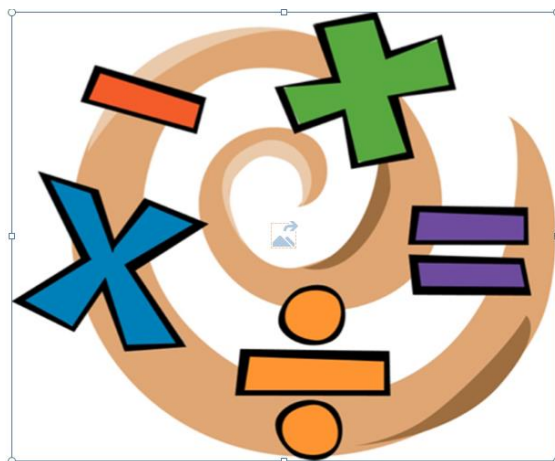

















The Great Wishford Calculation Policy

July 2019

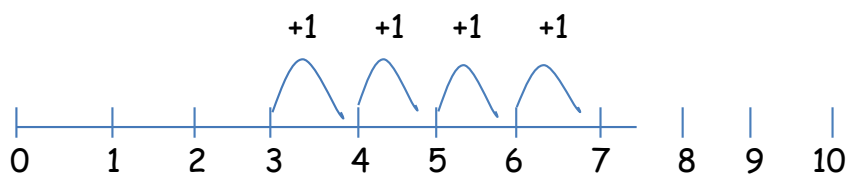


Addition

Year Group	Strategy
Reception	<p>Use of objects and pictures, eg</p> <p> and  makes</p> <p>Use of mathematical symbols, eg</p> <p> +  =</p> <p>Different representations, eg</p> <p> +  = 7</p> <p> +  = 7</p> <p>3 + 4 = 7</p>
Year 1	<p>Practical use of objects eg numicon, counters</p> <p> +  = 7</p> <p> +  = 7</p> <p>Use of bead string:</p> <p>3 + 4 = 7</p> <p></p>

Use of number line:

$$3 + 4 =$$



Counting on a hundred square in 1s and 10s:

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	53	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		90
91	92	93	94	95	96	97	98	99	100

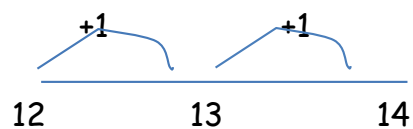
$$36 + 4 = 40$$

$$64 + 10 = 74$$

Year 2

Empty number line, eg

$$12 + 2$$









Partitioned column method eg $23 + 34$

$$\begin{array}{r} \text{T} \quad \text{U} \\ 20 + 3 \\ + 30 + 4 \\ \hline 50 + 7 \quad = 57 \end{array}$$

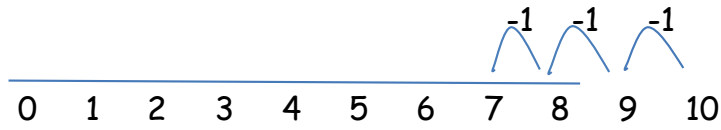
Year 3	<p>Partitioned Column, eg $148 + 286$</p> $ \begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ 100 \quad 40 \quad 8 \\ + \quad 200 \quad 80 \quad 6 \\ \hline 300 + 120 + 14 \quad = 434 \end{array} $ <p>Expanded Column, eg $148 + 286$</p> $ \begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ 1 \quad 4 \quad 8 \\ + \quad 2 \quad 8 \quad 6 \\ \hline \quad \quad 1 \quad 4 \\ 1 \quad 2 \quad 0 \\ + \quad 3 \quad 0 \quad 0 \\ \hline 4 \quad 3 \quad 4 \end{array} $
Year 4	<p>Compact column method, eg $3517 + 1396$</p> $ \begin{array}{r} \text{Th} \quad \text{H} \quad \text{T} \quad \text{U} \\ 3 \quad 5 \quad 1 \quad 7 \\ + \quad 1 \quad 3 \quad 9 \quad 6 \\ \hline 4 \quad 9 \quad 1 \quad 3 \\ \quad \quad 1 \quad 1 \end{array} $
Year 5	Reinforcement of the compact column method, moving on to include bigger numbers and decimals
Year 6	Reinforcement of the compact column method, moving on to include bigger numbers and decimals

