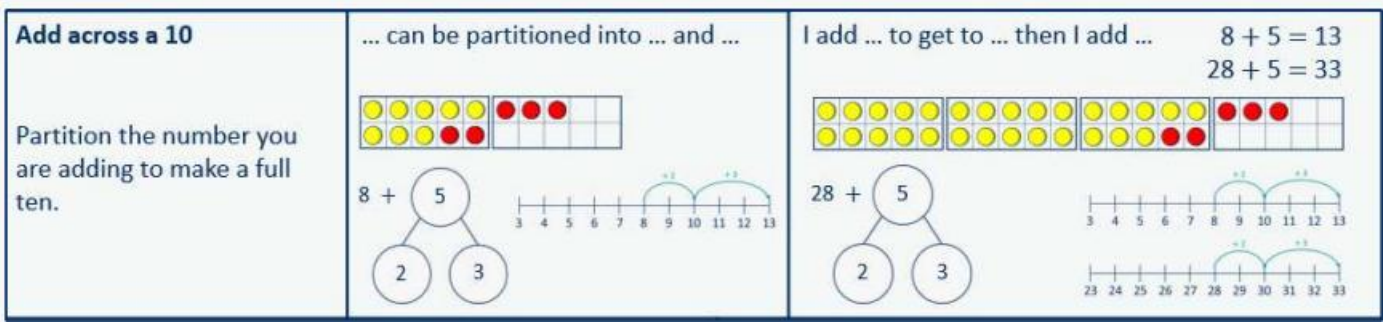
Lady Jane Grey – Year 1 Maths Calculation Policy

The calculation policy is divided into four sections: addition, subtraction, multiplication and division. At the start of each section, you will find an overview of the progression of skills.

Calculations involving decimal numbers and fractions are included. The calculation policy follows the same concrete, pictorial, abstract approach as our main schemes of learning.

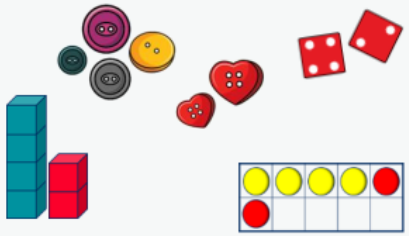
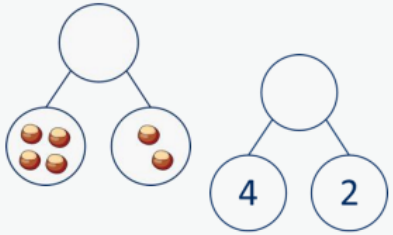
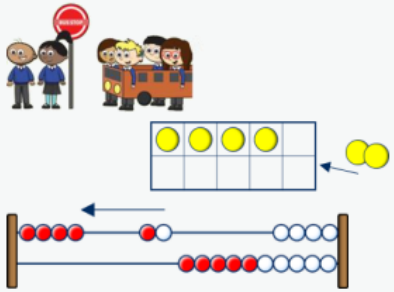
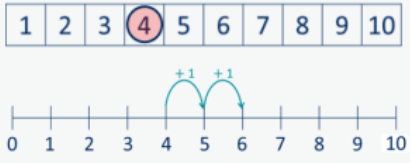
Where appropriate, sentence stems and key questions are included alongside the key representations. Where skills are divided into more than one section across the page, there is a progression in the level of difficulty from left to right. For example, when adding across a 10, children need to be able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



