
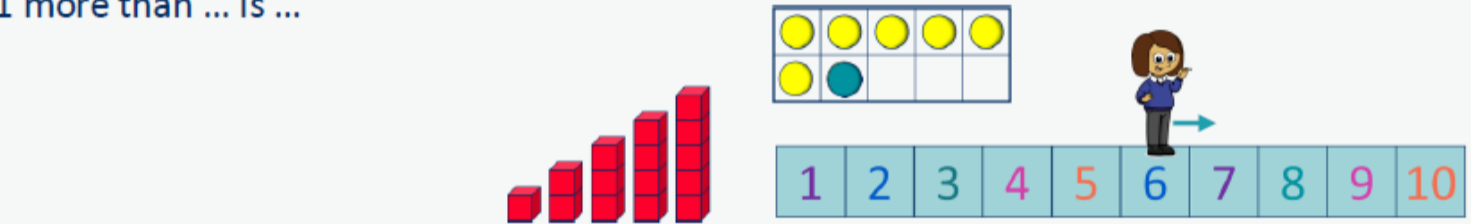
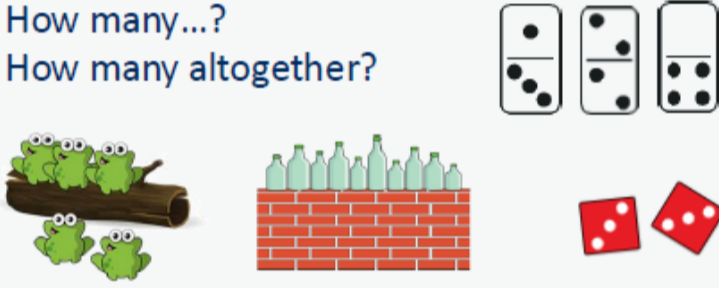
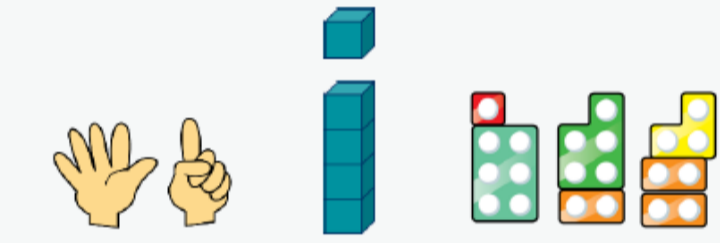


