• Divide by 10, 100 and 1,000• Divide decimals by integers• Decimal and fraction equivalents• Divide a fraction by an integer• Fraction of an amount• Calculate percentages• Calculations involving ratio |

EYFS CALCULATION POLICY:
MULTIPLICATION & DIVISION



Reception Calculation Policy – Multiplication


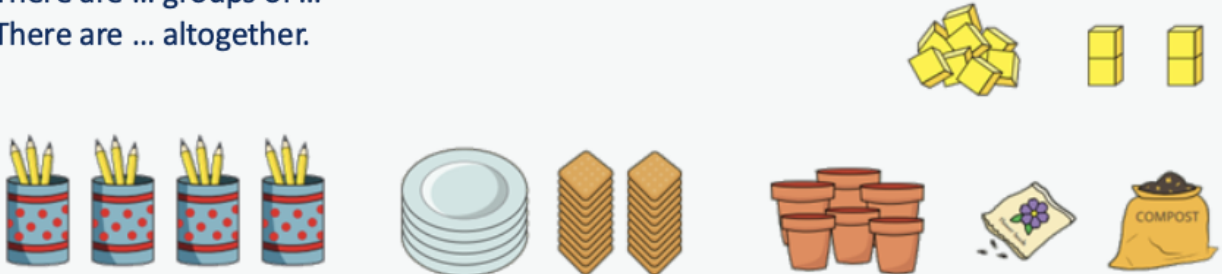


| | |
|--|---|
| <p>Reception</p> | <ul style="list-style-type: none"> • Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5 • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. |
| <p>Progression of skills</p> | <p>Key representations</p> |
| <p>Double to 10</p> <p>Prompt children to notice that double means twice as many and to notice that there are two equal groups.</p> | <p>Double ... is is double ...</p> |
| <p>Make equal groups</p> <p>Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.</p> | <p>There are ... groups of ... There are ... altogether.</p> |



Reception Calculation Policy – Division



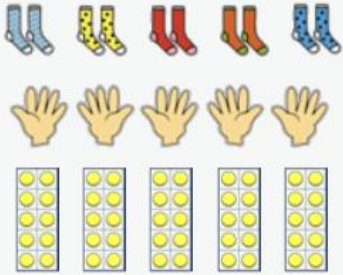
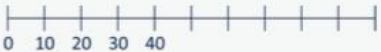

| | |
|---|---|
| <p>Reception</p> | <ul style="list-style-type: none"> • Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5 • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. |
| <p>Progression of skills</p> | <p>Key representations</p> |
| <p>Sharing</p> <p>Provide practical activities such as sharing items during snack time. Encourage children to check whether items have been shared fairly (equally).</p> | <p>There are ... altogether. They are shared equally between ... groups.</p>  |
| <p>Grouping</p> <p>Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.</p> | <p>There are ... groups of ... There are ... altogether.</p>  |

KS1 CALCULATION POLICY:
MULTIPLICATION & DIVISION



Year 1 Calculation Policy – Multiplication


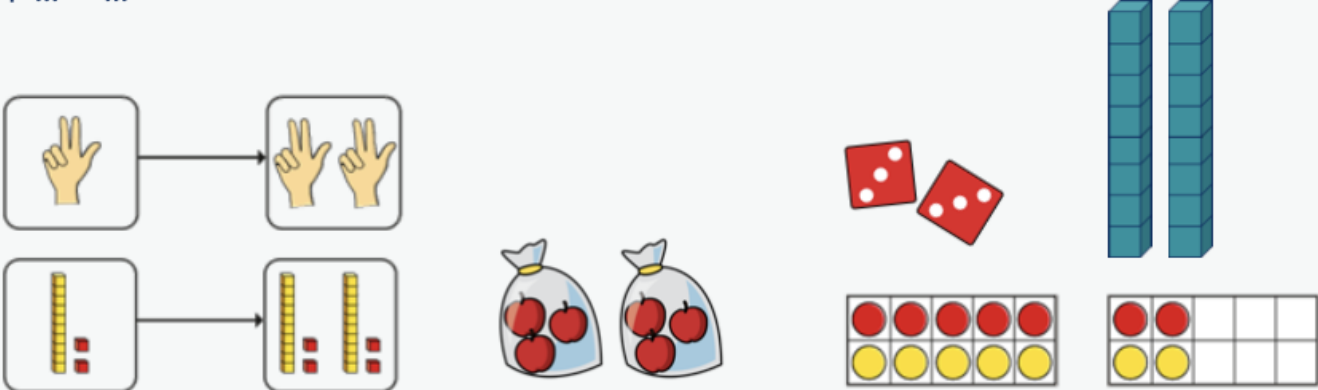


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|--|--|--|--|----|----|----|----|----|----|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|----|----|----|--|--|--|--|
| <p>Year 1</p> | <ul style="list-style-type: none"> Count in multiples of twos, fives and tens. Solve one-step problems involving multiplication, using concrete objects, pictorial representations and arrays with the support of the teacher. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Progression of skills</p> | <p>Key representations</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Count in 2s, 5s and 10s</p> <p>Begin by counting objects that naturally come in 2s, 5s and 10s, for example pairs of socks or fingers.</p> | <p>There are ... equal groups of ... There are ... altogether.</p>  | <p>Continue to colour in ...s What do you notice?</p> <table border="1" data-bbox="1094 668 1425 832"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | <p>Complete the number track/number line by counting in ...s.</p> <table border="1" data-bbox="1466 682 1833 728"> <tr> <td>5</td> <td>10</td> <td>15</td> <td>20</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>  | 5 | 10 | 15 | 20 | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 10 | 15 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Add equal groups (repeated addition)</p> <p>Children should be able to write a repeated addition to represent equal groups and to draw pictures or use objects to represent a repeated addition.</p> | <p>There are ... groups of ... There are ... altogether.</p>  <p>$10 + 10 + 10 = 30$</p> <p>$5 + 5 + 5 + 5 = 20$</p> | | <p>What is the same? What is different?</p> <p>$2 + 2 + 2 =$</p> <p>$5 + 5 + 5 =$</p> <p>$10 + 10 + 10 =$</p> <p>Use objects or a drawing to represent the equal groups and find how many in total.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 1 Calculation Policy – Multiplication

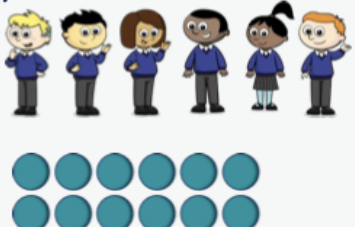


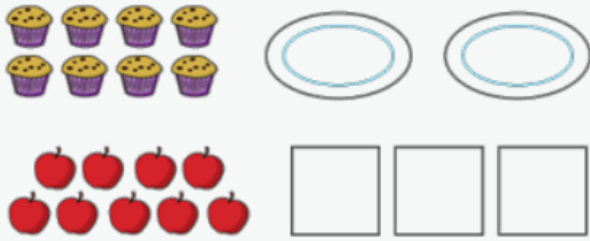



| Progression of skills | Key representations |
|--|--|
| <p>Make arrays</p> <p>Children use their knowledge of adding equal groups to arrange objects in columns and rows.</p> | <p>There are ... rows of ... There are ... altogether. There are ... columns of ... There are ... altogether.</p>  |
| <p>Make doubles</p> <p>Children understand that doubles are two equal groups. Children may begin to explore doubles beyond 20 using base 10</p> | <p>Double ... is + ... = ...</p>  |



Year 1 Calculation Policy – Division


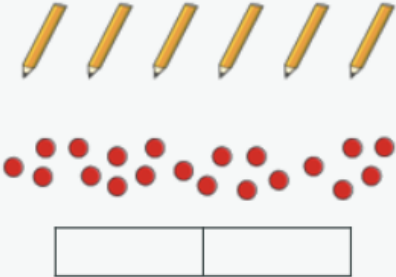
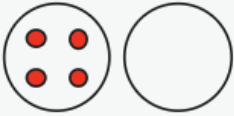

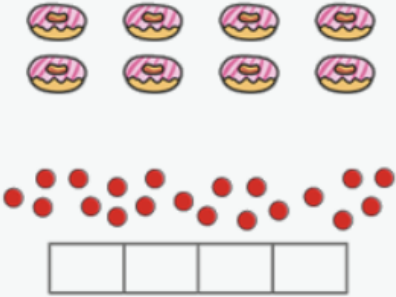



| | | | |
|---|--|---|---|
| <p>Year 1</p> | <ul style="list-style-type: none"> Solve simple one-step problems involving division, using concrete objects, pictorial representations and arrays with the support of the teacher. Recognise, find and name a half as one of two equal parts of a quantity. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. | | |
| <p>Progression of skills</p> | <p>Key representations</p> | | |
| <p>Make equal groups - grouping</p> <p>Encourage children to physically move objects into equal groups. They can also circle equal groups when using pictures.</p> | <p>There are ... altogether. How many groups of ... can you make?</p>  | <p>Circle groups of 2 There are ... groups of 2</p>  | <p>Take ... cubes. Make equal groups.</p>  <p>There are ... groups of ...</p> |
| <p>Make equal groups – sharing</p> <p>Encourage children to check that the objects have been shared fairly and each group is the same.</p> | <p>... have been shared equally between... There are ... on/in each ...</p>  | | <p>Take ... cubes. Share them between ...</p>  <p>12 shared between ... is ...</p> |



Year 1 Calculation Policy – Division













| Progression of skills | Key representations | | |
|--|--|---|---|
| <p>Find a half</p> <p>Start with practical opportunities to share a quantity into 2 groups. Progress to circling half of the objects in a picture and then to finding the whole from a given half.</p> | <p>To find half, I need to share into 2 equal groups.</p>  <p>There are ... in each group.</p> | <p>Half of ... is ...</p>  | <p>If ... is half, what is the whole?</p>  <p>4 is half of ...</p> |
| <p>Find a quarter</p> <p>Start with practical opportunities to share a quantity into 4 groups. Progress to using pictures or bar models to find a quarter and then to finding the whole from a given quarter.</p> | <p>To find a quarter, I need to share into 4 equal groups.</p>  <p>There are ... in each group.</p> | <p>A quarter of ... is ...</p>  | <p>If ... is one quarter, what is the whole?</p>  <p>3 is one quarter of ...</p> |