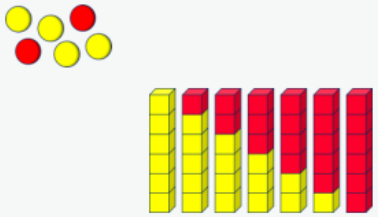
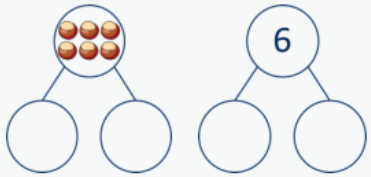
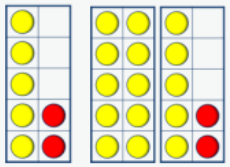
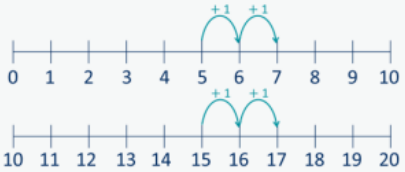
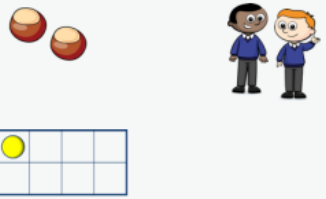
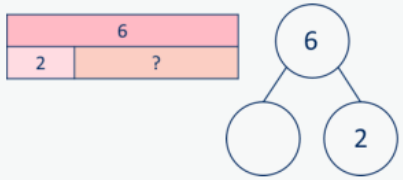
Progression of skills – Addition

Reception	Year 1	Year 2
• Conceptually subitise to 5 • 1 more • Notice the composition of numbers within 10 • Combine 2 groups • Add more	• Add together • Add more • Bonds within 10 • Related facts within 20 • Missing numbers	• Add 1s to any number (related facts) • Add three 1-digit numbers • Add across a 10 • Add multiples of 10 • Add 10s to any number • Add two 2-digit numbers (not across a ten) • Add two 2-digit numbers (across a ten) • Missing numbers

Addition

Year 1	• Read, write and interpret mathematical statements involving addition (+) and equals (=) signs. • Represent and use number bonds within 20 • Add 1-digit and 2-digit numbers to 20, including zero. • Solve one-step problems that involve addition, using concrete objects and pictorial representations, and missing number problems such as 7 = □ + 2		
Progression of skills	**Key representations**		
Add together (aggregation) 2 quantities are combined to find the total.	There are … There are … There are … altogether. 	… is a part. … is a part. … is the whole. 	… plus … is equal to … … is equal to …. + … 4 + 2 = 6 2 + 4 = 6 6 = 4 + 2 6 = 2 + 4
Add more (augmentation) A quantity is increased.	First… Then… Now… 	I start at … I jump on … I land on … 	… plus … is equal to … is equal to … + … 4 + 2 = 6 2 + 4 = 6 6 = 4 + 2 6 = 2 + 4

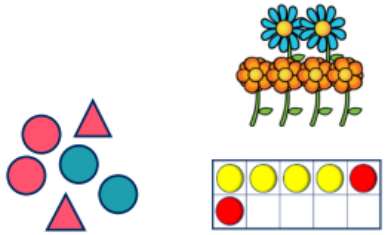
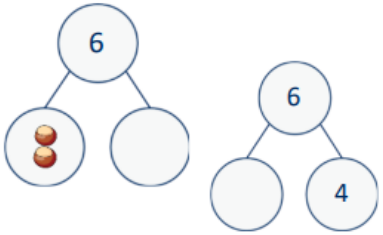
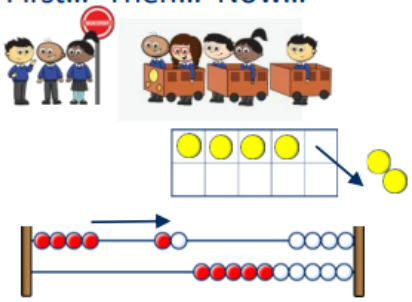
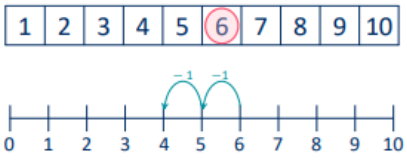
Addition