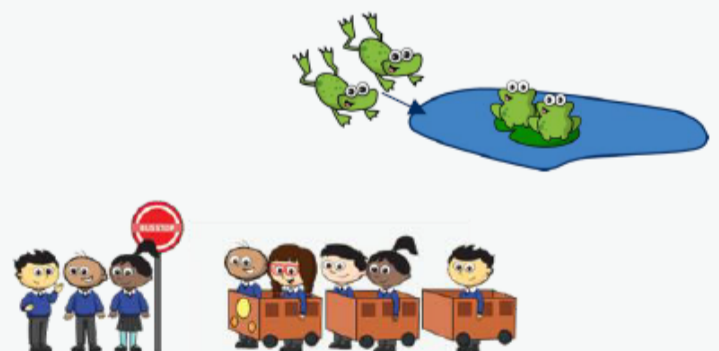

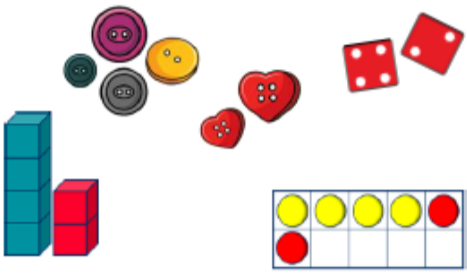
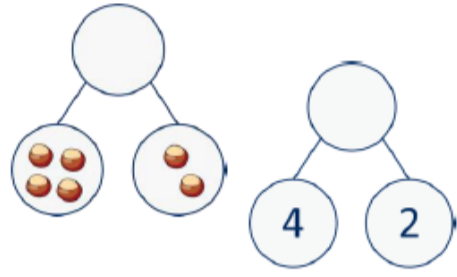
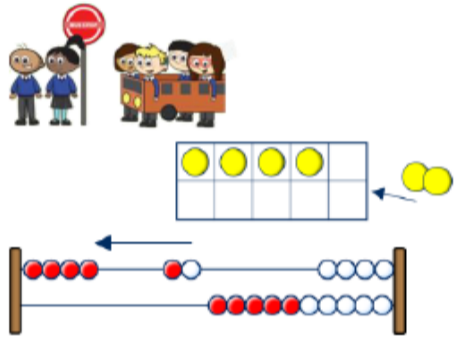
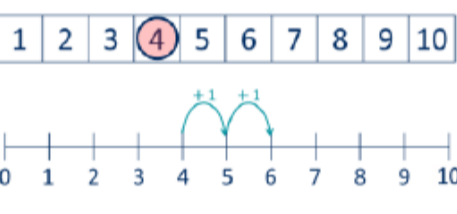
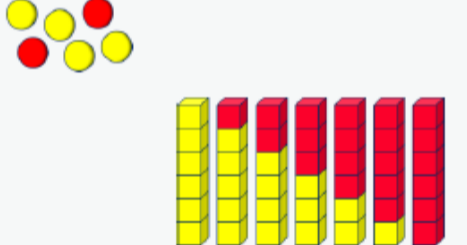
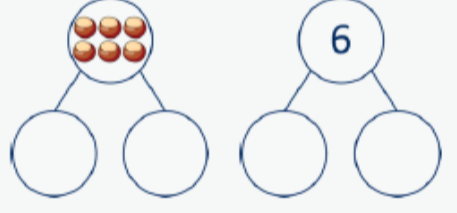
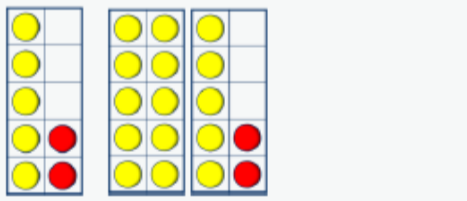
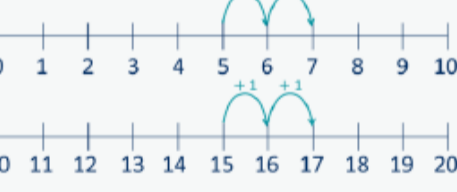