Year 2 Calculation Policy – Multiplication

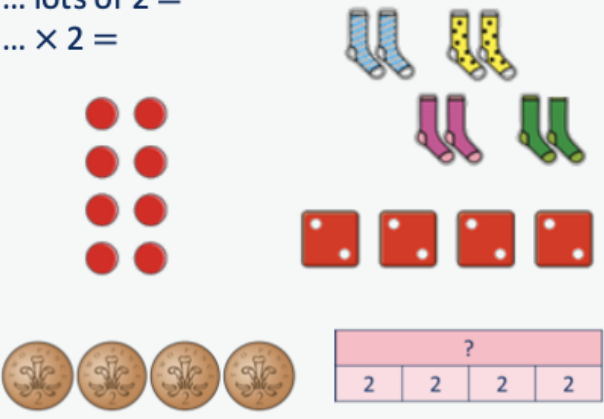

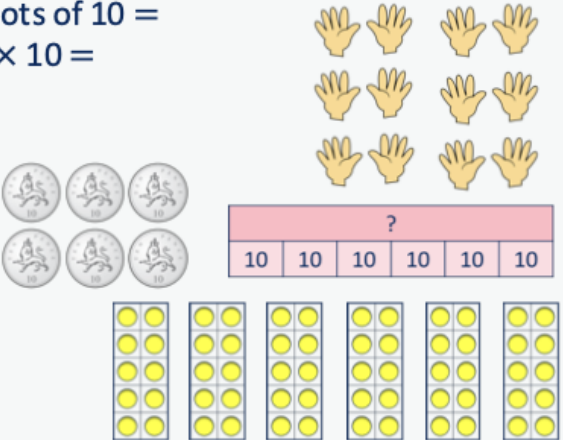



| | | | | | | | | | | | | | | |
|--|---|---|---|--|---|---|----|--|--|--|---|---|---|---|
| <p>Year 2</p> | <ul style="list-style-type: none"> Recall and use multiplication facts for the 2, 5 and 10 multiplication tables. Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×) and equals (=) signs. Show that multiplication of two numbers can be done in any order (commutative). | | | | | | | | | | | | | |
| <p>Progression of skills</p> | <p>Key representations</p> | | | | | | | | | | | | | |
| <p>Link repeated addition and multiplication</p> <p>Encourage children to make the link between repeated addition and multiplication.</p> | <p>There are ... equal groups with ... in each group. There are ... altogether.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <tr><td colspan="2" style="text-align: center;">6</td></tr> <tr><td style="text-align: center;">3</td><td style="text-align: center;">3</td></tr> </table> </div> <div style="text-align: left;"> <p>$3 + 3 = 6$ $2 \times 3 = 6$</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <tr><td colspan="4" style="text-align: center;">20</td></tr> <tr><td style="text-align: center;">5</td><td style="text-align: center;">5</td><td style="text-align: center;">5</td><td style="text-align: center;">5</td></tr> </table> </div> <div style="text-align: left;"> <p>$5 + 5 + 5 + 5 = 20$ $4 \times 5 = 20$</p> </div> </div> | | 6 | | 3 | 3 | 20 | | | | 5 | 5 | 5 | 5 |
| 6 | | | | | | | | | | | | | | |
| 3 | 3 | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 5 | 5 | 5 | 5 | | | | | | | | | | | |
| <p>Use arrays</p> <p>Encourage children to see that multiplication is commutative.</p> | <p>There are ... rows with ... in each row. There are ... columns with ... in each column.</p> <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">  <p>3 lots of 5 = 15 $5 + 5 + 5 = 15$</p> </div> <div style="text-align: center;">  <p>5 lots of 3 = 15 $3 + 3 + 3 + 3 + 3 = 15$</p> </div> </div> | <p>I can see ... × ... and ... × ...</p> <p style="text-align: center;">$3 \times 5 = 15$ $5 \times 3 = 15$ $3 \times 5 = 5 \times 3$</p> | | | | | | | | | | | | |
| <p>Double</p> <p>Encourage children to make links with related facts.</p> | <p>Double ... is ...</p> <div style="display: flex; align-items: center;">  →  </div> <p style="margin-left: 100px;">$\text{Double } 4 = 4 + 4$ Double 4 is 8</p> | <p>Double ... is ... so double ... is ...</p> <div style="display: flex; align-items: center;">  →  Double 4 is 8 </div> <div style="display: flex; align-items: center; margin-top: 10px;">  →  Double 40 is 80 </div> | | | | | | | | | | | | |



Year 2 Calculation Policy – Multiplication




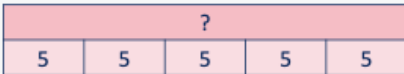


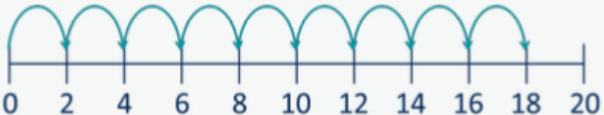


| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|----|----|----|----|----|----|----|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <p>The 2 times-table</p> <p>Encourage daily counting in multiples both forwards and back. Notice that all multiples of 2 are even numbers.</p> | <p>... lots of 2 =</p> <p>... $\times 2 =$</p>  | <p>... times 2 is equal to ...</p> <table border="1" data-bbox="1367 406 1750 514"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> </table> <p> $1 \times 2 = 2$ $2 = 1 \times 2$ $2 \times 2 = 4$ $4 = 2 \times 2$ $3 \times 2 = 6$ $6 = 3 \times 2$ </p>  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | |
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| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>The 10 times-table</p> <p>Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.</p> | <p>... lots of 10 =</p> <p>... $\times 10 =$</p>  | <p>... times 10 is equal to ...</p> <table border="1" data-bbox="1367 856 1750 1006"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> </table> <p> $1 \times 10 = 10$ $10 = 1 \times 10$ $2 \times 10 = 20$ $20 = 2 \times 10$ $3 \times 10 = 30$ $30 = 3 \times 10$ </p>  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 2 Calculation Policy – Multiplication

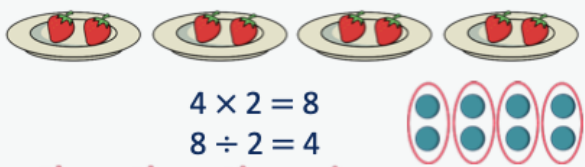


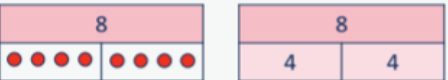
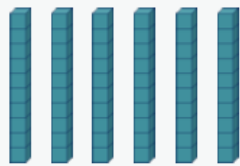
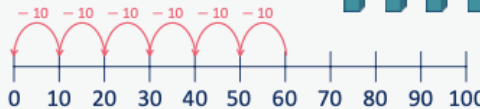
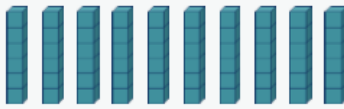
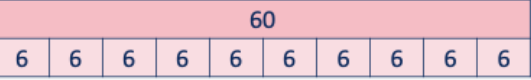


| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|----|----|----|----|----|----|----|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <p>The 5 times-table</p> <p>Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.</p> | <p>... lots of 5 =</p> <p>... $\times 5 =$</p>     | <p>... times 5 is equal to ...</p> <table border="1" data-bbox="1379 439 1794 596"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> </table> <p> $1 \times 5 = 5$ $5 = 1 \times 5$ $2 \times 5 = 10$ $10 = 2 \times 5$ $3 \times 5 = 15$ $15 = 3 \times 5$ </p>  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Missing numbers</p> <p>Make links to known facts.</p> | <p>... is equal to ... groups of ...</p> <p>18 socks, how many pairs?</p>   | <p>... times ... is equal to ...</p> <p><input type="text"/> $\times 2 = 18$</p> <p>$18 = 2 \times$ <input type="text"/></p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 2 Calculation Policy – Division



| Year 2 | <ul style="list-style-type: none"> Recall and use division facts for the 2, 5 and 10 multiplication tables. Calculate mathematical statements for division within the multiplication tables and write them using the division (\div) and equals ($=$) signs. Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a quantity. | |
|--|--|--|
| Progression of skills | Key representations | |
| <p>Divide by 2</p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts and halving.</p> | <p>There are ... equal groups of 2 ... $\div 2 = \dots$</p>   | <p>... shared equally between 2 is ... Half of ... is $\div 2 = \dots$</p>   |
| <p>Divide by 10</p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... equal groups of 10 ... $\div 10 = \dots$</p> <p>$6 \times 10 = 60$ $60 \div 10 = 6$</p>   | <p>... shared equally between 10 is $\div 10 = \dots$</p> <p>$6 \times 10 = 60$ $60 \div 10 = 6$</p>   |



Year 2 Calculation Policy – Division

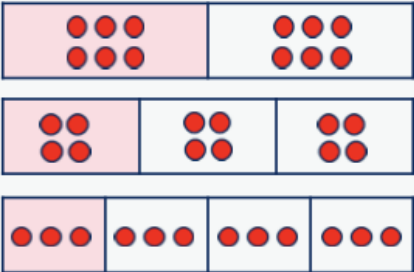

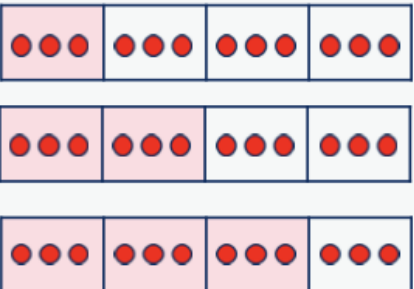
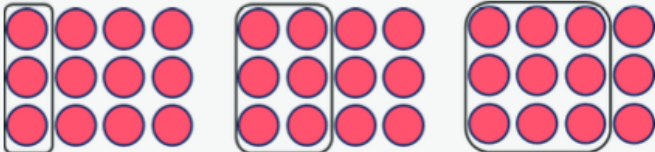


| Progression of skills | Key representations | |
|--|---|--|
| <p>Divide by 5</p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... equal groups of 5</p> <p>... $\div 5 = \dots$</p> <p>$6 \times 5 = 30$ $30 \div 5 = 6$</p> | <p>... shared equally between 5 is ...</p> <p>... $\div 5 = \dots$</p> <p>$6 \times 5 = 30$ $30 \div 5 = 6$</p> |
| <p>Missing numbers</p> <p>Bar models are useful to show the link between multiplication and division.</p> | <p>... divided by 2/5/10 is equal to ...</p> <p>$\square \div 2 = 10$</p> <p>$\square \div 5 = 10$</p> <p>$\square \div 10 = 10$</p> | |



Year 2 Calculation Policy – Division



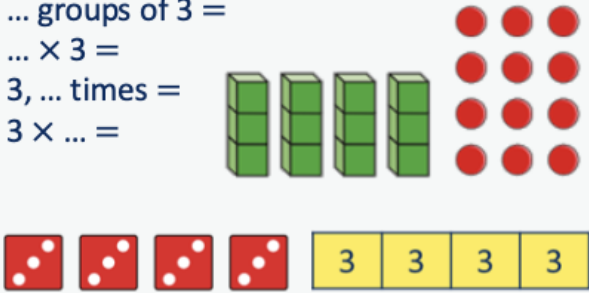

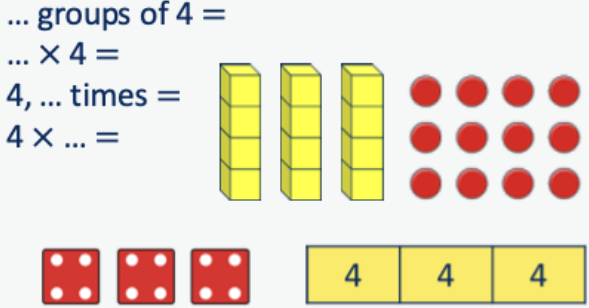

| Progression of skills | Key representations | |
|--|---|---|
| <p>Unit fractions</p> <p>In Y2 the focus is on finding $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$</p> <p>Bar models are useful to show the link between division and finding a fraction.</p> | <p>The objects have been shared fairly into ... groups.</p> <p>$\frac{1}{\square}$ of ... is ...</p>  | <p>There are ... equal parts.</p> <p>There is ... part circled.</p> <p>$\frac{1}{\square}$ is circled.</p>  |
| <p>Non-unit fractions</p> <p>In Y2 the focus is on finding $\frac{2}{4}$ and $\frac{3}{4}$</p> <p>Prompt children to notice that $\frac{2}{4}$ is equivalent to $\frac{1}{2}$</p> | <p>The objects have been shared fairly into ... groups.</p> <p>$\frac{\square}{\square}$ of ... is ...</p>  | <p>There are ... equal parts.</p> <p>There are ... parts circled.</p> <p>$\frac{\square}{\square}$ is circled.</p>  |