Subtraction

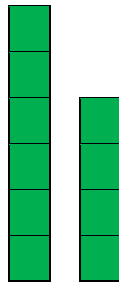
Year Group	Strategy																																																																																																				
Reception	<p>Use of objects and pictures:</p> <p> take away  makes</p> <p>Use of mathematical symbols:</p> <p> -  =</p> <p>Simple number sentences:</p> <p>7 - 4 = 3</p>																																																																																																				
Year 1	<p>Practical use of objects:</p> <p></p> <p>Practical use of pictures:</p> <p> 5 - 3 = 2</p> <p>Counting back in 1s on a hundred square:</p> <table border="1"><tbody><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>53</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></tbody></table> <p>26 - 3 = 23</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	41	42	43	44	45	46	47	48	49	50	51	52	53	53	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																																																																																												
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91	92	93	94	95	96	97	98	99	100																																																																																												

Counting back in 1s on a number line, marking the steps:

$$10 - 3 = 7$$



Finding the difference practically:



The difference
between 6 and 4 is

Use of - and = sign:

$$7 - 2 = \square$$

$$7 - \square = 5$$

$$\square - 2 = 5$$

Use of 100 square:

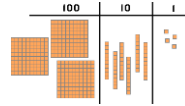
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	53	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

$$57 - 10 = 47$$

$$74 - 11 = 63$$

Year 2

Physical use of equipment, eg straws, base 10



Counting back on a hundred square:

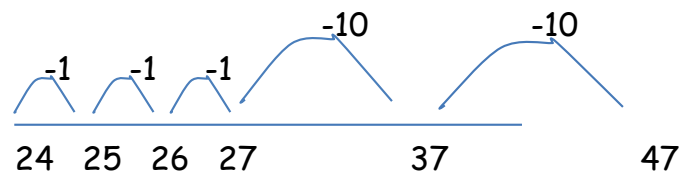
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

$$87 - 50 = 37$$

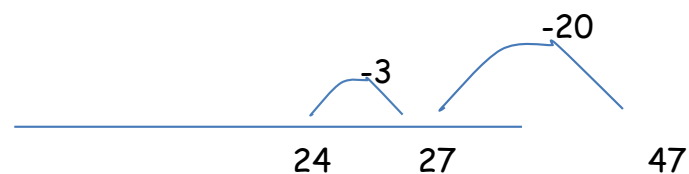
$$74 - 32 = 42$$

Partitioning on number lines:

$$47 - 23 = 24$$

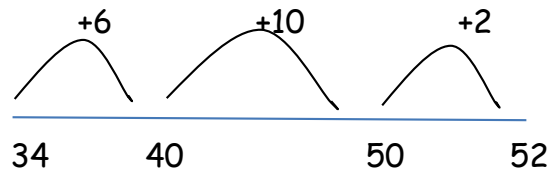


Move towards more efficient jumps:



Finding the difference and bridging 10 on a number line:

$$52 - 34 = 18$$



Partitioned Column Method eg 89 - 35

$$\begin{array}{r} \text{T} \quad \text{U} \\ 80 \quad 9 \\ - 30 \quad 5 \\ \hline 50 \quad 4 \end{array} = 54$$

Year 3

Partitioned Column - no exchange

eg 89 - 35

$$\begin{array}{r} \text{T} \quad \text{U} \\ 80 \quad 9 \\ - 30 \quad 5 \\ \hline 50 \quad 4 \end{array} = 54$$

Partitioned Column Method - with exchange




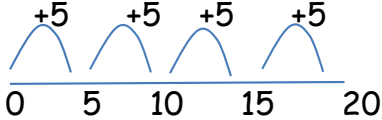

This will be supported by practical use of equipment eg diennes, place value counters

eg 72 - 47

$$\begin{array}{r} \text{T} \quad \text{U} \\ 60 \\ \cancel{70} \quad 12 \\ - 40 \quad 7 \\ \hline 20 \quad 5 \end{array} = 25$$