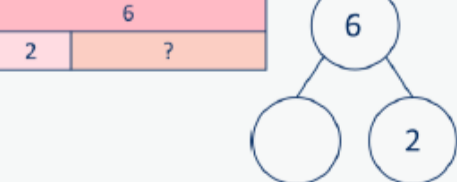



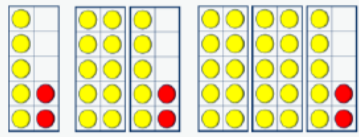
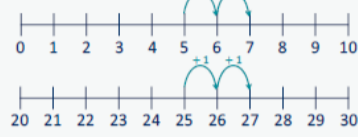
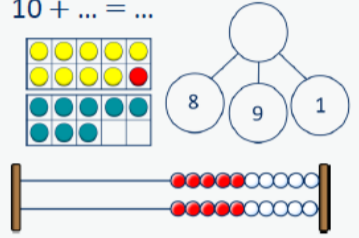
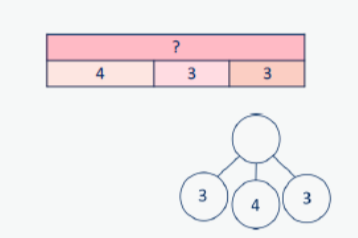
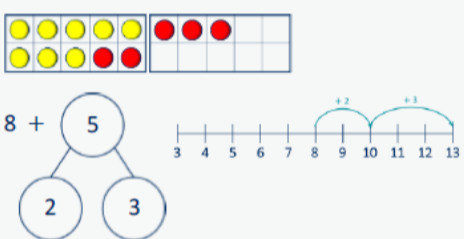
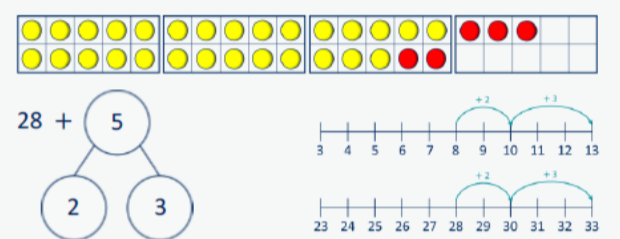
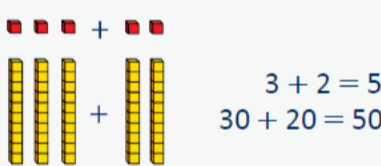
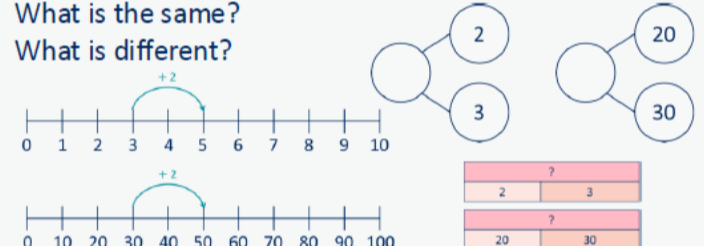
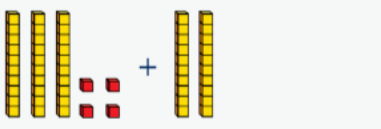


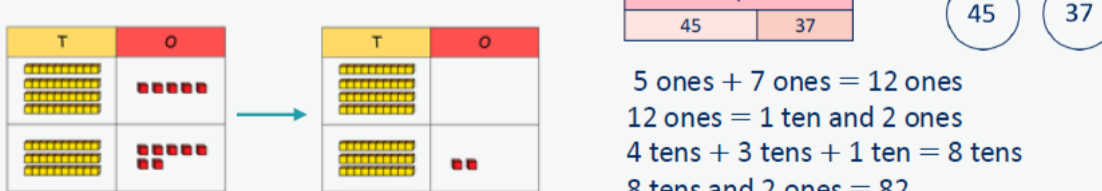

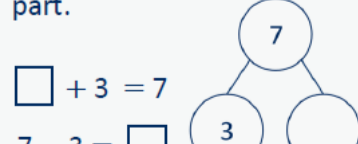
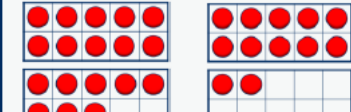
Addition

<p>Reception</p>	<ul style="list-style-type: none"> Have a deep understanding of numbers 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. 	
<p>Progression of skills</p>	<p>Key representations</p>	
<p>Conceptually subitise to 5</p> <p>Notice the parts that make up the whole.</p>	<p>What do you see? How do you see it?</p> 	
<p>1 more</p> <p>Continue to link to stories, songs and rhymes.</p>	<p>1 more than ... is ...</p> 	
<p>Notice the composition of numbers within 10</p> <p>Link to stories, songs and rhymes.</p>	<p>How many...? How many...? How many altogether?</p> 	<p>How many ways can you make...?</p> 
<p>Progression of skills</p>	<p>Key representations</p>	
<p>Combine 2 groups</p> <p>2 groups are combined to find the total.</p>	<p>There are ... There are ... There are ... altogether.</p> 	<p>... and ... make ...</p> 
<p>Add more</p> <p>A quantity is increased.</p>	<p>First... Then.... Now....</p> 	<p>I have ... I add ... more. Now I have....</p> 