LKS2 CALCULATION POLICY:
MULTIPLICATION & DIVISION



Year 3 Calculation Policy – Multiplication


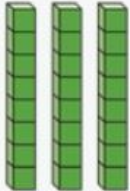
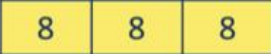



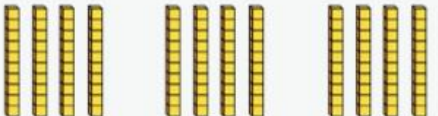


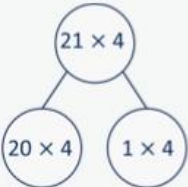


| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|----|----|----|----|----|----|----|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <p>Year 3</p> | <ul style="list-style-type: none"> Recall and use multiplication facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication 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, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Progression of skills</p> | <p>Key representations</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>The 3 times-table</p> <p>Encourage daily counting in multiples both forwards and back.</p> | <p>... groups of 3 =</p> <p>... $\times 3 =$</p> <p>3, ... times =</p> <p>$3 \times \dots =$</p>  | <p>... times 3 is equal to ...</p> <table border="1" data-bbox="1321 672 1769 801"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> </table> <p>$4 \times 3 = 12$ $12 = 4 \times 3$</p>  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | | | | | | | | | | | |
| <p>The 4 times-table</p> <p>Encourage daily counting in multiples both forwards and back. Encourage children to notice links between the 2 and 4 times-tables.</p> | <p>... groups of 4 =</p> <p>... $\times 4 =$</p> <p>4, ... times =</p> <p>$4 \times \dots =$</p>  | <p>... times 4 is equal to ...</p> <table border="1" data-bbox="1321 1001 1769 1129"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> </table> <p>$3 \times 4 = 12$ $12 = 3 \times 4$</p>  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | | | | | | | | | | | |



Year 3 Calculation Policy – Multiplication



| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|------|------|----|----|----|----|----|---|---|----|------|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <p>The 8 times-table</p> <p>Encourage daily counting in multiples both forwards and back. Encourage children to notice links between the 2, 4 and 8 times-tables.</p> | <p>... lots of 8 = $\times 8 =$</p>  <p>8, ... times = $8 \times \dots =$</p>    | <p>... times 8 is equal to ...</p> <table border="1" data-bbox="1311 372 1794 511"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> </table> <p>$3 \times 8 = 24$ $24 = 3 \times 8$</p>  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Related facts</p> <p>Use knowledge of multiplying by 10 to scale times-table facts.</p> | <p>... \times ... ones is equal to ... ones so ... \times ... tens is equal to ... tens.</p>     <p>$3 \times 4 = 12$ $3 \times 40 = 120$</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Multiply a 2-digit number by a 1-digit number - no exchange</p> <p>Children apply their understanding of partitioning to represent and solve calculations using the expanded method.</p> | <p>... tens multiplied by ... is equal to ... tens. ...ones multiplied by ... is equal to ... ones.</p> <table border="1" data-bbox="634 1043 934 1250"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>30</td><td>2</td></tr> <tr><td>20</td><td>2</td></tr> <tr><td>10</td><td>2</td></tr> <tr><td>0</td><td>2</td></tr> </tbody> </table> <p>$30 \times 2 = 60$ $2 \times 2 = 4$</p> <p>$32 \times 2 = 64$</p>  <table border="1" data-bbox="1524 1043 1835 1250"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>60</td><td>4</td></tr> <tr><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td></tr> </tbody> </table> | | Tens | Ones | 30 | 2 | 20 | 2 | 10 | 2 | 0 | 2 | Tens | Ones | 60 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | |
| Tens | Ones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tens | Ones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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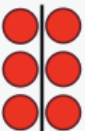



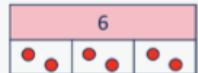
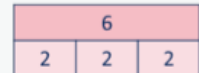

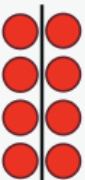


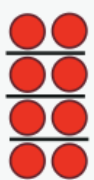
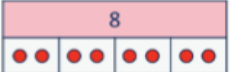
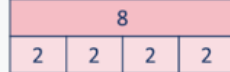
Year 3 Calculation Policy – Multiplication

| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|------|------|---------|------|--|--|--------|--|--|--------|--|--|------|------|--|--|--|--|--|--|
| <p>Multiply a 2-digit number by a 1-digit number - with exchange</p> <p>Children apply their understanding of partitioning to represent and solve calculations using the expanded method.</p> | <p>... tens multiplied by ... is equal to ... tens. ... ones multiplied by ... is equal to ... ones.</p> <table border="1" data-bbox="694 349 969 592"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> <p>$20 \times 4 = 80$ $4 \times 4 = 16$ $24 \times 4 = 96$</p> <div data-bbox="1218 421 1384 578"> </div> <table border="1" data-bbox="1413 431 1709 574"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> | | Tens | Ones | | | | | | | | | | | Tens | Ones | | | | | | |
| Tens | Ones | | | | | | | | | | | | | | | | | | | | | |
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| Tens | Ones | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | |
| <p>Scaling</p> <p>Children focus on multiplication as scaling (... times the size) as opposed to repeated addition.</p> | <p>There are times as many ... as ...</p> <div data-bbox="694 742 1176 856"> </div> <p>There are 3 times as many triangles as circles.</p> | <p>... is ... times the size of is ... times the length/height of ...</p> <div data-bbox="1232 714 1740 935"> </div> <p>Miss Smith is twice the height of Jo.</p> | | | | | | | | | | | | | | | | | | | | |
| <p>Correspondence problems (How many ways?)</p> <p>Encourage children to work systematically to find all the different possible combinations.</p> | <p>For every ... , there are ... possible ... There are ... \times ... possibilities altogether.</p> <div data-bbox="694 1028 1232 1285"> <table border="1" data-bbox="1011 1031 1239 1282"> <thead> <tr> <th></th> <th>hats</th> <th>scarves</th> </tr> </thead> <tbody> <tr> <th>blue</th> <td></td> <td></td> </tr> <tr> <th>orange</th> <td></td> <td></td> </tr> <tr> <th>purple</th> <td></td> <td></td> </tr> </tbody> </table> </div> <p>For every hat, there are two possible scarves. $3 \times 2 = 6$</p> <p>There are 6 possibilities altogether.</p> | | | hats | scarves | blue | | | orange | | | purple | | | | | | | | | | |
| | hats | scarves | | | | | | | | | | | | | | | | | | | | |
| blue | | | | | | | | | | | | | | | | | | | | | | |
| orange | | | | | | | | | | | | | | | | | | | | | | |
| purple | | | | | | | | | | | | | | | | | | | | | | |



Year 3 Calculation Policy – Division

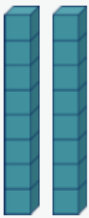
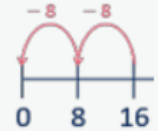






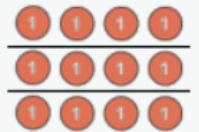

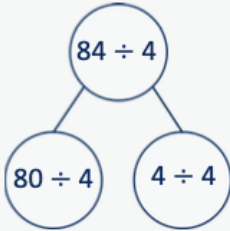


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|--|--|--|
| <p>Year 3</p> | <ul style="list-style-type: none"> Recall and use division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. | |
| <p>Progression of skills</p> | <p>Key representations</p> | |
| <p>Divide by 3</p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... groups of 3 in ...</p> <p>... $\div 3 =$</p>  $2 \times 3 = 6$ $6 \div 3 = 2$   | <p>... has been shared equally into 3 equal groups.</p> <p>... $\div 3 =$</p>  $2 \times 3 = 6$ $6 \div 3 = 2$    |
| <p>Divide by 4</p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... groups of 4 in ...</p> <p>... $\div 4 =$</p>  $2 \times 4 = 8$ $8 \div 4 = 2$   | <p>... has been shared equally into 4 equal groups.</p> <p>... $\div 4 =$</p>  $2 \times 4 = 8$ $8 \div 4 = 2$    |



Year 3 Calculation Policy – Division


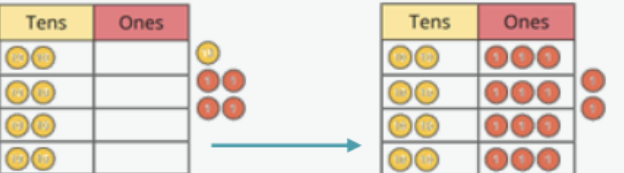
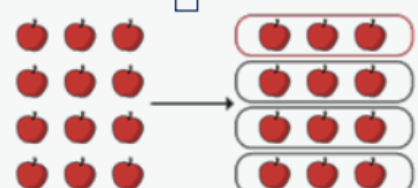




| Progression of skills | Key representations | | | | | | | | | | | | | | | | | |
|--|--|--|------|------|--|--|--|--|------|------|--|--|--|--|--|--|--|--|
| <p>Divide by 8</p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... groups of 8 in ... $\dots \div 8 =$</p>  <p>$2 \times 8 = 16$ $16 \div 8 = 2$</p>   | <p>... has been shared equally into 8 equal groups. $\dots \div 8 =$</p>    <p>$2 \times 8 = 16$ $16 \div 8 = 2$</p> | | | | | | | | | | | | | | | | |
| <p>Related facts</p> <p>Link to known times-table facts.</p> | <p>... \div ... is equal to ..., so ... tens \div ... is equal to ... tens.</p>     <p>$12 \div 3 = 4$ $120 \div 3 = 40$</p> | | | | | | | | | | | | | | | | | |
| <p>Divide a 2-digit number by a 1-digit number - no exchange</p> <p>Partition into tens and ones to divide and then recombine.</p> | <p>... tens divided by ... is equal to ... tens. ... ones divided by ... is equal to ... ones.</p> <table border="1" data-bbox="631 1035 932 1242"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> <p>$60 \div 2 = 30$ $4 \div 2 = 2$ $64 \div 2 = 32$</p>  <table border="1" data-bbox="1502 1035 1823 1242"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> | | Tens | Ones | | | | | Tens | Ones | | | | | | | | |
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Year 3 Calculation Policy – Division