Progression of skills	Key representations		
Bonds within 10 Include bonds for each number within 10 Encourage children to notice patterns.	… is made of … and … … and … make … 	… can be partitioned into … and … 	… plus … is equal to … $6 + 0 = 6$ $5 + 1 = 6$ $4 + 2 = 6$ $3 + 3 = 6$ $2 + 4 = 6$ $1 + 5 = 6$ $0 + 6 = 6$
Related facts within 20 Make links to known facts.	I know that … and … = … so … and … = … 	… more than … is … so … more than … is … 	What patterns do you notice? $5 + 2 = 7$ $15 + 2 = 17$ $7 = 5 + 2$ $17 = 15 + 2$
Missing numbers Make links to known facts.	How many more do you need to make …? 	If … is the whole and … is a part, the other part must be… 	… plus … is equal to … $2 + \square = 6$ $6 = 2 + \square$ 

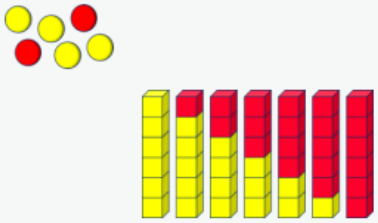
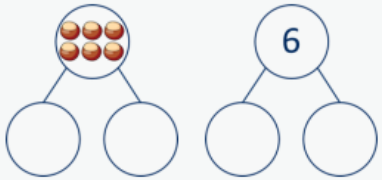
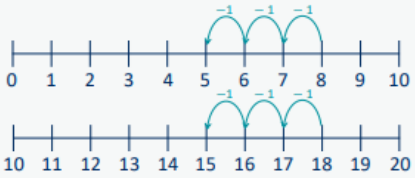
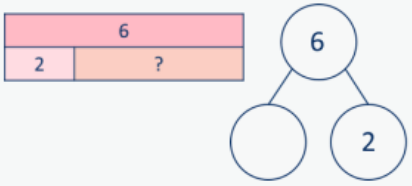
Progression of skills – Subtraction

Reception	Year 1	Year 2
• Conceptually subitise to 5 • 1 less • Notice the composition of numbers within 10 • Partition • Take away	• Find a part • Take away • Bonds within 10 • Related facts within 20 • Missing numbers	• Subtract 1s from any number (related facts) • Subtract across a 10 • Subtract multiples of 10 • Subtract 10s from any number • Subtract two 2-digit numbers (not across a ten) • Subtract two 2-digit numbers (across a ten) • Missing numbers

Subtraction

Year 1	• Read, write and interpret mathematical statements involving subtraction (–) and equals (=) signs. • Represent and use number bonds and related subtraction facts within 20 • Subtract one-digit and two-digit numbers to 20, including zero. • Solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9		
Progression of skills	**Key representations**		
Find a part Link to number bonds and known facts. E.g. 2 + 4 = 6 so if 6 is the whole and 4 is a part, the other part must be 2	There are … in total. … are … How many are **not** …? 	… is the whole. … is a part. … is a part. 	… subtract … is equal to … … is equal to … – … 6 – 2 = 4 6 – 4 = 2 4 = 6 – 2 2 = 6 – 4
Take away A quantity is decreased.	First… Then… Now… 	I start at … I jump back … I land on … 	… minus … is equal to … … is equal to … – … 6 – 2 = 4 6 – 4 = 2 4 = 6 – 2 2 = 6 – 4