Addition

<p>Year 1</p>	<ul style="list-style-type: none"> 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 $7 = \square + 2$ 		
<p>Progression of skills</p>	<p>Key representations</p>		
<p>Add together (aggregation)</p> <p>2 quantities are combined to find the total.</p>	<p>There are ... There are ... There are ... altogether.</p> 	<p>... is a part. ... is a part. ... is the whole.</p> 	<p>... plus ... is equal to is equal to ... + ...</p> $4 + 2 = 6$ $2 + 4 = 6$ $6 = 4 + 2$ $6 = 2 + 4$
<p>Add more (augmentation)</p> <p>A quantity is increased.</p>	<p>First... Then... Now...</p> 	<p>I start at ... I jump on ... I land on ...</p> 	<p>... plus ... is equal to is equal to ... + ...</p> $4 + 2 = 6$ $2 + 4 = 6$ $6 = 4 + 2$ $6 = 2 + 4$
<p>Bonds within 10</p> <p>Include bonds for each number within 10</p> <p>Encourage children to notice patterns.</p>	<p>... is made of ... and and ... make ...</p> 	<p>... can be partitioned into ... and ...</p> 	<p>... plus ... is equal to ...</p> $6 + 0 = 6$ $5 + 1 = 6$ $4 + 2 = 6$ $3 + 3 = 6$ $2 + 4 = 6$ $1 + 5 = 6$ $0 + 6 = 6$
<p>Related facts within 20</p> <p>Make links to known facts.</p>	<p>I know that ... and ... = ... so ... and ... = ...</p> 	<p>... more than ... is ... so ... more than ... is ...</p> 	<p>What patterns do you notice?</p> $5 + 2 = 7$ $15 + 2 = 17$ $7 = 5 + 2$ $17 = 15 + 2$
<p>Missing numbers</p> <p>Make links to known facts.</p>	<p>How many more do you need to make ...?</p> 	<p>If ... is the whole and ... is a part, the other part must be...</p> 	<p>... plus ... is equal to ...</p> $2 + \square = 6$ $6 = 2 + \square$ 

Addition

<p>Year 2</p>	<ul style="list-style-type: none"> Recall and use addition facts to 20 fluently, and derive and use related facts up to 100 Add numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> a two-digit number and 1s a two-digit number and 10s 2 two-digit numbers adding 3 one-digit numbers Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. 		
<p>Progression of skills</p>	<p>Key representations</p>		
<p>Add ones to any number (related facts)</p> <p>Make links to known facts.</p>	<p>I know that ... and ... = ... so ... and ... = ...</p> 	<p>... more than ... is ... so ... more than ... is ...</p> 	<p>What do you notice? Can you continue the pattern?</p> $5 + 2 = 7$ $15 + 2 = 17$ $25 + 2 = 27...$
<p>Add three 1-digit numbers</p> <p>Prompt children to understand that addition can be done in any order and to make links to known facts.</p>	<p>... and ... are a bond to 10 $10 + \dots = \dots$</p> 	<p>Double ... + ... = ...</p> 	<p>What do you notice? Which addition is the easiest to calculate?</p> $8 + 9 + 1 =$ $8 + 1 + 9 =$ $9 + 1 + 8 =$
<p>Add across a 10</p> <p>Partition the number being added to make a full ten.</p>	<p>... can be partitioned into ... and ...</p> 	<p>I add ... to get to ... then I add ...</p> $8 + 5 = 13$ $28 + 5 = 33$ 	
<p>Add multiples of 10</p> <p>Make links to known facts within ten.</p>	<p>... ones + ... ones = ... ones so ... tens + ... tens = ... tens</p> 	<p>What is the same? What is different?</p> 	
<p>Add 10s to any number</p> <p>Make links to known facts.</p>	<p>... tens + ... tens = ... tens ... tens and ... ones = ...</p> 	<p>To add ... I need to add 10 ... times.</p> 	<p>I know that ... and ... = ... so ... and ... = ...</p> $30 + 20 = 50$ $34 + 20 = 54$
<p>Add 2-digit numbers (not across a ten)</p> <p>Lining up ones and tens in columns will support with later written methods.</p>	<p>... ones + ... ones = ... ones ... tens + ... tens = ... tens</p> 		
<p>Add 2-digit numbers (across a ten)</p> <p>Begin to exchange 10 ones for 1 ten.</p>	<p>There are ... ones, so I do/do not need to make an exchange.</p> <p>... ones = ... ten and ... ones</p> 		
<p>Missing numbers</p> <p>Solve missing number problems and use the inverse to check.</p>	<p>How many more do you need to make ...?</p> 	<p>If ... is a whole and ... is a part, then ... is the other part.</p> 	<p>... can be partitioned into ... and ...</p> $10 + 8 = 12 + \square$ 