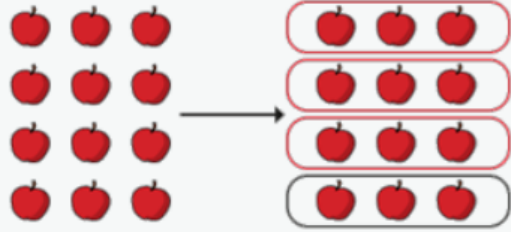
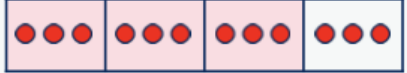



| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|------|----|---|----|---|----|---|----|---|----|---|----|---|---|------|------|---|---|---|---|---|---|---|---|---|---|------|------|----|---|----|---|----|---|----|---|----|---|
| <p>Divide a 2-digit number by a 1-digit number - with remainders</p> <p>Encourage children to partition numbers flexibly to help them to divide more efficiently.</p> | <p>... tens divided by ... is equal to ... tens. ... ones divided by ... is equal to ... ones.</p> <table border="1" data-bbox="638 548 963 848"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr><td>10</td><td>6</td></tr> <tr><td>10</td><td>6</td></tr> <tr><td>10</td><td>6</td></tr> <tr><td>10</td><td>6</td></tr> <tr><td>10</td><td>6</td></tr> <tr><td>10</td><td>6</td></tr> </tbody> </table> <div style="display: flex; justify-content: center; align-items: center;"> <div style="text-align: center;"> $96 \div 4$ $80 \div 4$ </div> <div style="text-align: center;"> $16 \div 4$ $80 \div 4 = 20$ $16 \div 4 = 4$ $96 \div 4 = 24$ </div> </div> | Tens | Ones | 10 | 6 | 10 | 6 | 10 | 6 | 10 | 6 | 10 | 6 | 10 | 6 | <p>There are ... groups of ... There are ... remaining.</p> <p>$31 \div 4 = 7 \text{ r}3$</p>  <p>$94 \div 4 = 23 \text{ r}2$</p> <table border="1" data-bbox="1243 685 1450 856"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr><td>9</td><td>4</td></tr> <tr><td>9</td><td>4</td></tr> <tr><td>9</td><td>4</td></tr> <tr><td>9</td><td>4</td></tr> <tr><td>9</td><td>4</td></tr> </tbody> </table>  <table border="1" data-bbox="1616 685 1823 856"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr><td>23</td><td>2</td></tr> <tr><td>23</td><td>2</td></tr> <tr><td>23</td><td>2</td></tr> <tr><td>23</td><td>2</td></tr> <tr><td>23</td><td>2</td></tr> </tbody> </table> | Tens | Ones | 9 | 4 | 9 | 4 | 9 | 4 | 9 | 4 | 9 | 4 | Tens | Ones | 23 | 2 | 23 | 2 | 23 | 2 | 23 | 2 | 23 | 2 |
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| 10 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 10 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Tens | Ones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>Unit fractions of a set of objects</p> <p>Bar models are useful to show the link between division and fractions, for example, dividing by 3 and finding a third.</p> | <p>The whole is divided into ... equal parts. Each part is $\frac{1}{\square}$ of the whole.</p>  <p>$\frac{1}{4}$ of 12 apples is 3 apples.</p> | <p>One ... of ... is ...</p> <p>$\frac{1}{4}$ of 12 is 3</p>  <p>$\frac{1}{3}$ of 36 is 12</p>  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 3 Calculation Policy – Division

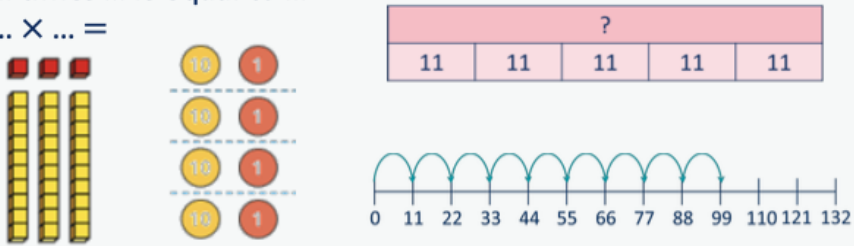



| Progression of skills | Key representations | |
|---|--|---|
| <p>Non-unit fractions of a set of objects</p> <p>Bar models are a useful representation and show the links with division and multiplication.</p> | <p>The whole is divided into ... equal parts. Each part is $\frac{1}{\square}$ of the whole.</p>  <p>$\frac{3}{4}$ of 12 apples is 9 apples.</p> | <p>$\frac{1}{\square}$ of ... is ..., so $\frac{\square}{\square}$ of ... is ...</p> <p>$\frac{3}{4}$ of 12 is 9</p>  <p>$\frac{2}{3}$ of 36 is 24</p>  |



Year 4 Calculation Policy – Multiplication


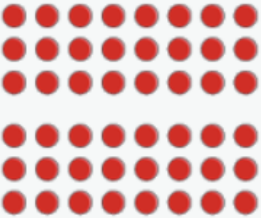
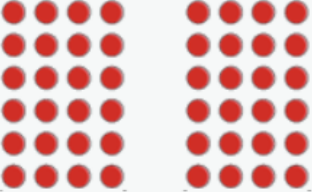


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|--|--|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| <p>Year 4</p> | <ul style="list-style-type: none"> Recall multiplication facts for multiplication tables up to 12×12 Use place value, known and derived facts to multiply mentally, including: multiplying by 0 and 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>Progression of skills</p> | <p>Key representations</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Times-table facts to 12×12</p> <p>Encourage daily counting in multiples both forwards and back. Encourage children to notice links between related times-tables.</p> | <p>... groups of ... = ... times ... is equal to \times ... =</p>  | <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> <tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr> <tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td></tr> <tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr> <tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Multiply by 1 and 0</p> | <p>Any number multiplied by 1 is equal to ... Any number multiplied by 0 is equal to ...</p>  | <p>... \times ... = ...</p> <table> <tr><td>$1 \times 1 = 1$</td><td>$1 \times 0 = 0$</td></tr> <tr><td>$2 \times 1 = 2$</td><td>$2 \times 0 = 0$</td></tr> <tr><td>$3 \times 1 = 3$</td><td>$3 \times 0 = 0$</td></tr> <tr><td>$4 \times 1 = 4$</td><td>$4 \times 0 = 0$</td></tr> </table> | $1 \times 1 = 1$ | $1 \times 0 = 0$ | $2 \times 1 = 2$ | $2 \times 0 = 0$ | $3 \times 1 = 3$ | $3 \times 0 = 0$ | $4 \times 1 = 4$ | $4 \times 0 = 0$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $1 \times 1 = 1$ | $1 \times 0 = 0$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $2 \times 1 = 2$ | $2 \times 0 = 0$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $3 \times 1 = 3$ | $3 \times 0 = 0$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $4 \times 1 = 4$ | $4 \times 0 = 0$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 4 Calculation Policy – Multiplication










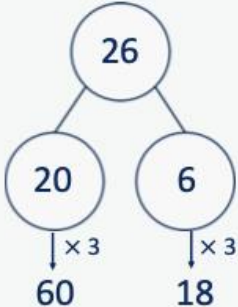
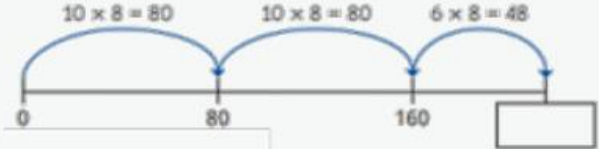














| Progression of skills | Key representations | | | | | | | | | | | | | | | |
|---|--|-----|-----|---|--|----|-----|---|----|---|---|---|--|--|---|-----|
| <p>Multiply 3 numbers</p> <p>Children use their understanding of commutativity to multiply more efficiently.</p> | <p>To work out ... × ... × ..., I can first calculate ... × ... and then multiply the answer by ...</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> $4 \times 2 \times 3 = 8 \times 3 = 24$ $2 \times 3 \times 4 = 6 \times 4 = 24$ $3 \times 4 \times 2 = 12 \times 2 = 24$ </div> </div> | | | | | | | | | | | | | | | |
| <p>Factor pairs</p> <p>Children explore equivalent calculations using different factors pairs.</p> | <p>$12 = \dots \times \dots$, so $\dots \times 12 = \dots \times \dots \times \dots$</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>$8 \times 6 = 8 \times 3 \times 2$ $8 \times 6 = 24 \times 2$</p> </div> <div style="text-align: center;">  <p>$6 \times 8 = 6 \times 4 \times 2$ $6 \times 8 = 24 \times 2$</p> </div> </div> | | | | | | | | | | | | | | | |
| <p>Multiply by 10 and 100</p> <p>Some children may over-generalise that multiplying by 10 or 100 always results in adding zeros. This will cause issues later when multiplying decimals.</p> | <p>When I multiply by 10, the digits move ... place value column to the left. ... is 10 times the size of ...</p> <div style="display: flex; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px; height: 100px;"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td></td><td>●●</td><td>●●●</td></tr> </table> <div style="margin-left: 20px;"> $35 \times 10 = 350$ </div> </div> | H | T | O | | ●● | ●●● | <p>When I multiply by 100, the digits move ... place value columns to the left. ... is 100 times the size of ...</p> <div style="display: flex; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 150px; height: 150px;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td></td><td></td><td>●</td><td>●●●</td></tr> </table> <div style="margin-left: 20px;"> $14 \times 100 = 1,400$ </div> </div> | Th | H | T | O | | | ● | ●●● |
| H | T | O | | | | | | | | | | | | | | |
| | ●● | ●●● | | | | | | | | | | | | | | |
| Th | H | T | O | | | | | | | | | | | | | |
| | | ● | ●●● | | | | | | | | | | | | | |



Year 4 Calculation Policy – Multiplication



| Progression of skills | Key representations | | | | | | | | |
|---|---|------|------|---|---|--|--|---|---|
| <p>Related facts</p> <p>Use knowledge of multiplying by 10 and 100 to scale times-table facts.</p> | <p>... × ... ones is equal to ... ones so ... × ... tens is equal to ... tens and ... × ... hundreds is equal to ... hundreds.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>3 × 7 = 21</p> </div> <div style="text-align: center;">  <p>3 × 70 = 210</p> </div> <div style="text-align: center;">  <p>3 × 700 = 2,100</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;"> <p>7 × 3 = 21</p> <p>7 × 30 = 210</p> <p>7 × 300 = 2,100</p> </div> </div> | | | | | | | | |
| <p>Mental strategies</p> <p>Partition 2 or 3-digit numbers to multiply using informal methods.</p> | <p>... tens multiplied by ... is equal to ... tens. ...ones multiplied by ... is equal to ... ones.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 150px;"> <thead> <tr> <th style="background-color: #fff9c4;">Tens</th> <th style="background-color: #f8bbd0;">Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> <p>3 × 26 = 60 + 18 = 78</p> </div> <div style="text-align: center;">  <p>26 20 6 ↓ ×3 ↓ ×3 60 18</p> </div> <div style="text-align: center;">  <p>10 × 8 = 80 10 × 8 = 80 6 × 8 = 48</p> <p>26 × 8 = 80 + 80 + 48 = 208</p> </div> </div> | Tens | Ones |  |  |  |  |  |  |
| Tens | Ones | | | | | | | | |
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Year 4 Calculation Policy – Multiplication

