

St Joseph the Worker Catholic Primary School



Calculation guidance Year R – Year 6

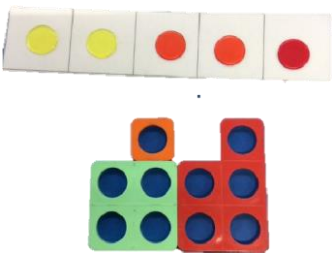
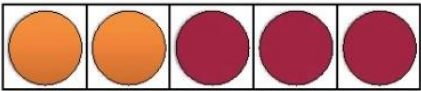
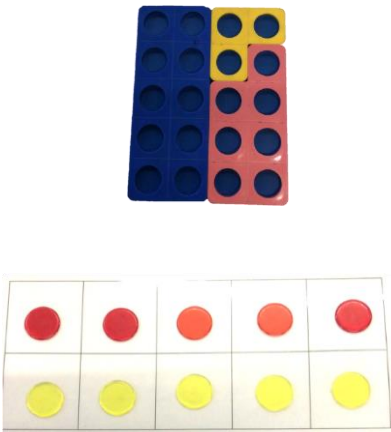
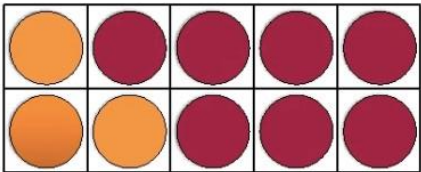
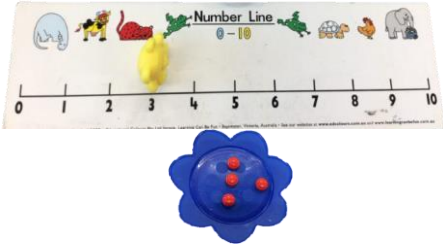
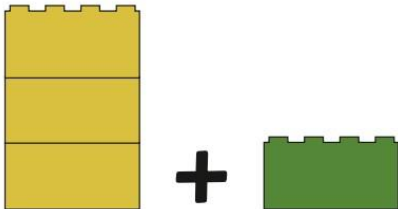
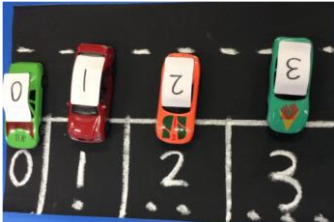


Addition



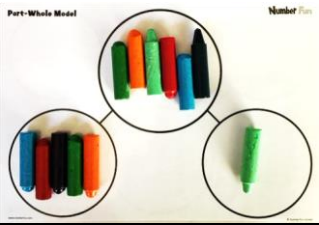
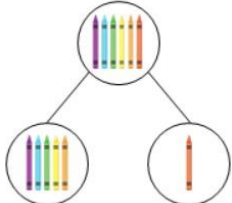
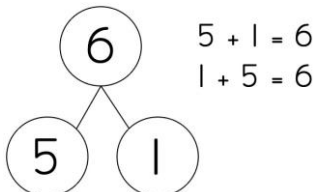
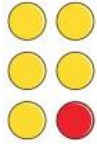
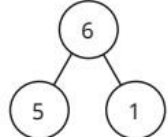
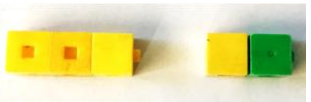
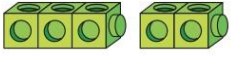
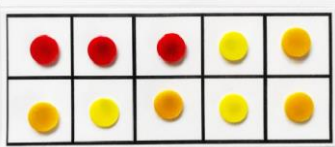
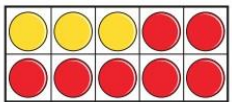
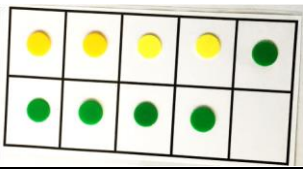
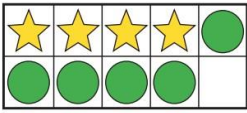
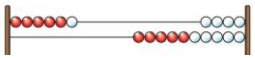
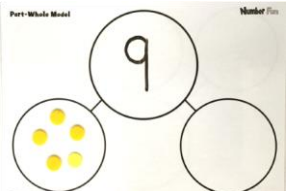
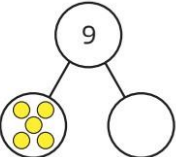


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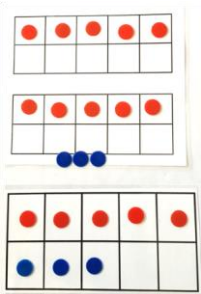
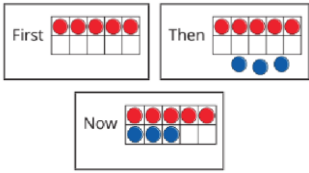
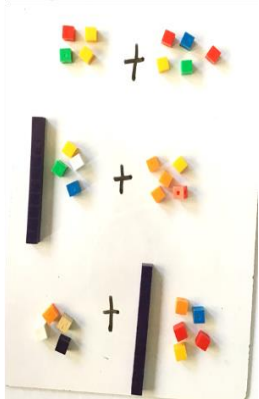
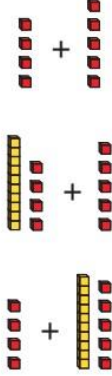
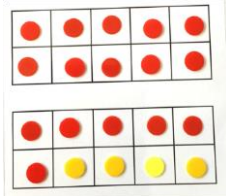
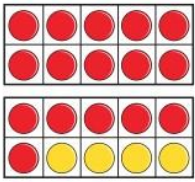
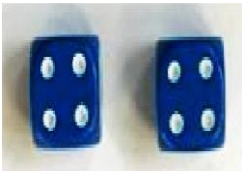
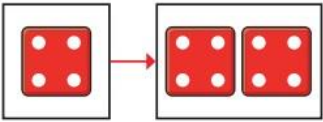
Method	Concrete	Pictorial
Bonds to 5		
Bonds to 10		
Composition		
Adding one more		
Add within 10, practical context		



Year 1

Method	Concrete	Pictorial	Abstract
Combining two parts to make a whole.			
Fact Families – addition facts			$1 + 5 = 6$ $5 + 1 = 6$ $6 = 5 + 1$ $6 = 1 + 5$ 
Number bonds within 10			$3 + 2 = 5$
Number bonds to 10			$3 + 7 = 10$
Adding together			$4 + 5 = 9$
Adding more			There are 6 beads on a Rekenrek, Push 2 more beads. How many beads are there now? $6 + 2 = 8$
Find a part			5 is a part, ____ is a part and 9 is the whole.