Addition

Year 3	<ul style="list-style-type: none"> Add numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. Add numbers with up to three digits, using formal written methods of columnar addition. Add fractions with the same denominator within 1 whole. Calculate the time taken by particular events or tasks.
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Progression of skills	Key representations
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Add 1s, 10s or 100s to a 3-digit number	<p>The ones/tens/hundreds column will increase by ...</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr> <tr><td>400</td><td>40</td><td>4</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>400</td><td>40</td><td>4</td></tr> </table> <p>444 + 5 = 444 + 50 = 444 + 500 =</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>700</td><td>70</td><td>7</td></tr> </table> <p>777 + 2 = 777 + 20 = 777 + 200 =</p>	Hundreds	Tens	Ones	400	40	4	H	T	O	400	40	4	H	T	O	700	70	7	<p>What patterns do you notice?</p> <p>235 + 3 = 235 + 30 = 235 + 300 =</p> <p>111 + <input type="text"/> = 118 111 + <input type="text"/> = 181 111 + <input type="text"/> = 811</p>
Hundreds	Tens	Ones																		
400	40	4																		
H	T	O																		
400	40	4																		
H	T	O																		
700	70	7																		

Add two numbers (no exchange)	<p>... ones + ... ones = ... ones ... tens + ... tens = ... tens ... hundreds + ... hundreds = ... hundreds</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr> <tr><td>300</td><td>40</td><td>5</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>3</td><td>4</td><td>5</td></tr> </table> <p>345 + 432 =</p>	Hundreds	Tens	Ones	300	40	5	H	T	O	3	4	5	<p>345 432</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <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>2</td></tr> </table>	H	T	O	3	4	5	+	4	3			2
Hundreds	Tens	Ones																								
300	40	5																								
H	T	O																								
3	4	5																								
H	T	O																								
3	4	5																								
+	4	3																								
		2																								

Add two numbers across a 10 or 100	<p>There are ... ones, so I do/do not need to make an exchange. There are ... tens, so I do/do not need to make an exchange. ... ones = ... ten and ... ones. ... tens = ... hundred and ... tens.</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr> <tr><td>400</td><td>60</td><td>6</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>4</td><td>6</td><td>6</td></tr> </table> <p>466 + 353 =</p>	Hundreds	Tens	Ones	400	60	6	H	T	O	4	6	6	<table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>2</td><td>5</td><td>5</td></tr> <tr><td>+</td><td>5</td><td>4</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>3</td><td>6</td><td>7</td></tr> <tr><td>+</td><td>1</td><td>6</td></tr> <tr><td></td><td>4</td><td>1</td></tr> </table>	H	T	O	2	5	5	+	5	4	H	T	O	3	6	7	+	1	6		4	1
Hundreds	Tens	Ones																																	
400	60	6																																	
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+	1	6																																	
	4	1																																	

Complements to 100	<p>... plus ... is equal to 100</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr> <tr><td>30</td><td>8</td><td></td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>3</td><td>8</td><td></td></tr> </table> <p>38 + ? = 100</p>	Hundreds	Tens	Ones	30	8		H	T	O	3	8		<p>I add ... to get to the next 10, then ... to get to 100</p> <p>38 + 2 = 40 40 + 60 = 100</p> <p>38 + 62 = 100 62 + 38 = 100 100 = 38 + 62 100 = 62 + 38</p>
Hundreds	Tens	Ones												
30	8													
H	T	O												
3	8													