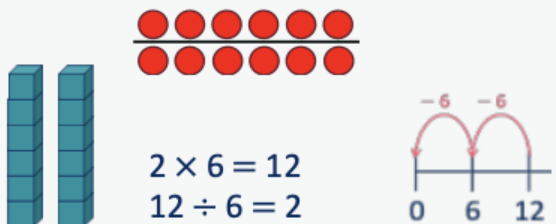
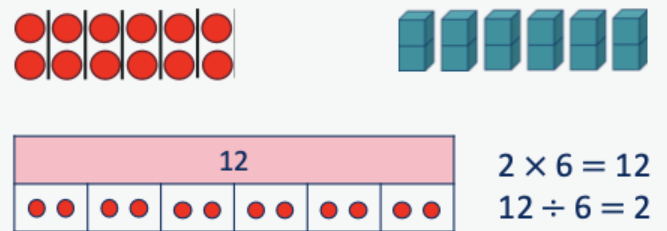






| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---------|----------|---------|------|--------|------|-----|------|----------|------|-----|------|-----------|------|-----|------|---------|------|-----|------|------|------|-----|------|
| <p>Multiply a 2 or 3-digit number by a 1-digit number</p> <p>The short multiplication method is introduced for the first time, initially in an expanded form.</p> | <p>To multiply a 2-digit number by ... , I multiply the ones by ... and the tens by ... To multiply a 3-digit number by ... , I multiply the ones by ... , the tens by ... and the hundreds by ...</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Scaling</p> <p>Children focus on multiplication as scaling (... times the size).</p> | <p>... is ... times the size of ...</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>7</p> <p>7 7 7 7 7 7</p> <p>A computer mouse costs £7 A keyboard costs 6 times as much.</p> </div> <div style="text-align: center;"> <p>6</p> <p>6 6 6 6 6 6 6</p> <p>A red ribbon is 6 cm. A yellow ribbon is 7 times as long.</p> </div> </div> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Correspondence problems</p> <p>Encourage children to use tables to show all the different possible combinations.</p> | <p>For every ... , there are ... possibilities. There are ... × ... possibilities altogether.</p> <p>A pizza company offers a choice of 5 toppings and 3 bases.</p> <p>$5 \times 3 = 15$</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Deep pan</th> <th>Italian</th> <th>Thin</th> </tr> </thead> <tbody> <tr> <th>Cheese</th> <td>C DP</td> <td>C I</td> <td>C Th</td> </tr> <tr> <th>Mushroom</th> <td>M DP</td> <td>M I</td> <td>M Th</td> </tr> <tr> <th>Vegetable</th> <td>V DP</td> <td>V I</td> <td>V Th</td> </tr> <tr> <th>Chicken</th> <td>C DP</td> <td>C I</td> <td>C Th</td> </tr> <tr> <th>Tuna</th> <td>T DP</td> <td>T I</td> <td>T Th</td> </tr> </tbody> </table> | | Deep pan | Italian | Thin | Cheese | C DP | C I | C Th | Mushroom | M DP | M I | M Th | Vegetable | V DP | V I | V Th | Chicken | C DP | C I | C Th | Tuna | T DP | T I | T Th |
| | Deep pan | Italian | Thin | | | | | | | | | | | | | | | | | | | | | | |
| Cheese | C DP | C I | C Th | | | | | | | | | | | | | | | | | | | | | | |
| Mushroom | M DP | M I | M Th | | | | | | | | | | | | | | | | | | | | | | |
| Vegetable | V DP | V I | V Th | | | | | | | | | | | | | | | | | | | | | | |
| Chicken | C DP | C I | C Th | | | | | | | | | | | | | | | | | | | | | | |
| Tuna | T DP | T I | T Th | | | | | | | | | | | | | | | | | | | | | | |



Year 4 Calculation Policy – Division




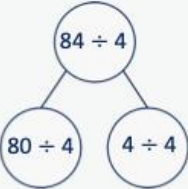
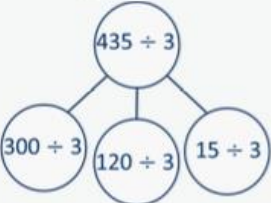


| | | |
|--|---|---|
| <p>Year 4</p> | <ul style="list-style-type: none"> Recall division facts for multiplication tables up to 12×12 Use place value, known and derived facts to divide mentally, including: dividing by 1 Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. | |
| <p>Progression of skills</p> | <p>Key representations</p> | |
| <p>Division facts to 12×12</p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... groups of ... in ...</p> <p>$\dots \div \dots =$</p>  <p>$2 \times 6 = 12$ $12 \div 6 = 2$</p> | <p>... has been shared equally into ... equal groups.</p> <p>$\dots \div \dots =$</p>  <p>$2 \times 6 = 12$ $12 \div 6 = 2$</p> |
| <p>Divide a number by 1 and itself</p> <p>Children may try to divide a number by zero and it should be highlighted that this is not possible.</p> | <p>When I divide a number by 1, the number remains the same.</p> <p>5 shared between 1 is 5 </p> <p>There are 5 groups of 1 in 5</p>  | <p>When I divide a number by itself, the answer is 1</p> <p>5 shared between 5 is 1</p>  <p>There is 1 group of 5 in 5</p>  |



Year 4 Calculation Policy – Division



| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|------|------|--|--|--|--|--|--|--|--|--|----------|------|------|--|--|--|--|--|--|--|--|--|--|--|--|
| <p>Related facts</p> <p>Link to known times-table facts.</p> | <p>... ÷ ... is equal to ... so ... tens ÷ ... is equal to ... tens and ... hundreds ÷ ... is equal to ... hundreds.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>21 ÷ 7 = 3</p> </div> <div style="text-align: center;">  <p>210 ÷ 7 = 30</p> </div> <div style="text-align: center;">  <p>2,100 ÷ 7 = 300</p> </div> <div style="text-align: center;"> <p>21 ÷ 3 = 7</p> </div> <div style="text-align: center;"> <p>210 ÷ 3 = 70</p> </div> <div style="text-align: center;"> <p>2,100 ÷ 3 = 700</p> </div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Divide a 2 or 3-digit number by a 1-digit number</p> <p>Progress from divisions with no exchange, to divisions with exchange and then divisions with remainders.</p> | <p>I can partition ... into ... tens and ... ones.</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;">  </div> <div style="margin-left: 20px;"> <p>80 ÷ 4 = 20</p> <p>4 ÷ 4 = 1</p> <p>84 ÷ 4 = 21</p> </div> </div> <table border="1" style="margin-top: 10px; width: 100%; text-align: center;"> <thead> <tr> <th style="background-color: #ffffcc;">Tens</th> <th style="background-color: #ffcccc;">Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> | Tens | Ones | | | | | | | | | <p>I cannot share the hundreds/tens equally, so I need to exchange 1 ... for 10 ...</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;">  </div> <div style="margin-left: 20px;"> <p>300 ÷ 3 = 100</p> <p>120 ÷ 3 = 40</p> <p>15 ÷ 3 = 5</p> <p>435 ÷ 3 = 145</p> </div> </div> <table border="1" style="margin-top: 10px; width: 100%; text-align: center;"> <thead> <tr> <th style="background-color: #ccffcc;">Hundreds</th> <th style="background-color: #ffffcc;">Tens</th> <th style="background-color: #ffcccc;">Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> | Hundreds | Tens | Ones | | | | | | | | | | | | |
| Tens | Ones | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Hundreds | Tens | Ones | | | | | | | | | | | | | | | | | | | | | | | | | |
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Year 4 Calculation Policy – Division






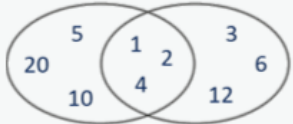






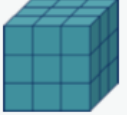
| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-----|-----|-----|----|--|--|---|-----|-----|--|----|--|--|---|---|-----|-----|---|----|--|--|---|---|-----|-----|--|---|----|--|---|---|-----|-----|----|--|--|---|-----|-----|--|--|----|--|---|---|-----|-----|---|----|--|--|---|---|-----|-----|--|--|---|----|
| <p>Divide by 10 and 100</p> <p>Encourage children to notice that dividing by 100 is the same as dividing by 10 twice.</p> | <p>When I divide by 10, the digits move 1 place value column to the right. ... is one-tenth the size of ...</p> <table border="1" data-bbox="586 675 855 793"><tr><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td>●●</td><td></td><td></td></tr></table> <table border="1" data-bbox="586 815 855 933"><tr><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td>●●</td><td></td></tr></table> <p>$2 \div 10 = 0.2$</p> | O | Tth | Hth | ●● | | | O | Tth | Hth | | ●● | | <table border="1" data-bbox="886 675 1245 793"><tr><td>T</td><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td>●</td><td>●●</td><td></td><td></td></tr></table> <table border="1" data-bbox="886 815 1245 933"><tr><td>T</td><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td>●</td><td>●●</td><td></td></tr></table> <p>$12 \div 10 = 1.2$</p> | T | O | Tth | Hth | ● | ●● | | | T | O | Tth | Hth | | ● | ●● | | <p>When I divide by 100, the digits move 2 place value columns to the right. ... is one-hundredth the size of ...</p> <table border="1" data-bbox="1290 675 1560 793"><tr><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td>●●</td><td></td><td></td></tr></table> <table border="1" data-bbox="1290 815 1560 933"><tr><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td></td><td>●●</td></tr></table> <p>$2 \div 100 = 0.02$</p> | O | Tth | Hth | ●● | | | O | Tth | Hth | | | ●● | <table border="1" data-bbox="1580 675 1960 793"><tr><td>T</td><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td>●</td><td>●●</td><td></td><td></td></tr></table> <table border="1" data-bbox="1580 815 1960 933"><tr><td>T</td><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td></td><td>●</td><td>●●</td></tr></table> <p>$12 \div 100 = 0.12$</p> | T | O | Tth | Hth | ● | ●● | | | T | O | Tth | Hth | | | ● | ●● |
| O | Tth | Hth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | Tth | Hth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T | O | Tth | Hth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | ● | ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | Tth | Hth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | Tth | Hth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T | O | Tth | Hth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T | O | Tth | Hth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | ● | ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**UKS2 CALCULATION POLICY:
MULTIPLICATION & DIVISION**



Year 5 Calculation Policy – Multiplication



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|----|---|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|
| <p>Year 5</p> | <ul style="list-style-type: none"> Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. Multiply numbers mentally drawing upon known facts. Multiply whole numbers and those involving decimals by 10, 100 and 1000 Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Progression of skills</p> | <p>Key representations</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Multiples and factors</p> <p>Encourage children to notice patterns and make links with known facts.</p> | <p>... is a multiple of ... because</p> <p>... × ... = ...</p>  <table border="1" data-bbox="631 863 1015 978"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> </table> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | <p>... is a factor of ... because</p> <p>... × ... = ...</p>  1 × 8  2 × 4 <p>1, 2, 4 and 8 are factors of 8</p> | <p>The common factors of ... and ... are ...</p> <p>Factors of 20 Factors of 12</p>  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Square and cube numbers</p> | <p>... squared means ... × ...</p>  1 × 1 $1^2 = 1$  2 × 2 $2^2 = 4$  3 × 3 $3^2 = 9$  4 × 4 $4^2 = 16$ | | <p>... cubed means ... × ... × ...</p>  1 × 1 × 1 $1^3 = 1$  2 × 2 × 2 $2^3 = 8$  3 × 3 × 3 $3^3 = 27$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 5 Calculation Policy – Multiplication

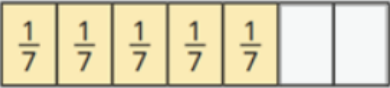
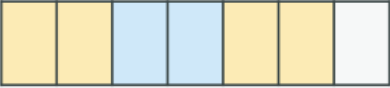
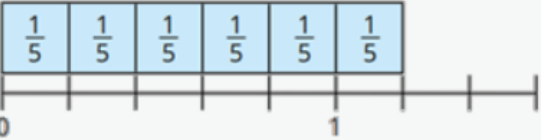
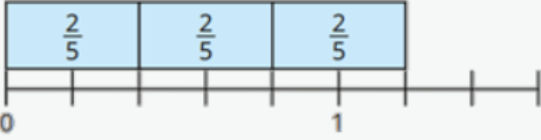



| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----|-----|-----|-----|-----|---|---|--|--|--|--|----|----|----|----|---|---|---|---|-----|-----|--|--|--|----|---|----|----|
| <p>Multiply by 10, 100 and 1,000</p> <p>Some children may over-generalise that multiplying by a power of 10 always results in adding zeros. This will cause issues later when multiplying decimals.</p> | <p>To multiply by 10/100/1,000, I move all the digits ... places to the left. ... is 10/100/1,000 times the size of ...</p> <table border="1" data-bbox="617 496 1172 601"> <tr> <td>M</td> <td>HTh</td> <td>TTh</td> <td>Th</td> <td>H</td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>●●</td> <td>●●</td> <td>●●</td> </tr> </table> <table border="1" data-bbox="1265 496 1736 601"> <tr> <td>Th</td> <td>H</td> <td>T</td> <td>O</td> <td>•</td> <td>Tth</td> <td>Hth</td> </tr> <tr> <td></td> <td></td> <td></td> <td>●●</td> <td>●</td> <td>●●</td> <td>●●</td> </tr> </table> <p> $234 \times 10 = 2,340$ $234 \times 100 = 23,400$ $234 \times 1,000 = 234,000$ </p> <p> $2.34 \times 10 = 23.4$ $2.34 \times 100 = 234$ $2.34 \times 1,000 = 2,340$ </p> | M | HTh | TTh | Th | H | T | O | | | | | ●● | ●● | ●● | Th | H | T | O | • | Tth | Hth | | | | ●● | ● | ●● | ●● |
| M | HTh | TTh | Th | H | T | O | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | ●● | ●● | ●● | | | | | | | | | | | | | | | | | | | | | | | |
| Th | H | T | O | • | Tth | Hth | | | | | | | | | | | | | | | | | | | | | | | |
| | | | ●● | ● | ●● | ●● | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Mental strategies</p> <p>Children continue to use efficient mental strategies such as partitioning and knowledge of factor pairs and related facts to multiply.</p> | <p>The most efficient strategy to calculate ... \times ... is ... To calculate ... \times 12, I can do ... \times ... \times ...</p> <p>For example: 121×12 I could calculate 100×12 plus 20×12 plus 1×12 I could calculate 121×10 plus 121×2 I could calculate $121 \times 6 \times 2$ I could calculate $121 \times 4 \times 3$</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 5 Calculation Policy – Multiplication