Year 4	<p>Compact Column Method - no decomposition</p> <p>Eg, 458 - 232</p> $ \begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ 4 \quad 5 \quad 8 \\ - \quad 2 \quad 3 \quad 2 \\ \hline 2 \quad 2 \quad 6 \end{array} $ <p>Compact Column Method - with decomposition</p> <p>Eg, 2754 - 1562</p> $ \begin{array}{r} \text{Th} \quad \text{H} \quad \text{T} \quad \text{U} \\ 2 \quad 7 \quad 15 \quad 4 \\ - \quad 1 \quad 5 \quad 6 \quad 2 \\ \hline 1 \quad 1 \quad 9 \quad 2 \end{array} $
Year 5	Reinforcement of the compact column method, moving on to decimals to at least 2dp and use of 0 as a place holder
Year 6	Reinforcement of the compact column method, moving on to decimals to at least 2dp and use of 0 as a place holder

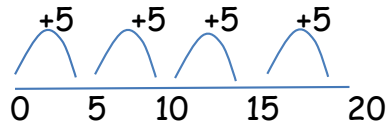
Multiplication

Year Group	Strategy
Reception	<p data-bbox="459 405 970 443">Practical doubling, eg using hoops:</p> <div data-bbox="592 439 895 539"></div> <p data-bbox="459 629 842 667">Recording using pictures:</p> <div data-bbox="507 696 1050 763"></div> <p data-bbox="459 853 746 891">Repeated addition:</p> <p data-bbox="459 936 603 974">$3 + 3 = 6$</p> <p data-bbox="459 1025 603 1064">$2 + 2 = 4$</p>
Year 1	<p data-bbox="459 1077 954 1115">Pictures, drawing on pictures, eg</p> <div data-bbox="539 1144 842 1211"></div> <p data-bbox="459 1301 1002 1339">Repeated addition on a number line:</p> <p data-bbox="459 1384 619 1422">$4 \times 5 = 20$</p> <div data-bbox="528 1473 911 1592"></div> <p data-bbox="459 1653 810 1691">Using dots and arrays:</p> <p data-bbox="459 1742 603 1780">$4 \times 2 = 8$</p> <div data-bbox="555 1794 639 1928"></div>

Year 2

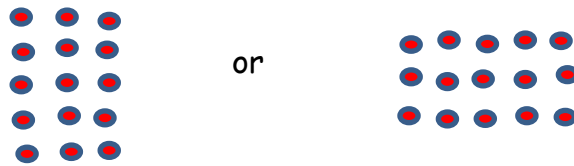
Repeated addition, number line:

$$4 \times 5 = 20$$



Arrays (with counters and drawn)

$$5 \times 3 = 15$$



Missing box calculations:

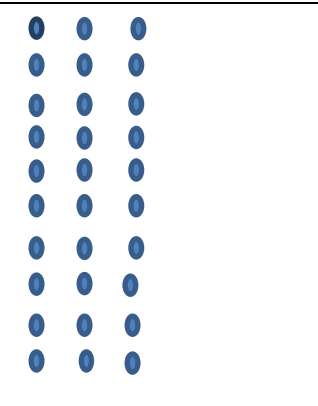

$$3 \times \square = 12$$

Year 3

Grid Method using 2, 3, 4, 5, 8 and 10x tables, 2-digit x 1-digit

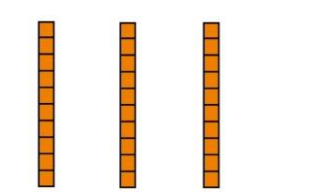
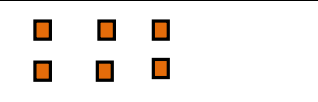
i) With equipment - counters/arrays

12 x 3

X	3	
10		30
2		6
		3

ii) With diennes/place value counters

12 x 3

X	3	
10		30
2		6
		3

iii) No equipment

12×3

X	3
10	30
2	6
	36

Year 4

Using all tables to 12×12

Grid Method for 3-digit \times 1-digit

245×6

X	6
200	1200
40	240
5	30
	1470

Expanded Column Method, eg 32×4

$$\begin{array}{r} \text{T} \quad \text{U} \\ 3 \quad 2 \\ \times \quad 4 \\ \hline 8 \quad (4 \times 2) \\ + 1 \quad 2 \quad 0 \quad (4 \times 30) \\ \hline 1 \quad 2 \quad 8 \end{array}$$