Add fractions with the same denominator within 1 whole	<p>When adding fractions with the same denominator, I only add the numerator. ... fifths + ... fifths = ... fifths</p> <p>$\frac{1}{5} + \frac{1}{5} = \frac{2}{5}$ $\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$ $\frac{1}{5} + \frac{3}{5} = \frac{4}{5}$</p> <p>$\frac{2}{5} + \frac{1}{5} = \frac{3}{5}$</p>
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Calculate the duration of events	<p>From ... to ... o'clock is ... minutes. From ... o'clock to ... is ... minutes. The total time taken is ... minutes.</p> <p>start finish start finish</p> <p>4:25 4:55 2:25 3:00 3:18</p> <p>+ 35 mins + 18 mins</p>
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Addition

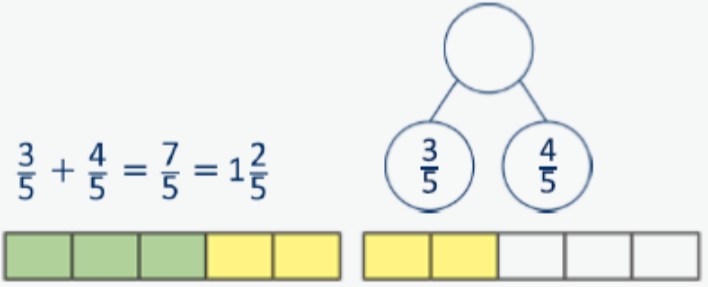
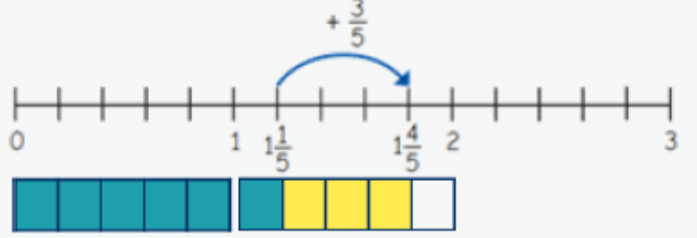
Year 4	<ul style="list-style-type: none"> Add numbers with up to 4 digits using a formal written method. Solve simple measure and money problems involving fractions and decimals to 2 decimal places. Add fractions with the same denominator.
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Progression of skills	Key representations
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<p>Add 1s, 10s and 100s to a 4-digit number</p> <p>Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.</p>	<p>The ones/tens/hundreds/thousands column will increase by ...</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Thousands</th> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1,000 1,000 1,000</td> <td style="text-align: center;">100 100 100 100</td> <td style="text-align: center;">10 10</td> <td style="text-align: center;">1 1 1 1 1</td> </tr> </tbody> </table> <p> $3,425 + 3 =$ $3,425 + 300 =$ $3,425 + 30 =$ $3,425 + 3,000 =$ </p>	Thousands	Hundreds	Tens	Ones	1,000 1,000 1,000	100 100 100 100	10 10	1 1 1 1 1	<p>What patterns do you notice?</p> <p> $2,350 + 3 =$ $2,350 + 30 =$ $2,350 + 300 =$ $2,350 + 3,000 =$ </p> <p> $6,040 + 200 =$ $2,211 + \square = 2,251$ $6,040 + 500 =$ $2,211 + \square = 2,215$ $6,040 + 900 =$ $2,211 + \square = 2,511$ </p>
Thousands	Hundreds	Tens	Ones							
1,000 1,000 1,000	100 100 100 100	10 10	1 1 1 1 1							

<p>Add up to two 4-digit numbers</p> <p>Formal written method with up to 3 exchanges. Encourage children to estimate and use inverse operations to check answers to calculations.</p>	<p>There are ... ones/tens/hundreds so I do/do not need to make an exchange.</p> <p>I can exchange 10 ... for 1 ...</p>	 
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<p>Add decimal numbers in the context of money</p> <p>Emphasis on partitioning and use of number lines rather than formal written calculations.</p>	<p>... pence + ... pence = ... pence ... pounds + ... pounds = ... pounds</p>  <p> $45p + 25p = 70p$ $£2 + £3 = £5$ $£5 + 70p = £5.70$ </p>	<p>£3.25 can be partitioned into £3 + 20p + 5p</p> 
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<p>Add fractions and mixed numbers with the same denominator beyond 1 whole</p>	<p>When adding fractions with the same denominator, I only add the numerator.</p> <p>... fifths + ... fifths = ... fifths</p> <p> $\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}$ </p> 	
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Addition

Year 5	<ul style="list-style-type: none"> Add whole numbers with more than 4 digits, including using formal written methods. Add numbers mentally with increasingly large numbers. Add decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1 Add fractions with the same denominator, and denominators that are multiples of the same number.
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Progression of skills	Key representations
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Add using mental strategies	<p>To add ..., I can add ... then subtract ...</p> <p>6,458 +100 +99 -1 6,557 6,558</p>
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Add whole numbers with more than 4 digits	<p>I can exchange 10 ... for 1 ...</p>
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Add decimals with up to 2 decimal places	<p>I do/do not need to make an exchange because ...</p> <p>I can exchange 10 ... for 1 ...</p>
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Complements to 1	<p>Pairs of numbers with up to 3 decimal places which total 1</p> <p>Encourage children to make links with bonds to 10 and complements to 100 and 1,000</p>
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Progression of skills	Key representations
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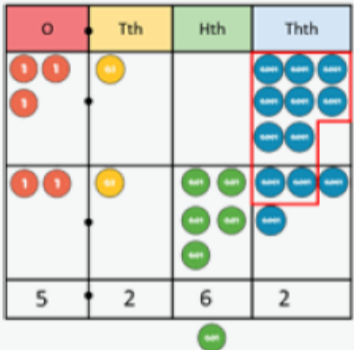
Add fractions with denominators that are a multiple of one another	<p>The denominator has been multiplied by ..., so the numerator needs to be multiplied by...</p> <p>Encourage children to convert fractions to the same denominator before adding.</p> <p>Progress from adding fractions within 1 whole to adding fractions beyond 1 whole.</p>
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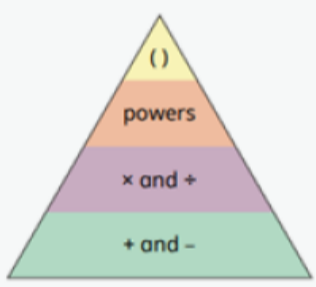



Addition

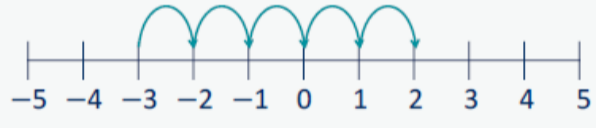
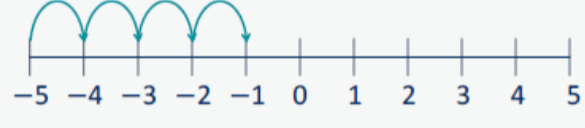
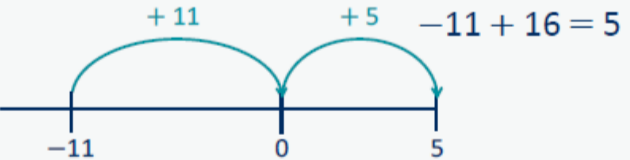
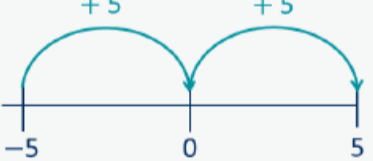
Year 6	<ul style="list-style-type: none"> Add larger numbers, using the formal written method of columnar addition. Use their knowledge of the order of operations to carry out calculations involving the 4 operations. Calculate intervals across zero. Add fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
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Progression of skills	Key representations
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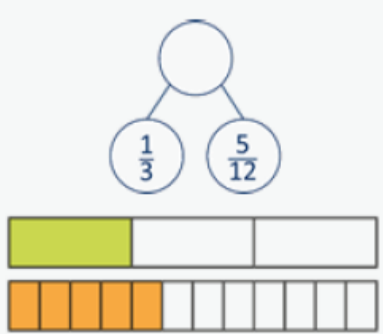
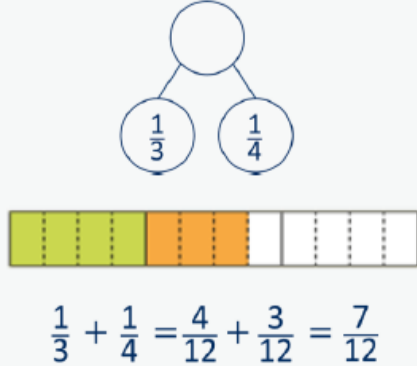
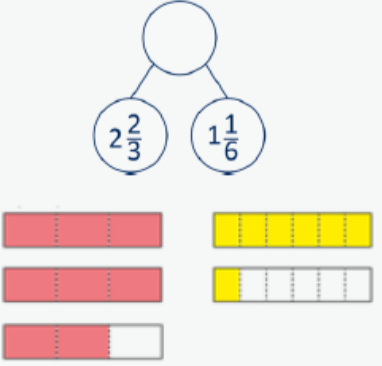
Add integers up to 10 million Encourage children to estimate and use inverse operations to check answers to calculations.	<table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>3</td><td>4</td><td>6</td><td>2</td><td>2</td><td>1</td></tr> <tr><td></td><td>+</td><td>1</td><td>8</td><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td></td><td></td><td>5</td><td>3</td><td>0</td><td>5</td><td>4</td><td>2</td></tr> <tr><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td></td><td></td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td colspan="3" style="background-color: #FFC0CB; text-align: center;">?</td></tr> <tr><td>2,354</td><td>750</td><td>1,500</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>8</td><td>1</td><td></td><td>8</td><td>5</td><td></td></tr> <tr><td></td><td>+</td><td></td><td></td><td>0</td><td>6</td><td></td><td></td></tr> <tr><td></td><td></td><td>9</td><td>9</td><td>5</td><td></td><td>8</td><td></td></tr> </table>											3	4	6	2	2	1		+	1	8	4	3	2	1			5	3	0	5	4	2			1	1					?			2,354	750	1,500											8	1		8	5			+			0	6					9	9	5		8	
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Add decimals with up to 3 decimal places Progress to numbers with digits in different place value columns. Encourage children to check that they have lined up the columns correctly.	I do/do not need to make an exchange because ...  <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>3</td><td>1</td><td>0</td><td>8</td></tr> <tr><td></td><td>+</td><td>2</td><td>1</td><td>5</td><td>4</td></tr> <tr><td></td><td></td><td>5</td><td>2</td><td>6</td><td>2</td></tr> <tr><td></td><td></td><td></td><td></td><td>1</td><td></td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>1</td><td>5</td><td>0</td><td>2</td><td>7</td></tr> <tr><td></td><td>+</td><td></td><td>9</td><td>5</td><td>8</td><td></td></tr> <tr><td></td><td></td><td>2</td><td>4</td><td>6</td><td>0</td><td>7</td></tr> <tr><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td></td></tr> </table>								3	1	0	8		+	2	1	5	4			5	2	6	2					1										1	5	0	2	7		+		9	5	8				2	4	6	0	7			1	1			
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Order of operations Calculations in brackets should be done first. Multiplication and division should be performed before addition and subtraction. *When no brackets are shown and the operations have the same priority, work left to right.	... has greater priority than ..., so the first part of the calculation I need to do is ...  <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>$3 + 4 \times 2 = 11$</p> </div> </div> <div style="text-align: center; margin-top: 10px;">  <p>$3 \times 4 + 2 = 14$</p> </div>
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Negative numbers Children add to negative numbers and carry out calculations which cross 0	... plus ... is equal to ... $-3 + 5 = 2$ 	The difference between -5 and -1 is 4 
	$-11 + 16 = 5$ 	The difference between -5 and 5 is 10 

Progression of skills	Key representations
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Add fractions Convert fractions to the same denominator before adding. Progress from fractions where one denominator is a multiple of the other, to any fractions and then to mixed numbers.	The denominator has been multiplied by ..., so the numerator needs to be multiplied by ... 	The lowest common multiple of ... and ... is ...  <p>$\frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12} = \frac{7}{12}$</p>	...is made up of ... wholes and ... 
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