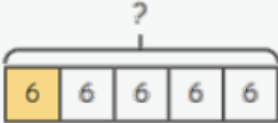
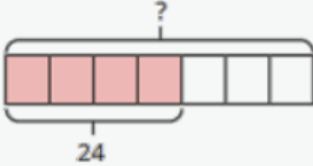


| Progression of skills | Key representations |
|--|--|
| <p>Multiply fractions by a whole number</p> <p>Make links with repeated addition.</p> <p>E.g. $\frac{1}{5} \times 4 = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$</p> | <p>To multiply a fraction by an integer, I multiply the numerator by the integer and the denominator remains the same.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  $\frac{1}{7} \times 5 = \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{5}{7}$ </div> <div style="text-align: center;">  $\frac{2}{7} \times 3 = \frac{2}{7} + \frac{2}{7} + \frac{2}{7} = \frac{6}{7}$ </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  $\frac{1}{5} \times 6 = \frac{6}{5} = 1\frac{1}{5}$ </div> <div style="text-align: center;">  $\frac{2}{5} \times 3 = \frac{6}{5} = 1\frac{1}{5}$ </div> </div> |
| <p>Multiply mixed numbers by a whole number</p> | <p>I can partition $\begin{array}{ c } \hline \square \\ \hline \square \\ \hline \end{array}$ into $\begin{array}{ c } \hline \square \\ \hline \end{array}$ and $\begin{array}{ c } \hline \square \\ \hline \square \\ \hline \end{array}$</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  $2\frac{2}{3} \times 3$ $2 \times 3 = 6 \quad \frac{2}{3} \times 3 = \frac{6}{3} = 2$ $2\frac{2}{3} \times 3 = 6 + 2 = 8$ </div> </div> |



Year 5 Calculation Policy – Multiplication

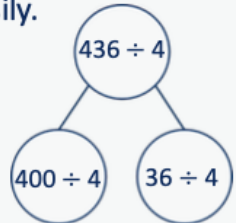
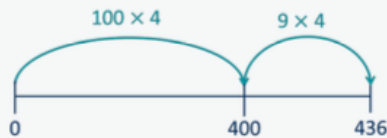
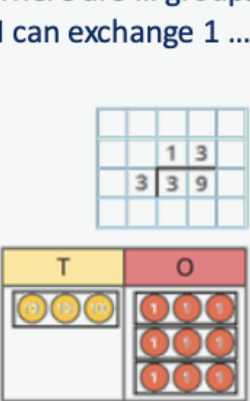
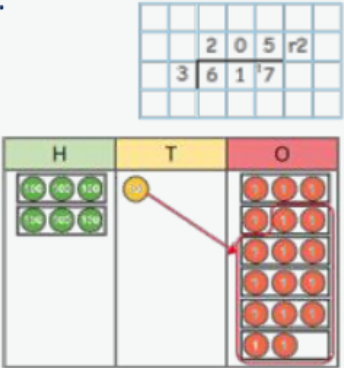
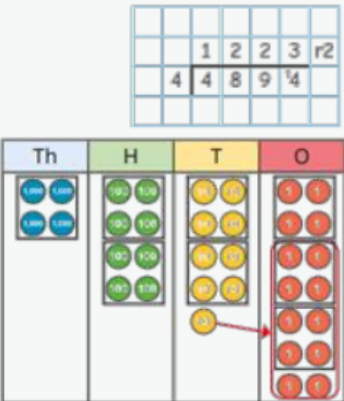


| Progression of skills | Key representations | |
|--|---|---|
| <p>Find the whole</p> <p>Children multiply to find the whole from a given part.</p> | <p>If $\frac{1}{\square}$ is ... , then the whole is ... \times ...</p> <p>$\frac{1}{5}$ of ___ = 6</p>  <p>$5 \times 6 = 30$</p> <p>$\frac{1}{5}$ of 30 = 6</p> | <p>If $\frac{\square}{\square}$ is ... , then $\frac{1}{\square}$ is ... and the whole is ... \times ...</p> <p>$\frac{4}{7}$ of ___ = 24</p>  <p>$\frac{1}{7} = 24 \div 4 = 6$</p> <p>$7 \times 6 = 42$</p> <p>$\frac{4}{7}$ of 42 = 24</p> |



Year 5 Calculation Policy – Division



| | | | |
|--|--|--|---|
| <p>Year 5</p> | <ul style="list-style-type: none"> • Divide numbers mentally drawing upon known facts. • Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. • Divide whole numbers and those involving decimals by 10, 100 and 1,000 | | |
| <p>Progression of skills</p> | <p>Key representations</p> | | |
| <p>Mental strategies</p> | <p>I can partition ... into ... and ... to help me to divide more easily.</p>  <p>A tree diagram showing 436 ÷ 4 branching into 400 ÷ 4 and 36 ÷ 4.</p> | <p>I can show groups of ... on a number line.</p>  <p>A number line from 0 to 436 with jumps of 100 and 9. Labels: 0, 100 × 4, 400, 9 × 4, 436.</p> | <p>To divide by ..., I can divide by ... and then divide the result by ...</p> $436 \div 4 = 436 \div 2 \div 2$ $436 \div 2 = 218$ $218 \div 2 = 109$ |
| <p>Divide numbers up to 4 digits by a 1-digit number</p> <p>The short division method is introduced for the first time.</p> | <p>There are ... groups of ... hundreds/tens/ones/ in ... I can exchange 1 ... for 10 ...</p>    | | |



Year 5 Calculation Policy – Division



| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>Divide by 10, 100 and 1,000</p> <p>Encourage children to notice that dividing by 100 is the same as dividing by 10 twice, and that dividing by 1,000 is the same as dividing by 10 three times.</p> | <p>To divide by 10/100/1,000, I move all the digits ... places to the right. ... is one-tenth/one-hundredth/one-thousandth the size of ...</p> <table border="1" data-bbox="617 435 1017 818"> <thead> <tr> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> <th>Tth</th> <th>Hth</th> </tr> </thead> <tbody> <tr> <td></td> <td>●</td> <td>●●</td> <td></td> <td>●</td> <td></td> </tr> <tr> <td></td> <td></td> <td>●</td> <td>●●</td> <td>●</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>●</td> <td>●●</td> <td>●</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>●</td> <td>●●</td> </tr> </tbody> </table> <p>$120 \div 10 = 12$</p> <p>$120 \div 100 = 1.2$</p> <p>$120 \div 1,000 = 0.12$</p> | | Th | H | T | O | Tth | Hth | | ● | ●● | | ● | | | | ● | ●● | ● | | | | | ● | ●● | ● | | | | | ● | ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>Fraction of an amount</p> <p>Bar models support children to understand that to find a fraction of an amount, we divide by the denominator and multiply by the numerator.</p> | <p>To find $\frac{\square}{\square}$ of ... , I need to divide by ... and multiply by ...</p> <table border="1" data-bbox="621 978 1301 1049"> <tr> <td>●●●●●</td> <td>●●●●●</td> <td>●●●●●</td> <td>●●●●●</td> <td>●●●●●</td> <td>●●●●●</td> <td>●●●●●</td> <td>●●●●●</td> <td>●●●●●</td> <td>●●●●●</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>$\frac{1}{5}$ of 20 =</p> <p>$\frac{3}{5}$ of 20 =</p> <p>$\frac{1}{4}$ of 84 =</p> <p>$\frac{3}{4}$ of 84 =</p> | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | | | | | | | | | | | | | | | | | | | | | <p>If $\frac{1}{\square}$ is ... , then the whole is ... \times ...</p> <table border="1" data-bbox="1336 921 1616 1042"> <tr> <td colspan="5">?</td> </tr> <tr> <td>6</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> </tr> </table> <p>$\frac{1}{5}$ of ___ = 6</p> <table border="1" data-bbox="1336 1078 1647 1249"> <tr> <td colspan="7">?</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">24</td> <td></td> <td></td> <td></td> </tr> </table> <p>$\frac{4}{7}$ of ___ = 24</p> | ? | | | | | 6 | 6 | 6 | 6 | 6 | ? | | | | | | | | | | | | | | 24 | | | | | | |
| ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 6 Calculation Policy – Multiplication

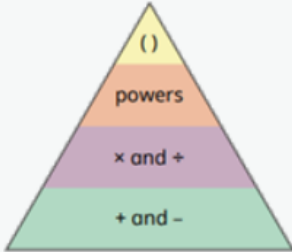





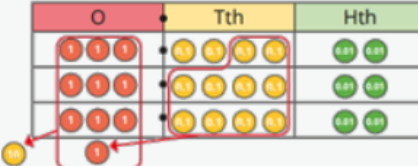
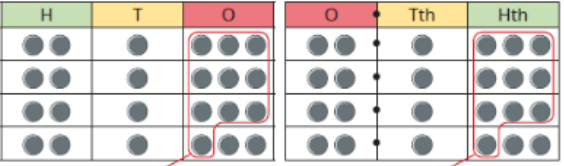