Year 5

Short Multiplication, eg 32×4

$$\begin{array}{r} \text{T} \quad \text{U} \\ 3 \quad 2 \\ \times \quad 4 \\ \hline 1 \quad 2 \quad 8 \end{array}$$

Grid Method for 2-digit \times 2-digit

34×25

X	20	5	
30	600	150	
4	80	20	
	680	170	85

Expanded Column for 2-digit \times 2-digit

34×25

$$\begin{array}{r} \text{T} \quad \text{U} \\ 3 \quad 4 \\ \times 2 \quad 5 \\ \hline 2 \quad 0 \quad (5 \times 4) \\ 1 \quad 5 \quad 0 \quad (5 \times 30) \\ 8 \quad 0 \quad (20 \times 4) \\ + 6 \quad 0 \quad 0 \quad (20 \times 30) \\ \hline 8 \quad 5 \quad 0 \\ \hline 1 \end{array}$$

Long Multiplication for 2-digit x 2-digit

$$34 \times 25$$

$$\begin{array}{r} \text{T} \quad \text{U} \\ 34 \\ \times 25 \\ \hline 170 \\ 2 \\ + 680 \\ \hline 850 \\ \hline 1 \end{array}$$

Year 6




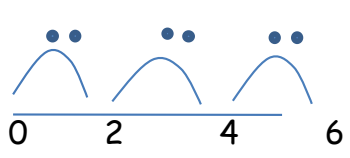
Long Multiplication, including decimals


$$237 \times 3.4 = 805.8$$

$$\begin{array}{r} 237 \\ \times 3.4 \\ \hline 948 \\ 2 \\ + 7110 \\ \hline 8058 \\ \hline 1 \end{array}$$

In the question, there is one number after the decimal point so there will also be one number after the decimal point in

Division

Year Group	Strategy
Reception	<p>Practical sharing, eg</p> <p>8 cakes shared by 2 people</p> 
Year 1	<p>Sharing:</p> <p>12 shared between 3 is 4</p>  <p>Grouping:</p> <p>Put 12 into groups of 3</p>  <p>Use mathematical symbols:</p> $12 \div 3 = 4$
Year 2	<p>As for year 1 with the introduction of remainders</p> <p>Grouping on a number line:</p> <p>$6 \div 2$</p>  <p>Grouping on beaded strings:</p>

	$6 \div 2$ 
Year 3	<p>Using 2, 3, 4, 5, 8 and 10x tables</p> <p>Grouping on a number line:</p> $13 \div 3 = 4 \text{ r}1$
Year 4	<p>Using all tables to 12 x 12</p> <p>Short division, 2 digit by 1 digit:</p> $72 \div 4 = 8$
Year 5	Short division, 4 digit by 1 digit:

$6 \div 2$

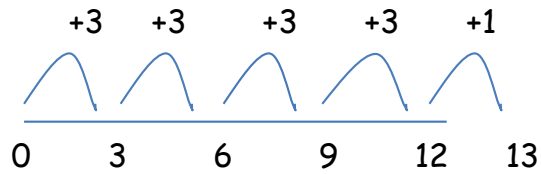


Year 3

Using 2, 3, 4, 5, 8 and 10x tables

Grouping on a number line:

$13 \div 3 = 4 \text{ r}1$



Short division, 2 digit by 1 digit:

$72 \div 4 = 8$

$$\begin{array}{r} 1 8 \\ 4 \overline{) 72} \\ \underline{4} \\ 32 \\ \underline{32} \\ 0 \end{array}$$

Year 4

Using all tables to 12 x 12

Short division, 2 digit by 1 digit:

$72 \div 4 = 8$

$$\begin{array}{r} 1 8 \\ 4 \overline{) 72} \\ \underline{4} \\ 32 \\ \underline{32} \\ 0 \end{array}$$

Short division, 3 digit by 1 digit:

$573 \div 4 = 143 \text{ r}1$

$$\begin{array}{r} 1 4 3 \text{ r}1 \\ 4 \overline{) 573} \\ \underline{4} \\ 17 \\ \underline{16} \\ 13 \\ \underline{12} \\ 1 \end{array}$$