Add by counting on within 20			First there were 5 cars in the carpark. Then 3 more cars parked. Now there are 8 cars in the car park.
Add ones by using number bonds			$4 + 5 = 9$ $14 + 5 = 19$ $4 + 15 = 19$
Find and make number bonds to 20			$16 + 4 = 20$
Doubles			Double 4 is 8



Year 2

Method	Concrete	Pictorial	Abstract
Bonds to 10			3 cubes and 7 counters $3 + 7 = 10$
Fact families			$3 + 15 = 18$ $15 + 3 = 18$
Related Facts			$2 \text{ ones} + 3 \text{ ones} = 5 \text{ ones}$ $2 \text{ tens} + 3 \text{ tens} = 5 \text{ tens}$
Bonds to 100			60 shaded, 40 unshaded. $60 + 40 = 100$
Add 1s			$46 + 1 = 47$ $46 + 2 = 48$ $46 + 3 = 49$
Add by making 10			$8 + 5 = 10 + 3$



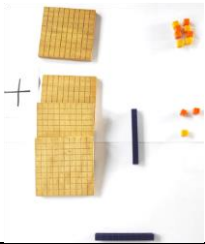
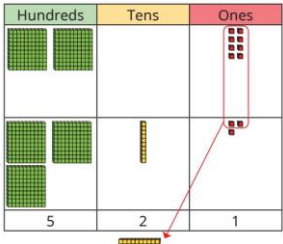
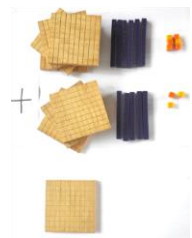
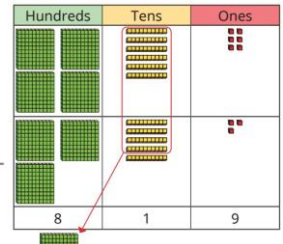
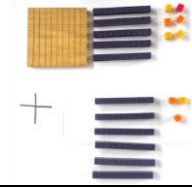
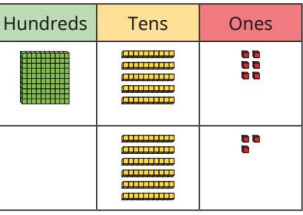
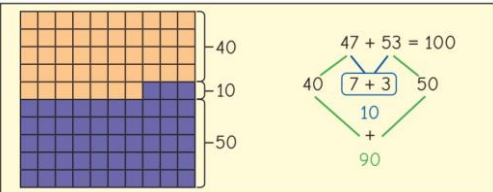
Add three 1digit numbers			$6 + 8 + 1 = 15$
Add to the next 10			The base 10 shows 67. $67 + \underline{\quad} = 70$
10 more Add 10s			10 more than 37 is 47. $37 + 10 = 47$
Add across a 10			
Add two 2 digit numbers (not across a 10)			$42 + 27 = 69$ $2+7=9$ $40+20=60$ $60+9=69$
Add two 2 digit numbers (across a 10)			$26 + 30 = 56$ $56 + 7 = 63$ $24 + 38 = \square$ $38 + 24 = \square$ $29 + \square = 51$ $\square + 22 = 51$



Year 3

Method	Concrete	Pictorial	Abstract												
Apply number bonds within 10			$4 + 5 = 9$ $40 + 50 = 90$ $400 + 500 = 900$												
Add 1s			$243 + 5 = 248$												
Add 10s			$351 + 30 = ?$ 5 tens + 3 tens = 8 tens $351 + 30 = 381$												
Add 100s			$100 + 600 = 700$												
Add 1s across a 10			<table><tr><td>248</td><td>+</td><td>6</td><td>=</td><td>250</td></tr><tr><td>250</td><td>+</td><td>4</td><td>=</td><td>254</td></tr></table>	248	+	6	=	250	250	+	4	=	254		
248	+	6	=	250											
250	+	4	=	254											
Add 10s across a 100			$350 + 80$ There are 5 tens and 8 tens = 13 tens. $350 + 80 = 300 + 130$ $350 + 80 = 430$												
Add two numbers (no exchange)			<table><tr><th>H</th><th>T</th><th>O</th></tr><tr><td>3</td><td>4</td><td>5</td></tr><tr><td>+</td><td>4</td><td>3</td></tr><tr><td></td><td></td><td></td></tr></table>	H	T	O	3	4	5	+	4	3			
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Add two numbers (across a 10)			<table border="1"> <thead> <tr> <th></th><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr> <td></td><td>2</td><td>0</td><td>8</td></tr> <tr> <td>+</td><td>3</td><td>1</td><td>3</td></tr> <tr> <td></td><td>5</td><td>2</td><td>1</td></tr> <tr> <td></td><td></td><td>1</td><td></td></tr> </tbody> </table>		H	T	O		2	0	8	+	3	1	3		5	2	1			1	
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Add two numbers (across a 100)			<table border="1"> <thead> <tr> <th></th><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr> <td></td><td>4</td><td>6</td><td>6</td></tr> <tr> <td>+</td><td>3</td><td>5</td><td>3</td></tr> <tr> <td></td><td>8</td><td>1</td><td>9</td></tr> <tr> <td></td><td>1</td><td></td><td></td></tr> </tbody> </table>		H	T	O		4	6	6	+	3	5	3		8	1	9		1		
	H	T	O																				
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	8	1	9																				
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Add 2-digit and 3-digit numbers			<table border="1"> <thead> <tr> <th></th><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr> <td></td><td>1</td><td>5</td><td>6</td></tr> <tr> <td>+</td><td></td><td>6</td><td>3</td></tr> <tr> <td></td><td></td><td></td><td></td></tr> </tbody> </table>		H	T	O		1	5	6	+		6	3								
	H	T	O																				
	1	5	6																				
+		6	3																				
Complements to 100			$47 + 53$ $7 + 3 = 10$ $40 + 50 = 90$ $90 + 10 = 100$																				



Year 4

Method	Pictorial	Abstract																																																
Add up to two 4digit numbers – no exchange	Th H T O 1,000 1,000 1,000 100 100 10 10 10 10 10 1 1 1 1 1 1 1,000 1,000 100 100 100 100 10 10 10 1 1 +	<table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td></td><td>3</td><td>2</td><td>5</td><td>6</td></tr><tr><td></td><td>+</td><td>2</td><td>5</td><td>3</td><td>2</td></tr><tr><td></td><td></td><td colspan="4"> </td></tr><tr><td></td><td></td><td colspan="4"> </td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>									Th	H	T	O			3	2	5	6		+	2	5	3	2																								
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Add up to two 4digit numbers – one exchange	Th H T O 1,000 1,000 1,000 100 100 100 10 10 10 10 10 1 1 1 1 1 1 1,000 1,000 100 100 100 100 10 10 10 1 1 1 1 1 10 +	<table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td></td><td>3</td><td>3</td><td>5</td><td>6</td></tr><tr><td></td><td>+</td><td>2</td><td>4</td><td>3</td><td>5</td></tr><tr><td></td><td></td><td colspan="4"> </td></tr><tr><td></td><td></td><td>5</td><td>7</td><td>9</td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td>1</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>									Th	H	T	O			3	3	5	6		+	2	4	3	5									5	7	9	1					1							
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		5	7	9	1																																													
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Add two 4-digit numbers – more than one exchange	Th H T O 1,000 1,000 1,000 100 100 100 100 100 10 10 10 10 10 10 1 1 1 1 1,000 100 100 100 100 10 1 1 1 1 1 1 10 +	<table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td></td><td>4</td><td>6</td><td>7</td><td>3</td></tr><tr><td></td><td>+</td><td>1</td><td>5</td><td>1</td><td>8</td></tr><tr><td></td><td></td><td colspan="4"> </td></tr><tr><td></td><td></td><td>6</td><td>1</td><td>9</td><td>1</td></tr><tr><td></td><td></td><td>1</td><td></td><td>1</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>									Th	H	T	O			4	6	7	3		+	1	5	1	8									6	1	9	1			1		1							
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		6	1	9	1																																													
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Year 5