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|---|---|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|------|-----|------|---|--|---|---|-----|-----|-----|--|-----|-----|-----|-----|-----|-----|---|---|--|--|--|---|---|---|--|--|--|---|---|---|--|--|--|--|---|--|
| <p>Year 6</p> | <ul style="list-style-type: none"> Identify common factors and common multiples. Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. Multiply numbers by 10, 100 and 1,000 Multiply one-digit numbers with up to two decimal places by whole numbers. Use their knowledge of the order of operations to carry out calculations involving the 4 operations. Multiply simple pairs of proper fractions, writing the answer in its simplest form. Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. Solve problems involving the calculation of percentages. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Progression of skills</p> | <p>Key representations</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Multiply numbers up to 4 digits by a 2-digit number</p> | <p>To multiply by a 2-digit number, first multiply by the ones, then multiply by the tens and then find the total.</p> <div style="text-align: right;"> <table border="1" style="border-collapse: collapse; margin-left: auto;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>1</td><td>2</td><td>0</td><td>7</td></tr> <tr><td></td><td></td><td>x</td><td></td><td>3</td><td>6</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>+</td><td>7</td><td>2</td><td>4</td></tr> <tr><td></td><td></td><td></td><td>3</td><td>6</td><td>2</td></tr> <tr><td></td><td></td><td></td><td>4</td><td>3</td><td>4</td></tr> <tr><td></td><td></td><td></td><td></td><td>1</td><td></td></tr> </table> <p>(1,207 × 6) (1,207 × 30)</p> </div> | | | | | | | | | 1 | 2 | 0 | 7 | | | x | | 3 | 6 | | | | | | | | | + | 7 | 2 | 4 | | | | 3 | 6 | 2 | | | | 4 | 3 | 4 | | | | | 1 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 2 | 0 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | x | | 3 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | + | 7 | 2 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 3 | 6 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 4 | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Multiply by 10, 100 and 1,000 Some children may over-generalise that multiplying by a power of 10 always results in adding zeros.</p> | <p>To multiply by 10/100/1,000, I move all the digits ... places to the left. ... is 10/100/1,000 times the size of ...</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="background-color: #d3d3d3;">M</td> <td style="background-color: #d3d3d3;">HTh</td> <td style="background-color: #d3d3d3;">TTh</td> <td style="background-color: #d3d3d3;">Th</td> <td style="background-color: #d3d3d3;">H</td> <td style="background-color: #d3d3d3;">T</td> <td style="background-color: #d3d3d3;">O</td> <td style="background-color: #d3d3d3;">Th</td> <td style="background-color: #d3d3d3;">H</td> <td style="background-color: #d3d3d3;">T</td> <td style="background-color: #d3d3d3;">O</td> <td style="background-color: #d3d3d3;">Tth</td> <td style="background-color: #d3d3d3;">Hth</td> <td style="background-color: #d3d3d3;">Thth</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>● ●</td> <td>● ●</td> <td>● ●</td> <td></td> <td>● ●</td> <td>● ●</td> <td>● ●</td> <td>● ●</td> <td>● ●</td> <td>● ●</td> </tr> </table> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: left;"> <p>$234 \times 10 = 2,340$</p> <p>$234 \times 100 = 23,400$</p> <p>$234 \times 1,000 = 234,000$</p> </div> <div style="text-align: left;"> <p>$0.234 \times 10 = 2.34$</p> <p>$0.234 \times 100 = 23.4$</p> <p>$0.234 \times 1,000 = 234$</p> </div> </div> | M | HTh | TTh | Th | H | T | O | Th | H | T | O | Tth | Hth | Thth | | | | | ● ● | ● ● | ● ● | | ● ● | ● ● | ● ● | ● ● | ● ● | ● ● | | | | | | | | | | | | | | | | | | | | |
| M | HTh | TTh | Th | H | T | O | Th | H | T | O | Tth | Hth | Thth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | ● ● | ● ● | ● ● | | ● ● | ● ● | ● ● | ● ● | ● ● | ● ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 6 Calculation Policy – Multiplication

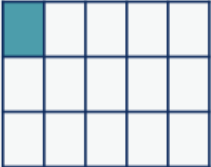
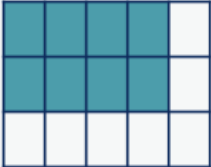
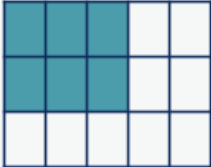
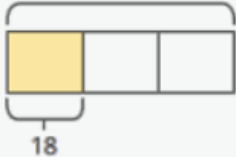
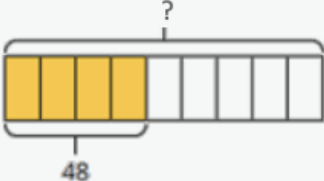


| Progression of skills | Key representations | |
|---|---|---|
| <p>Order of operations</p> <p>Calculations in brackets should be done first. Multiplication and division should be performed before addition and subtraction.</p> | <p>... has greater priority than ..., so the first part of the calculation I need to do is ...</p>  <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>$(3 + 4) \times 2 = 14$</p> </div> <div style="text-align: center;">  <p>$3 + 4^2 = 19$</p> </div> <div style="text-align: center;">  <p>$3 + 4 \times 2 = 11$</p> </div> </div> | |
| <p>Multiply decimals by integers</p> <p>This is the first time children multiply decimals by numbers other than 10, 100 or 1,000. Encourage them to make links with known facts and whole number multiplication.</p> | <p>I know that ... \times ... = ..., so I also know that ... \times ... = ...</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>$6 \times 2 = 12$</p> </div> <div style="text-align: center;">  <p>$6 \times 0.2 = 1.2$</p> </div> </div> | <p>I need to exchange 10 ... for 1 ...</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>$213 \times 4 = 852$</p> </div> <div style="text-align: center;">  <p>$2.13 \times 4 = 8.52$</p> </div> </div> |



Year 6 Calculation Policy – Multiplication





| Progression of skills | Key representations | |
|---|---|--|
| <p>Multiply fractions by fractions</p> <p>Encourage children to give answers in their simplest form.</p> | <p>When multiplying a pair of fractions, I need to multiply the numerator and multiply the denominator.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>$\frac{1}{3} \times \frac{1}{5} = \frac{1}{15}$</p> </div> <div style="text-align: center;">  <p>$\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$</p> </div> <div style="text-align: center;">  <p>$\frac{2}{3} \times \frac{3}{5} = \frac{6}{15} = \frac{2}{5}$</p> </div> </div> | |
| <p>Find the whole</p> <p>Children multiply to find the whole from a given part.</p> | <p>If $\frac{1}{\square}$ is ... , then the whole is ... \times ...</p> <p>$\frac{1}{3}$ of ___ = 18</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>$18 \times 3 = 54$</p> <p>$\frac{1}{3}$ of 54 = 18</p> </div> </div> | <p>If $\frac{\square}{\square}$ is ... , then $\frac{1}{\square}$ is ... and the whole is ... \times ...</p> <p>$\frac{4}{9}$ of ___ = 48</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>$\frac{1}{9} = 48 \div 4 = 12$</p> <p>$9 \times 12 = 108$</p> <p>$\frac{4}{9}$ of 108 = 48</p> </div> </div> |



Year 6 Calculation Policy – Multiplication

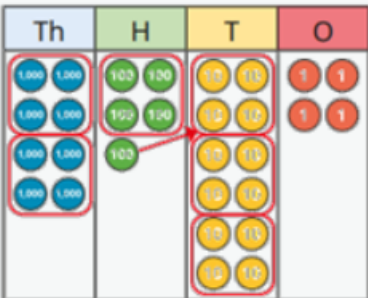



| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|------|--------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|------|---|---|--------|-------------------------------------|--|--|--|--|--|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <p>Calculate percentages</p> <p>Children first learn how to find 1%, 10%, 20%, 25% and 50% before using multiples of these amounts to find any percentage.</p> | <p>There are ... lots of ... % in 100%</p> <p>To find ... %, I need to divide by ...</p> <table border="1" data-bbox="629 415 1085 515"> <tr><td colspan="4">100%</td></tr> <tr><td colspan="2">50%</td><td colspan="2">50%</td></tr> <tr><td>25%</td><td>25%</td><td>25%</td><td>25%</td></tr> </table> <p>50% of ... = ... ÷ 2</p> <p>25% of ... = ... ÷ 4</p> | 100% | | | | 50% | | 50% | | 25% | 25% | 25% | 25% | <p>... % is made up of ... %, and ... %</p> <table border="1" data-bbox="1141 404 1823 482"> <tr><td colspan="10">100%</td></tr> <tr><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td></tr> </table> <p>To find 30%, I can find 10% and then multiply it by 3</p> <p>To find 23%, I can use 10% × 2 and 1% × 3</p> <p>To find 99%, I can find 1%, then subtract from 100%</p> | 100% | | | | | | | | | | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50% | | 50% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25% | 25% | 25% | 25% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Calculations involving ratio</p> <p>Encourage children to see the multiplicative relationship between ratios. They will need to multiply or divide each value by the same number to keep the ratio equivalent. Double number lines and ratio tables help children to see both horizontal and vertical multiplicative relationships.</p> | <p>For every ... , there are ...</p> <p>For every 1 adult on a school trip, there are 6 children.</p> <p>adults </p> <p>children </p> <table border="1" data-bbox="1452 772 1746 943"> <thead> <tr><th>Adults</th><th>Children</th></tr> </thead> <tbody> <tr><td>1</td><td>6</td></tr> <tr><td>2</td><td>12</td></tr> <tr><td>3</td><td>18</td></tr> </tbody> </table> <p>The ratio of adults to children is 1 : 6</p> <table border="1" data-bbox="1342 1096 1815 1229"> <tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>Adults</td><td colspan="6"> ----- ----- ----- ----- ----- ----- </td></tr> <tr><td>Children</td><td>0</td><td>6</td><td>12</td><td>18</td><td></td><td></td></tr> </table> | | Adults | Children | 1 | 6 | 2 | 12 | 3 | 18 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | Adults | ----- ----- ----- ----- ----- ----- | | | | | | Children | 0 | 6 | 12 | 18 | | | | | |
| Adults | Children | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adults | ----- ----- ----- ----- ----- ----- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Children | 0 | 6 | 12 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 6 Calculation Policy – Division



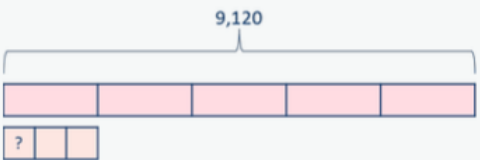
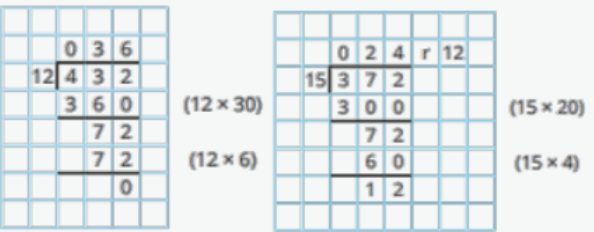
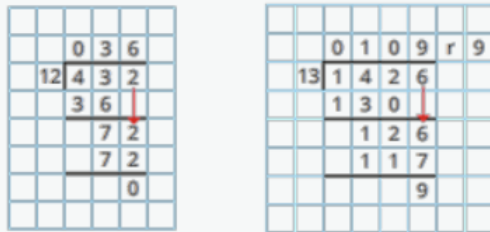
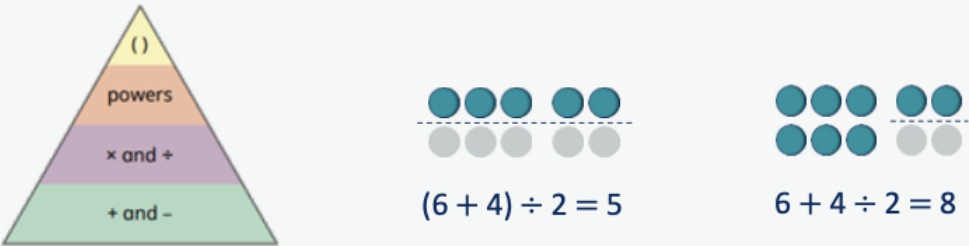


| | |
|---|--|
| <p>Year 6</p> | <ul style="list-style-type: none"> • Perform mental calculations, including with mixed operations and large numbers. • Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. • Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. • Divide numbers by 10, 100 and 1,000 giving answers up to three decimal places. • Use written division methods in cases where the answer has up to two decimal places. • Associate a fraction with division and calculate decimal fraction equivalents. • Divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$] • Solve problems involving the calculation of percentages. |
| <p>Progression of skills</p> | <p>Key representations</p> |
| <p>Short division</p> <p>Encourage children to interpret remainders in context, for example knowing that “4 remainder 1” could mean 4 complete boxes with 1 left over so 5 boxes will be needed.</p> | <p>There are ... groups of ... hundreds/tens/ones/ in ...</p> <p>I can exchange 1 ... for 10 ...</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> |