Subtraction

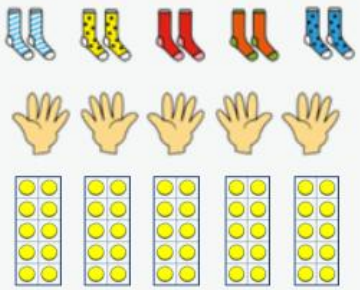
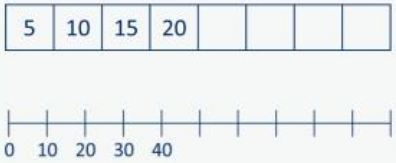
Progression of skills	Key representations		
Bonds within 10 Focus on subtraction facts. Encourage children to notice patterns.	… is made of … and … … and … make … 	… can be partitioned into … and … 	… minus … is equal to … $6 - 0 = 6$ $6 - 1 = 5$ $6 - 2 = 4$ $6 - 3 = 3$ $6 - 4 = 2$ $6 - 5 = 1$ $6 - 6 = 0$
Related facts within 20 Make links to known facts.	I know that … minus … = … so … minus … = … 	… less than … is … so … less than … is … 	What patterns do you notice? $8 - 3 = 5$ $18 - 3 = 15$ $5 = 8 - 3$ $15 = 18 - 3$
Missing numbers Make links to known facts.	How many do you need to subtract to make …?  	If … is the whole and … is a part, the other part must be… 	… minus … is equal to … $6 - \square = 2$ $2 = 6 - \square$ 

Progression of skills – Multiplication

Reception	Year 1	Year 2
• Double to 10 • Make equal groups	• Count in 2s, 5s and 10s • Add equal groups • Make arrays • Make doubles	• Link repeated addition and multiplication • Use arrays • Double • The 2 times-table • The 10 times-table • The 5 times-table • Missing numbers

Multiplication

<table>
<tr><td>Year 1</td><td colspan="3">• 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.</td></tr>
<tr><td>Progression of skills</td><td colspan="3">Key representations</td></tr>
<tr><td>Count in 2s, 5s and 10s

Begin by counting objects that naturally come in 2s, 5s and 10s, for example pairs of socks or fingers.</td><td>There are … equal groups of …
There are … altogether.
  </td><td>Continue to colour in …s
What do you notice?
 
<table><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></td><td>Complete the number track/number line by counting in …s.
 
<table><tr><td>5</td><td>10</td><td>15</td><td>20</td><td></td><td></td><td></td><td></td></tr></table>

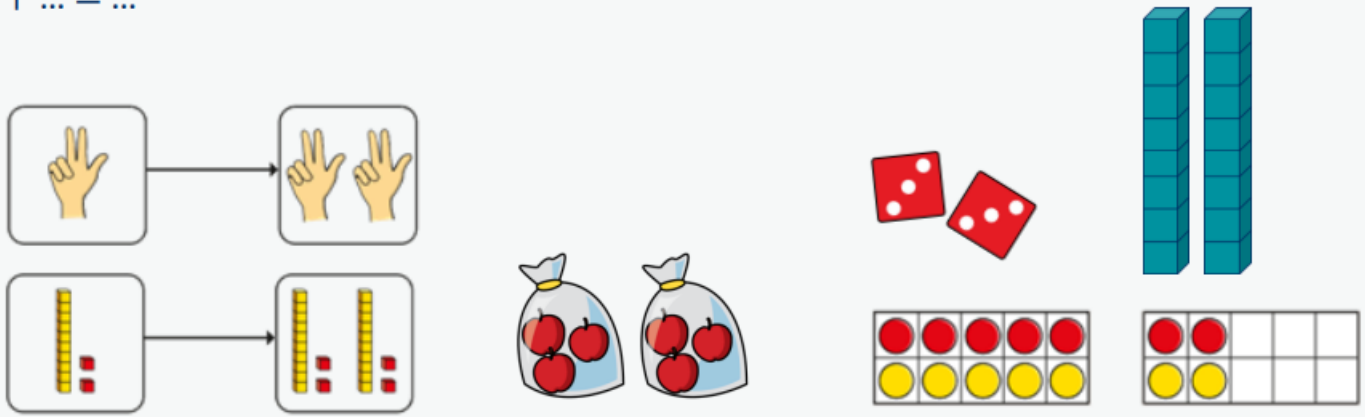
0 10 20 30 40</td></tr>
<tr><td>Add equal groups
(repeated addition)

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.</td><td colspan="2">There are … groups of …
There are … altogether.
  10 + 10 + 10 = 30

  5 + 5 + 5 + 5 = 20</td><td>What is the same? What is different?
2 + 2 + 2 =
5 + 5 + 5 =
10 + 10 + 10 =

Use objects or a drawing to represent the equal groups and find how many in total.</td></tr>
</table>

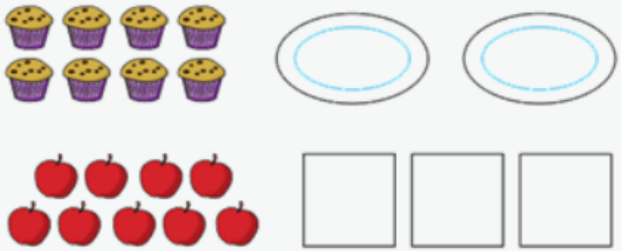
Multiplication

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

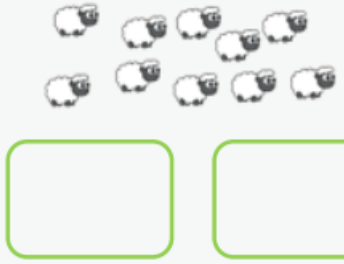
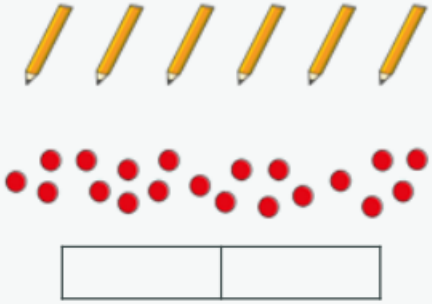
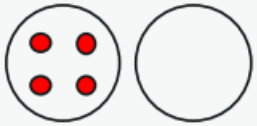
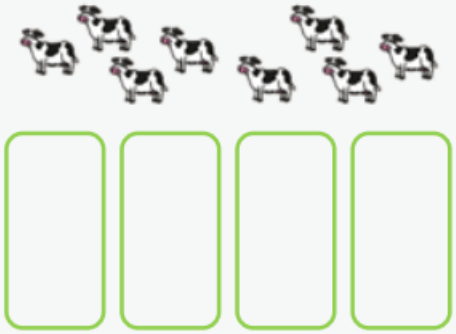
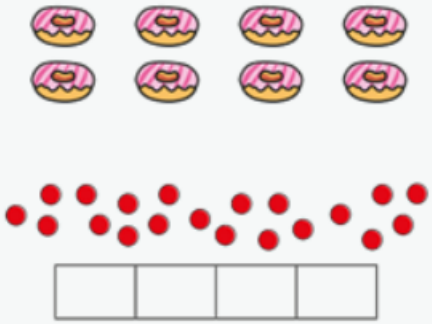
Progression of skills – Division

Reception	Year 1	Year 2
• Sharing • Grouping	• Make equal groups – grouping • Make equal groups – sharing • Find a half • Find a quarter	• Divide by 2 • Divide by 10 • Divide by 5 • Missing numbers • Unit fractions • Non-unit fractions

Division

Year 1	• 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.		
Progression of skills	**Key representations**		
Make equal groups - grouping Encourage children to physically move objects into equal groups. They can also circle equal groups when using pictures.	There are … altogether. How many groups of … can you make?  	Circle groups of 2 There are … groups of 2 	Take … cubes. Make equal groups.  There are … groups of …
Make equal groups – sharing Encourage children to check that the objects have been shared fairly and each group is the same.	… have been shared equally between… There are … on/in each … 		Take … cubes. Share them between …  12 shared between … is …

Division

Progression of skills	Key representations		
Find a half 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.	To find half, I need to share into 2 equal groups.  There are ... in each group.	Half of ... is ... 	If ... is half, what is the whole?  4 is half of ...
Find a quarter 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.	To find a quarter, I need to share into 4 equal groups.  There are ... in each group.	A quarter of ... is ... 	If ... is one quarter, what is the whole?  3 is one quarter of ...