Method	Pictorial	Abstract
Add whole numbers with more than four digits		
Add fractions with the same denominator		$\begin{array}{r} ! \$ \\ + = \\ \hline " " " \end{array}$
Add fractions within 1		$\begin{array}{r} \# \$ \# ' \\ - + = + = \\ \% \& \& \& \end{array}$
Add fractions with total greater than 1		$\begin{array}{r} ! ' (' \# \# \\ + = + = = 1 \quad \text{---} \quad \text{---} \\ \$ \& \& \& \quad \& \quad \& \end{array}$



Year 6

Method	Pictorial	Abstract
Add integers		$ \begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 4 \ 0 \ 2 \ 6 \ 5 \\ + \quad 3 \ 5 \ 2 \ 2 \\ \hline \end{array} $
Add decimals numbers with a different number of decimal places		
Add simple fractions		$ \begin{array}{r} ! \quad \% \quad \#\# \\ + = - \\ ' \# \# \end{array} $
Add any two fractions		$ \begin{array}{r} \% \# \#) \\ - + = - \\ \$! \# \% \end{array} $

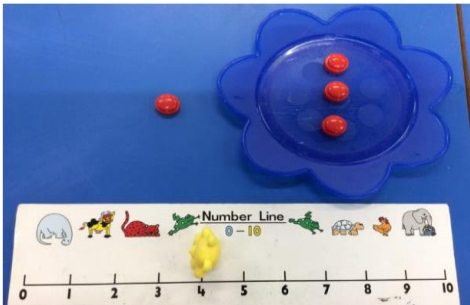


Subtraction





EYFS

Method	Concrete	Pictorial
1 less (within 5)		



Year 1

Method	Concrete	Pictorial	Abstract
Take away/crossing out			1 less than 6 is 5. 6 subtract 1 is 5.
Take away (How many left?)			$9 - 3 = 6$ There are 6 children left.
Subtraction on a number line			$10 - 4 = 6$
Counting back verbally			$9 - 3 = 6$
Find the difference			8 is 2 more than 6. 6 is 2 less than 8. The difference between 8 and 6 is 2. $5 - 4 = 1$ The difference between 5 and 4 is 1.
Missing number problems			$5 - 4 = 1$
Subtraction within 20			$5 - 3 = 2$ $15 - 3 = 12$



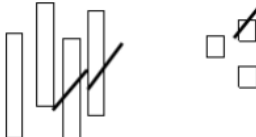
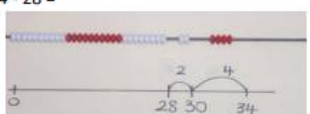
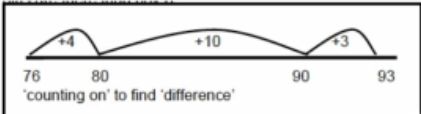
Subtracting 10s and 1s			$18 - 12$ $18 - 10 = 8$ $8 - 2 = 6$
Subtraction bridging 10			$13 - 5$ $13 - 3 = 10$ $10 - 2 = 8$
Subtract ones using number bonds			$13 - 5$ $13 - 3 = 10$ $10 - 2 = 8$



Year 2

Method	Concrete	Pictorial	Abstract
Subtracting multiples of 10			8 subtract 6 is 2. So, 8 tens subtract 6 tens is 2 tens.
Subtracting a single digit number			$39 - 3 = 36$ $9 - 3 = 6$
Subtract across 10			$35 - 6$ $35 - 5 = 30$ $30 - 1 = 29$
Subtract from a 10			$10 - 6 = 4$ $50 - 6 = 44$
Subtract a 1-digit number from a 2digit number (Across a 10)			$20 - 4 = 16$
Subtract 10s			$3 \text{ tens} - 1 \text{ ten} = 2 \text{ tens}$ $36 - 10 = 26$



Subtract two 2-digit numbers (not across a 10) No regrouping	$34 - 13 = 21$ Use Dienes to show how to partition the number when subtracting without regrouping. 	$43 - 21 = 22$ Children draw representations of Dienes and cross off. 	$20 - 4 = 16$
Subtract two 2-digit numbers (Across a 10)	$34 - 28 =$  $34 - 28$ Use a bead bar or bead strings to model counting to next ten and the rest. 28 to 30 is 2, 30 to 34 is 4. So, $34 - 28 = 6$	 Use a number line to count on to next ten and then the rest. Begin with bead line, move to landmarked line then to ENL.	$93 - 76 = 17$ $76 \rightarrow 80 = 4$ $80 \rightarrow 93 = 13$ $13 + 4 = 17$



Year 3

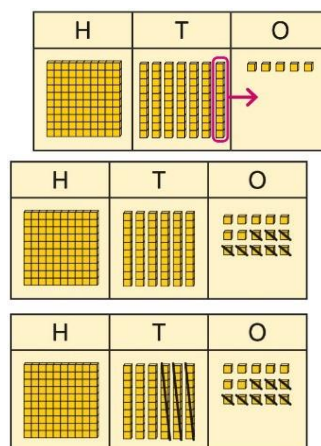
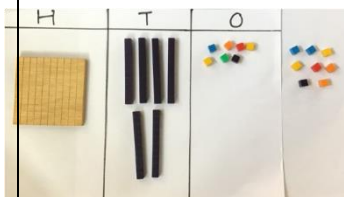
Method	Concrete	Pictorial	Abstract
Subtract 1s			$319 - 4$ $9 - 4 = 5$ $319 - 4 = 315$
Subtract 10s			$8 \text{ tens} - 1 \text{ ten} = 7 \text{ tens}$ $381 - 10 = 371$
Subtract 100s			$4 - 2 = 2$ $400 - 200 = 200$
Subtract 1s across a 10			$151 - 6$ $151 - 1 = 150$ $150 - 5 = 145$
Subtract 10s across a 100			$920 - 50$ $920 - 20 = 900$ $900 - 30 = 870$



Subtract two numbers (no exchange)			$\begin{array}{r} \text{T} \text{ O} \\ 4 \text{ } 5 \\ - 1 \text{ } 2 \\ \hline 3 \text{ } 3 \end{array}$
Subtract two numbers (across a 10)			$\begin{array}{r} \text{T} \text{ O} \\ 4 \text{ } 5 \\ - 1 \text{ } 2 \\ \hline 3 \text{ } 3 \end{array}$
Subtract two numbers (across a 100)			$\begin{array}{r} \text{T} \text{ O} \\ 4 \text{ } 5 \\ - 1 \text{ } 2 \\ \hline 3 \text{ } 3 \end{array}$
Subtract a 2-digit number from a 3-digit number			$\begin{array}{r} \text{H} \text{ T} \text{ O} \\ 4 \text{ } 5 \text{ } 2 \\ - 1 \text{ } 4 \text{ } 1 \\ \hline 3 \text{ } 1 \end{array}$
Subtract a 3-digit number from a 3-digit number (no exchange)			$\begin{array}{r} \text{H} \text{ T} \text{ O} \\ 4 \text{ } 5 \text{ } 2 \\ - 1 \text{ } 4 \text{ } 1 \\ \hline 3 \text{ } 1 \end{array}$



Subtract a 3digit
number from a 3-
digit number
(exchange)



	H	T	O
	1	7	5
-		3	8
	1	3	7

$175 - 38 = 137$

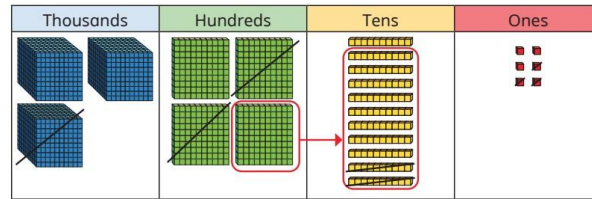


Year 4

Method	Pictorial	Abstract																																																																																																
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Subtraction with exchange across more than one column	<table><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> <table><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> <table><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>	Th	H	T	O					Th	H	T	O					Th	H	T	O					<table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>2</td><td>48</td><td>10</td><td>2</td></tr><tr><td>-</td><td>2</td><td>4</td><td>3</td></tr><tr><td></td><td></td><td></td><td></td></tr></table> <table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>2</td><td>48</td><td>9</td><td>12</td></tr><tr><td>-</td><td>2</td><td>4</td><td>3</td></tr><tr><td></td><td></td><td></td><td></td></tr></table> <table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>2</td><td>48</td><td>9</td><td>12</td></tr><tr><td>-</td><td>2</td><td>4</td><td>3</td></tr><tr><td></td><td>2</td><td>5</td><td>9</td></tr></table>	Th	H	T	O	2	48	10	2	-	2	4	3					Th	H	T	O	2	48	9	12	-	2	4	3					Th	H	T	O	2	48	9	12	-	2	4	3		2	5	9																								
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Subtract two 4digit numbers – no exchange	<table><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>	Th	H	T	O					<table><tr><th></th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td>3</td><td>4</td><td>5</td><td>4</td></tr><tr><td>-</td><td>1</td><td>2</td><td>2</td><td>4</td></tr><tr><td></td><td>2</td><td>2</td><td>3</td><td>0</td></tr></table>		Th	H	T	O		3	4	5	4	-	1	2	2	4		2	2	3	0																																																																				
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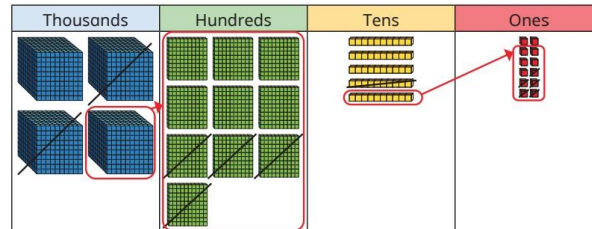


Subtract two 4digit numbers – one exchange



	Th	H	T	O
	3	~~4~~	¹ 1	6
-	1	2	2	3
	2	1	9	3

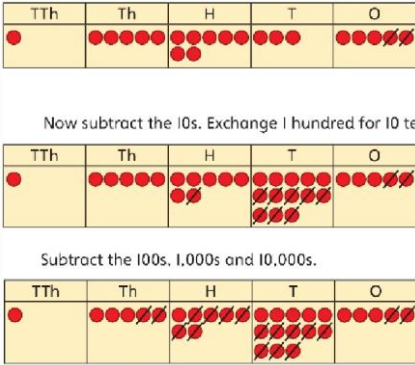
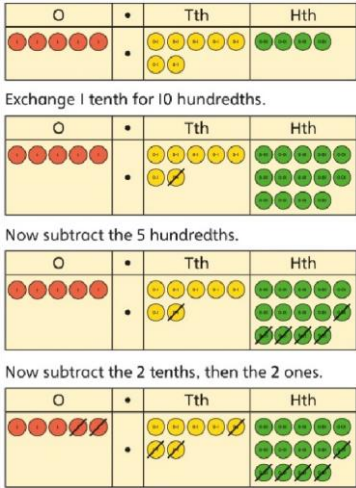
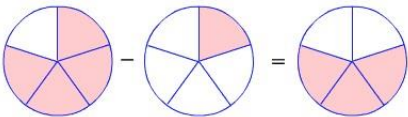
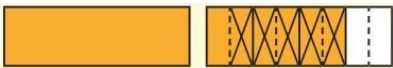
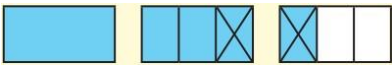
Subtract two 4digit numbers – more than one exchange



	Th	H	T	O
	~~3~~	¹ 0	⁴ 5	¹ 2
-	2	4	1	5
	1	6	3	7

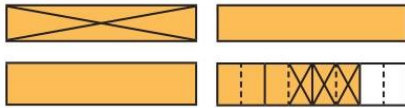


Year 5

Method	Pictorial	Abstract
Subtract whole numbers with more than four digits	 Now subtract the 10s. Exchange 1 hundred for 10 tens. Subtract the 100s, 1,000s and 10,000s.	$\begin{array}{r} \text{TTh Th H T O} \\ 15735 \\ - 2582 \\ \hline 3 \end{array}$ is. $\begin{array}{r} \text{TTh Th H T O} \\ 15735 \\ - 2582 \\ \hline 53 \end{array}$ $\begin{array}{r} \text{TTh Th H T O} \\ 15735 \\ - 2582 \\ \hline 13153 \end{array}$
Subtract decimal numbers with the same number of decimal places	 Exchange 1 tenth for 10 hundredths. Now subtract the 5 hundredths. Now subtract the 2 tenths, then the 2 ones.	$\begin{array}{r} \text{O Tth Hth} \\ 5.74 \\ - 2.25 \\ \hline \end{array}$ $\begin{array}{r} \text{O Tth Hth} \\ 5.74 \\ - 2.25 \\ \hline \end{array}$ $\begin{array}{r} \text{O Tth Hth} \\ 5.74 \\ - 2.25 \\ \hline 3.49 \end{array}$
Subtract fractions with the same denominator		$\begin{array}{r} \$ \# ! \\ - = - \\ , , , \end{array}$
Subtract fractions		$\begin{array}{r} \# \# \quad ' \quad \# \quad \$ \\ - = - = - \\ ! \# ' \# ' \# ' \end{array}$
Subtract from a mixed number		$1^! - ' = 1(- ' = 1_ \#$ $\$ \& \quad \& \& \quad \&$
Subtract from a mixed number – breaking the whole		$2^{\#} - \% = 1\%_$ $!! \quad !$



Subtract two mixed numbers



$$3\frac{1}{10} - 1\frac{1}{10} = 2\frac{0}{10}$$

\$ \quad \& \quad \&



Year 6

Method	Pictorial	Abstract
Subtract integers		$\begin{array}{r} \text{Th} \text{ H} \text{ T} \text{ O} \\ 2 \ 6 \ 7 \ 9 \\ - \ 5 \ 3 \ 4 \\ \hline 2 \ 1 \ 4 \ 5 \end{array}$ $\begin{array}{r} \text{Th} \text{ H} \text{ T} \text{ O} \\ 1 \ 8 \ 8 \ 2 \\ - \ 1 \ 5 \ 5 \ 8 \\ \hline 3 \ 9 \ 4 \end{array}$
Subtract decimal numbers with a different number of decimal places		$\begin{array}{r} 0.975 \\ - 0.15 \\ \hline 0.825 \end{array}$
Subtract simple fractions		$\frac{7}{10} - \frac{3}{10} = \frac{4}{10}$
Subtract mixed numbers		$2\frac{1}{4} - 1\frac{1}{2} = 1\frac{1}{4}$

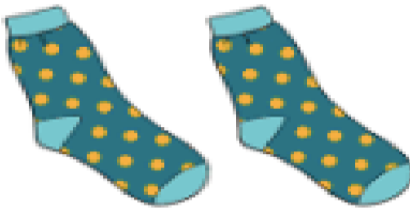
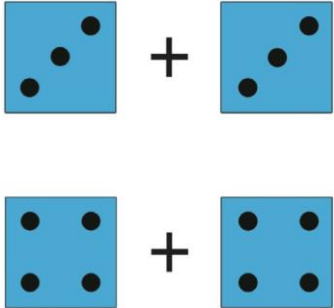


Multiplication





EYFS

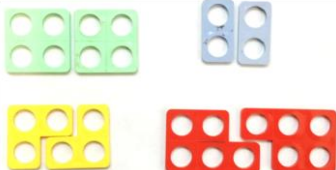
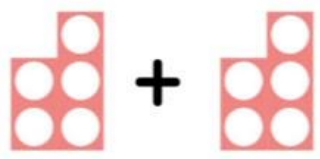
Method	Concrete	Pictorial
Making pairs – 2 of the same		
Doubles to 10		



Year 1

Method	Concrete	Pictorial	Abstract
Count in 2s			2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24
Count in 5s			5, 10 15, 20, 25, 30, 35, 40, 45, 50, 55, 60
Count in 10s			10, 20, 30, 40, 50, 60, 70, 80, 90, 100
Make equal groups			There are 3 equal groups with 9 in each group.
Add equal groups			There are 2 equal groups with 3 in each group. $3 + 3 = 6$
Make arrays			$4 + 4 + 4$ $+ 4 + 4$ $= 20$ $5 \times 4 =$ 20 $5 + 5 + 5$ $+ 5 = 20$ $4 \times 5 =$ 20



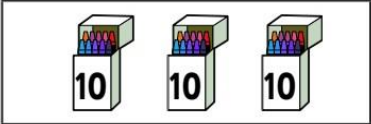
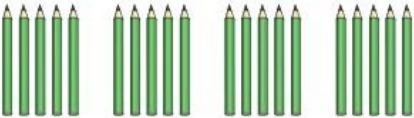
Make doubles			$5 + 5$ $4 + 4$ $3 + 3$
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Year 2

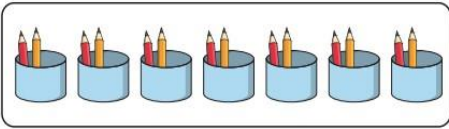
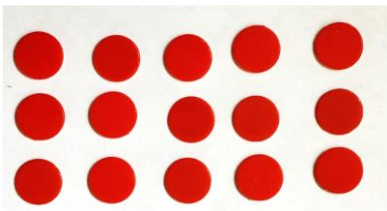
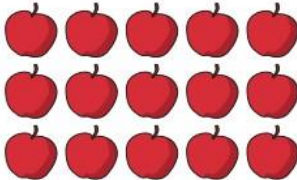
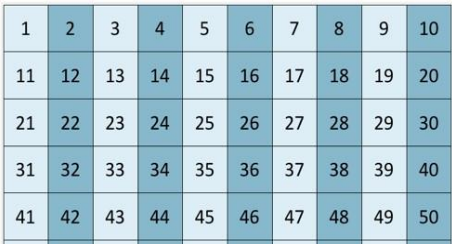
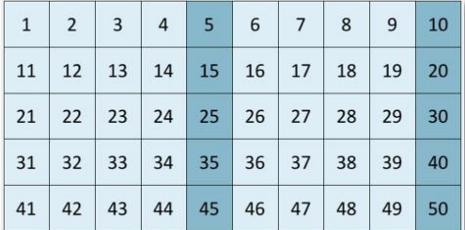
Method	Concrete	Pictorial	Abstract
Recognise equal groups			There are 3 groups of 5 chairs. 15 chairs altogether.
Make equal groups			There are 3 equal groups with 9 in each group.
Add equal groups			There are 2 equal groups with 3 in each group. $3 + 3 = 6$
Multiplication symbol			There are 3 equal groups with 8 in each group. $8 + 8 + 8 = 24$ $3 \times 8 = 24$
Multiplication sentences			6 lots of 5 = 30 6 multiplied by 5 = 30 $6 \times 5 = 30$
Use arrays			$4 + 4 + 4 + 4 + 4 = 20$ $5 \times 4 = 20$ $5 + 5 + 5 + 5 + 5 = 20$ $4 \times 5 = 20$
The 2 timestable			$5 \times 2 = 10$
Doubling			$4 + 4 = 8$ $2 \times 4 = 8$



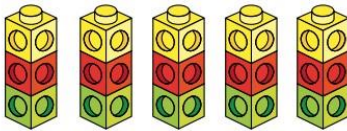
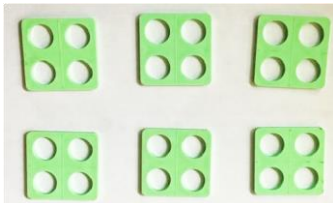
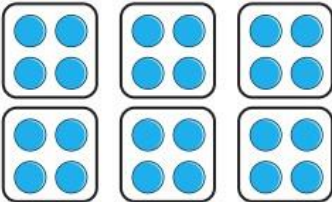
The 10 times-table			$3 \times 10 = 30$
The 5 times-table			$4 \times 5 = 20$



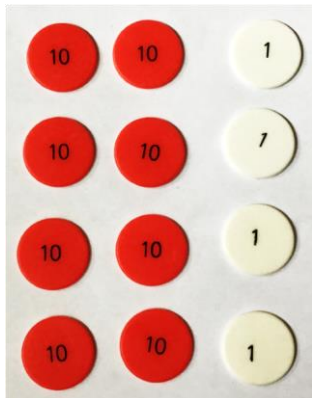
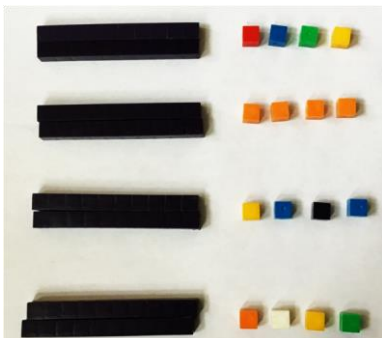
Year 3

Method	Concrete	Pictorial	Abstract
Multiplication – equal groups			There are 7 equal groups with 2 in each group. There are 14 altogether.
Use arrays			There are 3 rows of apples. There are 3 lots of 5 apples. $3 \times 5 = 15$
Multiples of 2			2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50
Multiples of 5			5, 10, 15, 20, 25, 30, 35, 40, 45, 50



Multiples of 10		<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>	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	10, 20, 30, 40, 50, 60, 70, 80, 90, 100
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31	32	33	34	35	36	37	38	39	40																																												
41	42	43	44	45	46	47	48	49	50																																												
Multiply by 3			There are 5 equal groups with 3 in each group. $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$																																																		
Multiply by 4			There are 6 groups with 4 in each group. $4 + 4 + 4 + 4 + 4 + 4 = 24$ $6 \times 4 = 24$																																																		
Multiply by 8			There are 4 groups with 8 in each group. $8 + 8 + 8 + 8 = 32$ $4 \times 8 = 32$																																																		



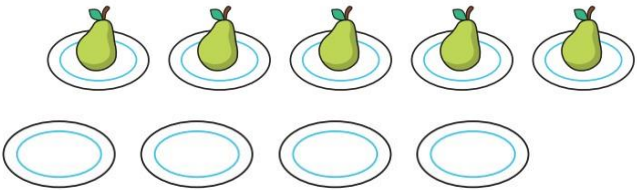
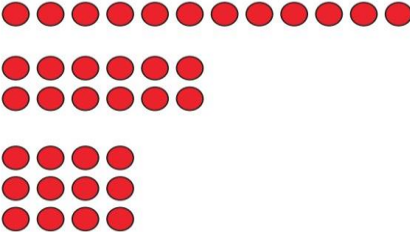
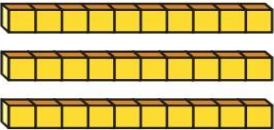
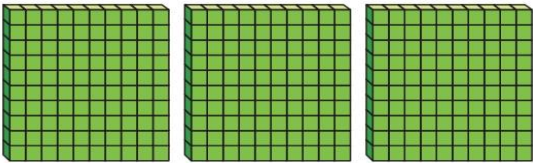
Multiply a 2-digit number by a 1digit number – no exchange		<table><tr><th>Tens</th><th>Ones</th></tr><tr><td> </td><td></td></tr><tr><td> </td><td></td></tr><tr><td> </td><td></td></tr><tr><td> </td><td></td></tr></table>	Tens	Ones	 		 		 		 		2 tens x 4 = 8 tens 1 one x 4 = 4 ones 80 + 4 = 84 21 x 4 = 84
Tens	Ones												
 													
 													
 													
 													
Multiply a 2-digit number by a 1digit number – with exchange		<table><tr><th>Tens</th><th>Ones</th></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></table>	Tens	Ones	 	   	 	   	 	   	 	   	2 tens x 4 = 8 tens 4 ones x 4 = 16 ones 24 x 4 = 80 + 16 = 96 24 x 4 = 96
Tens	Ones												
 	   												
 	   												
 	   												
 	   												



Year 4

Method	Pictorial	Abstract
Multiples of 3		3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36
Multiply by 6		There are 4 boxes. Each box contains 6 eggs. There are 24 eggs in total. $4 \times 6 = 24$
Multiply by 9		There are 9 rows of oranges. There are 36 oranges in total. $9 \times 4 = 36$
Multiply by 7		4 sevens 4 lots of 7 $4 \times 7 = 28$
11 times-table		3 elevens 3 lots of 11 $3 \times 11 = 33$
12 times-table		2×12 $2 \times 10 = 20$ $2 \times 2 = 4$ $20 + 4 = 24$



Multiply by 1 and 0		$5 \times 1 = 5$ $4 \times 0 = 0$																																																				
Multiply three numbers	 2×4 2×4 2×4	$3 \times 2 \times 4 = 3 \times 8 = 24$																																																				
Factor pairs		$1 \times 12 = 12$ $2 \times 6 = 12$ $3 \times 4 = 12$																																																				
Multiply by 10		$3 \times 10 = 30$																																																				
Multiply by 100		$3 \times 100 = 300$																																																				
Multiply a 2 -digit number by a 1 -digit number	<table border="1"><thead><tr><th colspan="2">Tens</th><th colspan="4">Ones</th></tr></thead><tbody><tr><td>10</td><td>10</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td>10</td><td>10</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td>10</td><td>10</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></tbody></table>	Tens		Ones				10	10	1	1	1	1	10	10	1	1	1	1	10	10	1	1	1	1	<table border="1"><thead><tr><th></th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td></td><td></td><td>2</td><td>4</td></tr><tr><td>$\times$</td><td></td><td></td><td>3</td></tr><tr><td></td><td></td><td>1</td><td>2</td></tr><tr><td></td><td></td><td>6</td><td>0</td></tr><tr><td></td><td></td><td>7</td><td>2</td></tr></tbody></table> (4×3) (20×3)		H	T	O			2	4	$\times$			3			1	2			6	0			7	2				
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Multiply a 3 -digit number by a 1 -digit number	<table border="1"><thead><tr><th>Hundreds</th><th>Tens</th><th colspan="4">Ones</th></tr></thead><tbody><tr><td>100</td><td>10</td><td>10</td><td>10</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td>100</td><td>10</td><td>10</td><td>10</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td>100</td><td>10</td><td>10</td><td>10</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td>100</td><td>10</td><td>10</td><td>10</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></tbody></table>	Hundreds	Tens	Ones				100	10	10	10	1	1	1	1	100	10	10	10	1	1	1	1	100	10	10	10	1	1	1	1	100	10	10	10	1	1	1	1	<table border="1"><thead><tr><th></th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td></td><td></td><td>2</td><td>3</td><td>4</td></tr><tr><td>$\times$</td><td></td><td></td><td></td><td>4</td></tr></tbody></table>		H	T	O			2	3	4	$\times$				4
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Year 5

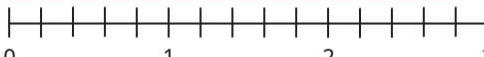
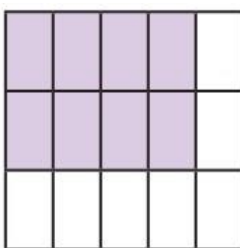
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Year 6

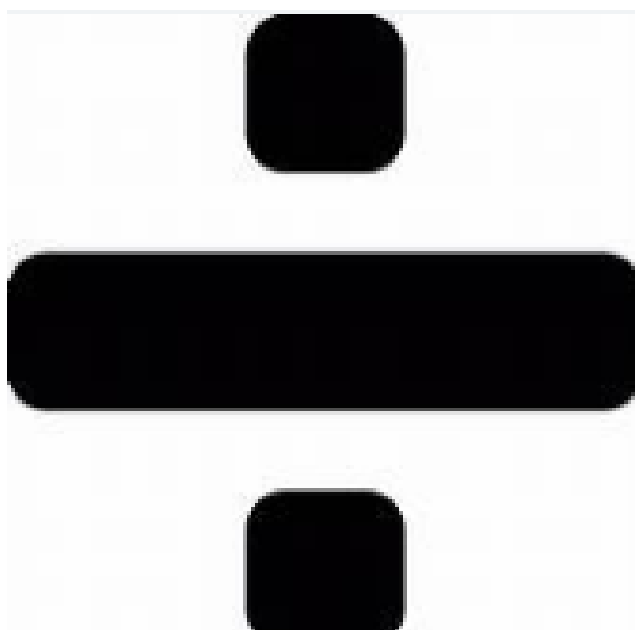
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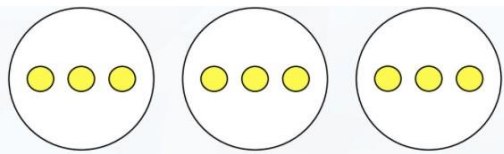


Division



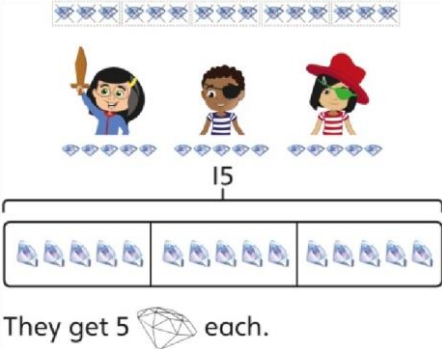
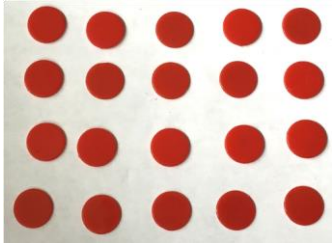
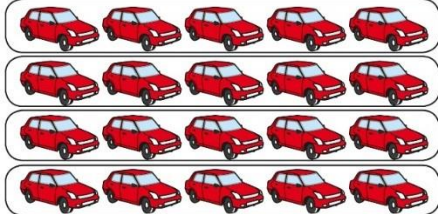


EYFS

Method	Concrete	Pictorial
Equal sharing		



Year 1

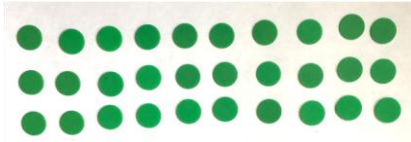
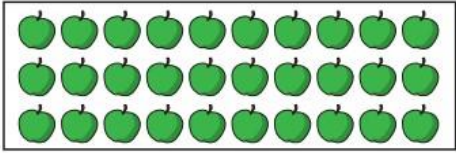
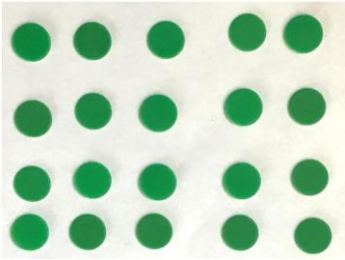
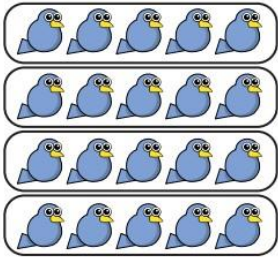
Method	Concrete	Pictorial	Abstract
Make Equal groups - grouping		 They get 5 each.	There are 15 altogether. There are 3 parts. 15 shared into 3 equal parts. There are 5 in each part.
Make Equal groups - sharing		 4 groups of 5 cars is 20 in total. 20 divide by 4 is 5.	



Year 2

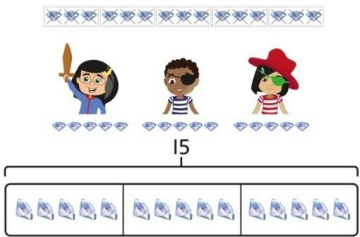
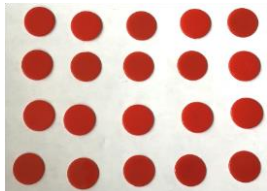
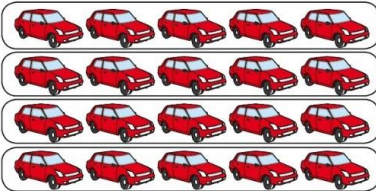
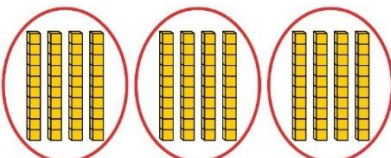
Method	Concrete	Pictorial	Abstract
Make equal groups – sharing		They get 5 each.	There are 15 altogether. There are 3 parts. 15 shared into 3 equal parts. There are 5 in each part.
Make equal groups – grouping			4 groups of 5 cars is 20 in total. 20 divide by 4 is 5.
Divide by 2			There are 12 eggs altogether. There are 2 groups. There are 6 eggs in each group. $12 \div 2 = 6$
Halving			There are 8 cherries altogether, half of 8 is 4.



Divide by 10			There are 30 apples. There are 10 apples in each row (group). There are 3 groups. $30 \div 10 = 3$
Divide by 5			There are 20 birds altogether. There are 5 birds in each group. There are 4 groups. $20 \div 5 = 4$

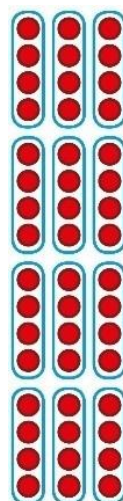


Year 3

Method	Concrete	Pictorial	Abstract
Sharing		 They get 5  each.	There are 15 altogether. There are 3 parts. 15 shared into 3 equal parts. There are 5 in each part.
Grouping			4 groups of 5 cars is 20 in total. 20 divide by 4 is 5.
Divide by 3			12 tens shared into 3 equal groups with 4 tens in each group. $120 \div 3 = 40$



Divide by 4



$$48 \div 4 = 12$$

48 divided
into
groups of
4.
There are
12 groups.

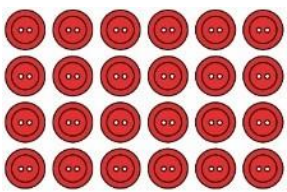
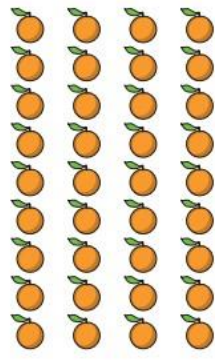
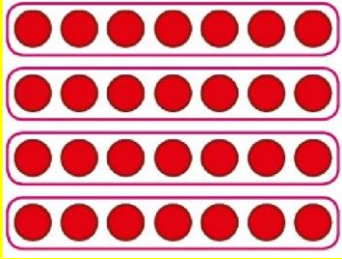
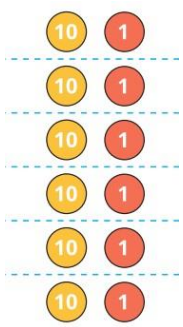
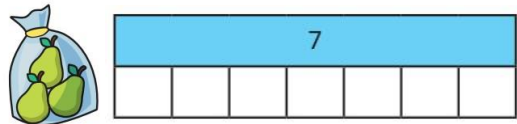
$$48 \div 4 = 12$$



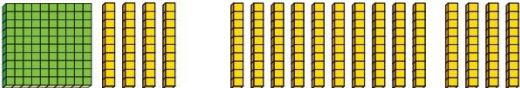
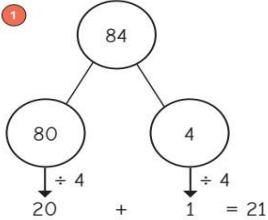
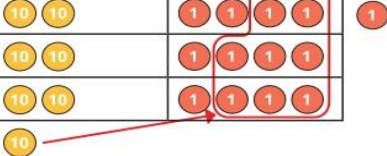
Divide by 8			24 counters shared equally into 8 groups. $24 \div 8 = 3$																				
Divide a 2-digit number by a 1-digit number – no exchange		<table><tr><th>Tens</th><th>Ones</th></tr><tr><td>10</td><td>1 1 1</td></tr><tr><td>10</td><td>1 1 1</td></tr><tr><td>10</td><td>1 1 1</td></tr></table>	Tens	Ones	10	1 1 1	10	1 1 1	10	1 1 1	$39 \div 3 = 13$												
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10	1 1 1																						
Divide a 2-digit number by a 1-digit number – flexible partitioning		$42 \div 3$ <table><tr><th>Tens</th><th>Ones</th></tr><tr><td>10</td><td></td></tr><tr><td>10</td><td></td></tr><tr><td>10</td><td></td></tr></table> Remainder 10 exchanged for 10 ones. <table><tr><th>Tens</th><th>Ones</th></tr><tr><td>10</td><td>1 1 1 1</td></tr><tr><td>10</td><td>1 1 1 1</td></tr><tr><td>10</td><td>1 1 1 1</td></tr></table>	Tens	Ones	10		10		10		Tens	Ones	10	1 1 1 1	10	1 1 1 1	10	1 1 1 1	$42 \div 3 = 14$				
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Tens	Ones																						
10	1 1 1 1																						
10	1 1 1 1																						
10	1 1 1 1																						
Divide a 2-digit number by a 1-digit number – with remainders		$94 \div 4$ <table><tr><th>Tens</th><th>Ones</th></tr><tr><td>10 10</td><td></td></tr><tr><td>10 10</td><td></td></tr><tr><td>10 10</td><td></td></tr><tr><td>10 10</td><td></td></tr></table> Remainder 10 exchanged for 10 ones. <table><tr><th>Tens</th><th>Ones</th></tr><tr><td>10 10</td><td>1 1 1</td></tr><tr><td>10 10</td><td>1 1 1</td></tr><tr><td>10 10</td><td>1 1 1</td></tr><tr><td>10 10</td><td>1 1 1</td></tr></table>	Tens	Ones	10 10		10 10		10 10		10 10		Tens	Ones	10 10	1 1 1	10 10	1 1 1	10 10	1 1 1	10 10	1 1 1	$94 \div 4 = 23 \text{ r}2$
Tens	Ones																						
10 10																							
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10 10	1 1 1																						
10 10	1 1 1																						
10 10	1 1 1																						
10 10	1 1 1																						



Year 4

Method	Pictorial	Abstract
Divide by 6		24 divided by 6 groups is 4.
Divide by 9		There are 9 rows of 4 oranges. There are 36 oranges in total. $36 \div 9 = 4$
Divide by 7		28 divided into groups of 7. There are 4 groups of 7. $28 \div 4 = 7$
11 times-table division facts		$66 \div 11 = 6$
12 times-table division facts		24 shared into groups of 12. $24 \div 2 = 12$
Divide a number by 1 and itself		3 pairs grouped into one bag. $3 \div 1 = 3$ 7 cookies shared between 7 friends. 0 cookies are left.



		$7 \div 7 = 0$																								
Divide by 10		$140 \div 10$ $140 = 1 \text{ hundred and } 4 \text{ tens.}$ $1 \text{ hundred} = 10 \text{ tens.}$ $\text{There are } 14 \text{ groups of } 10.$ $140 \div 10 = 14$																								
Divide by 100	$3400 \div 100$ <table border="1"><tr><th>Th</th><th>H</th><th>T</th><th>O</th></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"><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td></td><td>●●</td><td>●●</td></tr><tr><td></td><td></td><td>●●</td><td>●●</td></tr></table>	Th	H	T	O	●●	●●			●●	●●			Th	H	T	O			●●	●●			●●	●●	$3400 \div 100 = 34$
Th	H	T	O																							
●●	●●																									
●●	●●																									
Th	H	T	O																							
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Divide a 2-digit number by a 1-digit number	 <table border="1"><tr><th>Tens</th><th>Ones</th></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></table> $84 \div 4 = 21$	Tens	Ones	●●	●	●●	●	●●	●	●●	●															
Tens	Ones																									
●●	●																									
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●●	●																									
●●	●																									
Divide a 3-digit number by a 1-digit number	<table border="1"><tr><th>Tens</th><th>Ones</th></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></table> 	Tens	Ones	●●	●●●●	●●	●●●●	●●	●●●●	●●	●●●●	$97 \div 4 = 24 \text{ r } 1$														
Tens	Ones																									
●●	●●●●																									
●●	●●●●																									
●●	●●●●																									
●●	●●●●																									



Year 5

Method	Pictorial	Abstract
Divide by 10	$380 \div 10$	$380 \div 10 = 38$
Divide by 100	$3400 \div 100$	$3400 \div 100 = 34$
Divide by 1,000	$4,000 \div 1,000$	$4,000 \div 1,000 = 4$
Divide a 4-digit number by a 1-digit number	First, lay out the problem. How many groups of 4 go into 9 tens? 2 groups of 4 tens with 1 ten left over. Exchange the 1 ten left over for 10 ones. We now have 12 ones. How many groups of 4 go into 12 ones? 3 groups of 4 ones.	$\begin{array}{r} 0556 \\ 7 \overline{) 3892} \end{array}$ $3,892 \div 7 = 556$ Use multiplication to check. $556 \times 7 = ?$ $6 \times 7 = 42$ $50 \times 7 = 350$ $500 \times 7 = 3500$ $3,500 + 350 + 42 = 3,892$



Divide with remainders

$$\begin{array}{r} 6 \overline{) 80} \\ 6 \overline{) 8} \\ \underline{6} \\ 20 \end{array}$$

T	O

Lay out the problem as short division.

$$\begin{array}{r} 1 \\ 6 \overline{) 8} \\ \underline{6} \\ 20 \end{array}$$

T	O

How many groups of 6 go into 8 tens?
There is 1 group of 6 tens.
There are 2 tens remaining.

$$\begin{array}{r} 1 \\ 6 \overline{) 8} \\ \underline{6} \\ 20 \end{array}$$

T	O

How many groups of 6 go into 20 ones?
There are 3 groups of 6 ones.
There are 2 ones remaining.

$$683 = 136 \times 5 + 3$$

$$683 \div 5 = 136 \text{ r } 3$$

Dividing decimals by 10, 100 and 1,000

O	•	Tth	Hth

O	•	Tth	Hth

O	•	Tth	Hth

1.5 is 1 one and 5 tenths.
This is equivalent to 10 tenths and 50 hundredths.
10 tenths divided by 10 is 1 tenth.
50 hundredths divided by 10 is 5 hundredths.
1.5 divided by 10 is 0.15
 $1.5 \div 10 = 0.15$

O	•	Tth	Hth	Thth
0		8	5	
0		0	8	5

$$0.85 \div 10 = 0.085$$

O	•	Tth	Hth	Thth
8		5		
0		0	8	5

$$8.5 \div 100 = 0.085$$

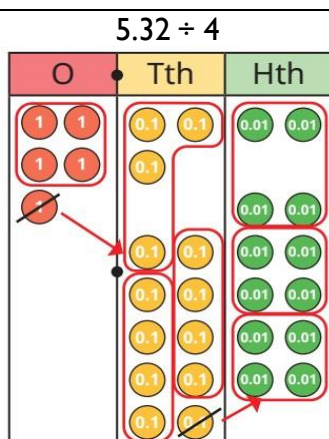
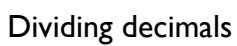


Year 6

Method	Pictorial	Abstract
Dividing by a single digit		$\begin{array}{r} 0 \\ 6 \overline{) 132} \\ \underline{6 } \\ 13 \\ \underline{12 } \\ 12 \\ \underline{12} \\ 0 \end{array}$
Dividing by a single digit		
Dividing by a 2-digit number using factors	$1,260 \div 14 = ?$ 1,260 $1,260 \div 2 = 630$ $630 \div 7 = 90$ $1,260 \div 14 = 90$	$2,100 \div 12 =$ 2,100 → $\div 2$ → $\div 6$ → 2,100 → $\div 6$ → $\div 2$ → 2,100 → $\div 3$ → $\div 4$ → 2,100 → $\div 4$ → $\div 3$ → 2,100 → $\div 3$ → $\div 2$ → $\div 2$ →



Long division	
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		1	• 3	3	
	4	5	• 13	12	