Year 6 Calculation Policy – Division

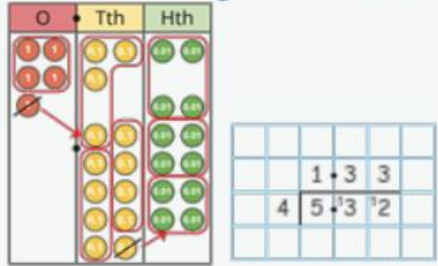


| Progression of skills | Key representations | |
|---|---|--|
| <p>Mental strategies</p> <p>Include partitioning and number line strategies outlined in Y5 as well as division using factors.</p> | <p>To divide by ... , I can first divide by ... and then divide the answer by ...</p> <p> $240 \div 60 = 240 \div 10 \div 6$  </p> <p> $480 \div 24 = 480 \div 4 \div 6$  </p> <p> $9,120 \div 15 = 9,120 \div 5 \div 3$  </p> | |
| <p>Long division</p> <p>The long division method is introduced for the first time. Two alternative methods are shown.</p> | <p>Method 1</p>  | <p>Method 2</p>  |
| <p>Order of operations</p> <p>Calculations in brackets should be done first, then powers. Multiplication and division should be performed before addition and subtraction.</p> | <p>... has greater priority than ..., so the first part of the calculation I need to do is ...</p>  | |



Year 6 Calculation Policy – Division

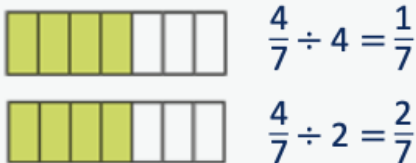


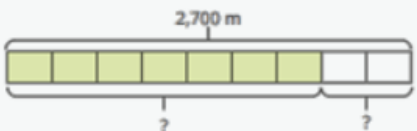



| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|----------------|----------------|-----|------|-----|---------------|------|---------------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|---|----|----|----|-----|---|-----|---|------|------|------|------|-----|-----|-----|--|-----|-----|-----|-----|
| <p>Divide by 10, 100 and 1,000 Encourage children to notice that dividing by 100 is the same as dividing by 10 twice, and that dividing by 1,000 is the same as dividing by 10 three times.</p> | <p>To divide by ... , I move the digits ... places to the right.</p> <div style="display: flex; align-items: center; justify-content: center;"> <table border="1" style="border-collapse: collapse; text-align: center; margin-right: 20px;"> <tr><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td><td>Thth</td></tr> <tr><td>●●</td><td>●</td><td>●●</td><td>●</td><td></td><td></td></tr> </table> <div style="text-align: center; margin-right: 20px;"> $\downarrow +1,000$ </div> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td><td>Thth</td></tr> <tr><td></td><td></td><td></td><td>●●</td><td>●●</td><td>●●</td></tr> </table> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> $312 \div 10 = 31.2$ $312 \div 100 = 3.12$ $312 \div 1,000 = 0.312$ </div> <div style="text-align: center;"> $906 \div 10 = 90.6$ $906 \div 100 = 9.06$ $906 \div 1,000 = 0.906$ </div> </div> | | H | T | O | Tth | Hth | Thth | ●● | ● | ●● | ● | | | H | T | O | Tth | Hth | Thth | | | | ●● | ●● | ●● | | | | | | | | | | | | | | | | |
| H | T | O | Tth | Hth | Thth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ●● | ● | ●● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | T | O | Tth | Hth | Thth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | ●● | ●● | ●● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Divide decimals by integers This is the first time children divide decimals by numbers other than 10, 100 or 1,000</p> | <p>I know that ... \div ... = ..., so I also know that ... \div ... = ...</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; text-align: center; margin-right: 20px;"> <tr><td>●</td><td>●</td><td>●</td><td>●</td></tr> <tr><td>●</td><td>●</td><td>●</td><td>●</td></tr> <tr><td>●</td><td>●</td><td>●</td><td>●</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center; margin-right: 20px;"> <tr><td>●</td><td>●</td><td>●</td><td>●</td></tr> <tr><td>●</td><td>●</td><td>●</td><td>●</td></tr> <tr><td>●</td><td>●</td><td>●</td><td>●</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>●</td><td>●</td><td>●</td><td>●</td></tr> <tr><td>●</td><td>●</td><td>●</td><td>●</td></tr> <tr><td>●</td><td>●</td><td>●</td><td>●</td></tr> </table> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> $39 \div 3 = 13$ $3.9 \div 3 = 1.3$ $0.39 \div 3 = 0.13$ </div> | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | <p>I need to exchange 1 ... for 10 ...</p>  | | | | |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Decimal and fraction equivalents</p> | <p>The fraction ... is equivalent to the decimal ...</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; text-align: center; margin-right: 20px;"> <tr><td colspan="4">1</td></tr> <tr><td colspan="2">$\frac{1}{2}$</td><td colspan="2">$\frac{1}{2}$</td></tr> <tr><td>$\frac{1}{4}$</td><td>$\frac{1}{4}$</td><td>$\frac{1}{4}$</td><td>$\frac{1}{4}$</td></tr> <tr><td>$\frac{1}{5}$</td><td>$\frac{1}{5}$</td><td>$\frac{1}{5}$</td><td>$\frac{1}{5}$</td></tr> <tr><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td><td>$\frac{1}{10}$</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center; margin-right: 20px;"> <tr><td colspan="4">1</td></tr> <tr><td colspan="2">0.5</td><td colspan="2">0.5</td></tr> <tr><td>0.25</td><td>0.25</td><td>0.25</td><td>0.25</td></tr> <tr><td>0.2</td><td>0.2</td><td>0.2</td><td>0.2</td></tr> <tr><td>0.1</td><td>0.1</td><td>0.1</td><td>0.1</td></tr> </table> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> $\frac{1}{5} = 0.2$ $\frac{2}{5} = 0.4$ $\frac{3}{5} = 0.6$ </div> <div style="margin-top: 20px;"> <p>$\frac{\square}{\square}$ is equal to $\frac{\square}{100}$</p> <div style="text-align: center;"> $\frac{3}{4} \xrightarrow{\times 25} \frac{75}{100} = 0.75$ </div> </div> | | 1 | | | | $\frac{1}{2}$ | | $\frac{1}{2}$ | | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | 1 | | | | 0.5 | | 0.5 | | 0.25 | 0.25 | 0.25 | 0.25 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\frac{1}{2}$ | | $\frac{1}{2}$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.5 | | 0.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.25 | 0.25 | 0.25 | 0.25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.2 | 0.2 | 0.2 | 0.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.1 | 0.1 | 0.1 | 0.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Year 6 Calculation Policy – Division





| Progression of skills | Key representations | | |
|---|---|--|---|
| <p>Divide a fraction by an integer</p> <p>This is the first time children divide fractions by an integer.</p> | <p>... ones divided by 2 is ... ones so ... sevenths divided by 2 is ... sevenths.</p>  | <p>I am dividing by ... , so I can split each part into ... equal parts.</p>  | <p>... is equivalent to ... so ... ÷ ... = ... ÷ ...</p>  <p>so $\frac{2}{3} \div 4 = \frac{4}{6} \div 4 = \frac{1}{6}$</p> |
| <p>Fraction of an amount</p> <p>Children divide and multiply to find fractions of an amount. Bar models can still be used to support understanding where needed.</p> | <p>To find $\frac{1}{\square}$ I divide by ...</p> <p>$\frac{1}{2}$ of 36 = $36 \div 2$</p> <p>$\frac{1}{12}$ of 36 = $36 \div 12$</p> | <p>If $\frac{1}{\square}$ is equal to ..., then $\frac{\square}{\square}$ are equal to ...</p>  <p>$\frac{7}{9}$ of 2,700 = $\frac{1}{9}$ of 2,700 $\times 7$</p> | <p>If $\frac{\square}{\square}$ is equal to ..., then the whole is equal to ...</p>  <p>$\frac{4}{9}$ of ___ = 48</p> |



Year 6 Calculation Policy – Division



| Progression of skills | Key representations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|------|-----|-----|-----|-----|-----|--------|----------|-----|-----|-----|-----|--|------|--|--|---|----|--|--|--|---|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|---|---|---|---|--------|-------------------------------------|--|--|--|--|--|----------|---|---|----|----|--|--|
| <p>Calculate percentages</p> <p>Children first learn how to find 1%, 10%, 20%, 25% and 50% before using multiples of these amounts to find any percentage.</p> | <p>There are ... lots of ... % in 100%</p> <p>To find ... %, I need to divide by ...</p> <table border="1" data-bbox="617 408 1089 511"> <tr><td colspan="4">100%</td></tr> <tr><td colspan="2">50%</td><td colspan="2">50%</td></tr> <tr><td>25%</td><td>25%</td><td>25%</td><td>25%</td></tr> </table> <p>50% of ... = ... ÷ 2</p> <p>25% of ... = ... ÷ 4</p> | 100% | | | | 50% | | 50% | | 25% | 25% | 25% | 25% | <p>... % is made up of ... %, and ... %</p> <table border="1" data-bbox="1143 394 1846 476"> <tr><td colspan="10">100%</td></tr> <tr><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td></tr> </table> <p>To find 30%, I can find 10% and then multiply it by 3</p> <p>To find 23%, I can use 10% × 2 and 1% × 3</p> <p>To find 99%, I can find 1%, then subtract from 100%</p> | 100% | | | | | | | | | | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | | | | | | | | | | | | | | | | | | | |
| 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50% | | 50% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25% | 25% | 25% | 25% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Calculations involving ratio</p> <p>Encourage children to see the multiplicative relationship between ratios. They will need to multiply or divide each value by the same number to keep the ratio equivalent. Double number lines and ratio tables help children to see both horizontal and vertical multiplicative relationships.</p> | <p>For every ... , there are ...</p> <p>For every 6 children on a school trip, there is 1 adult.</p> <p>adults </p> <p>children </p> <table border="1" data-bbox="1390 708 1856 1018"> <tr><td colspan="2"></td><td>÷ 6</td><td colspan="2"></td></tr> <tr><td>Adults</td><td>Children</td><td></td><td></td><td></td></tr> <tr><td>1</td><td>6</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>12</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>18</td><td></td><td></td><td></td></tr> <tr><td colspan="2"></td><td>÷ 6</td><td colspan="2"></td></tr> </table> <p>The ratio of children to adults is 6 : 1</p> <table border="1" data-bbox="1355 1103 1839 1246"> <tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>Adults</td><td colspan="6"> ----- ----- ----- ----- ----- ----- </td></tr> <tr><td>Children</td><td>0</td><td>6</td><td>12</td><td>18</td><td></td><td></td></tr> </table> | | | | ÷ 6 | | | Adults | Children | | | | 1 | 6 | | | | 2 | 12 | | | | 3 | 18 | | | | | | ÷ 6 | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | Adults | ----- ----- ----- ----- ----- ----- | | | | | | Children | 0 | 6 | 12 | 18 | | |
| | | ÷ 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adults | Children | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | ÷ 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adults | ----- ----- ----- ----- ----- ----- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Children | 0 | 6 | 12 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |