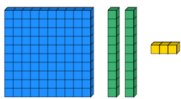
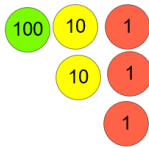
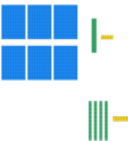

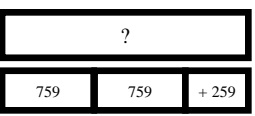


Addition KS2

KS1	<p>Pupils should practise addition to 20 and within to become increasingly fluent. They should use the facts they know to derive others, e.g using $7 + 3 = 10$ to find $17 + 3 = 20$, $70 + 30 = 100$</p> <p>They should use concrete objects and practical apparatus, such as bead strings and number lines to explore additions including missing numbers. Use pictorial representations such as bar models and whole part diagrams to show additive relationships.</p> <p>100 squares could be used to explore patterns in calculations such as $74 + 11$, $77 + 9$ encouraging children to think about ‘What do you notice?’ where partitioning or adjusting is used.</p> <p>Pupils should learn to check their calculations, by using the inverse.</p> <p>They should continue to see addition as both combining groups and counting on.</p> <p>They should use Dienes to model partitioning into tens and ones* and learn to rearrange numbers in different ways e.g. $23 = 20 + 3 = 10 + 13$.</p> <p>Show understanding that adding zero leaves a number unchanged.</p>					
Year	3			4		
Developing Conceptual/ Procedural Understanding	<p>Near doubles $13+14 =$ Double $13= 26$ $26+1 =27$ or Double $14 =28$ $28-1=27$</p> <p>Using known facts $40 + 80 = 120$ using $4 + 8 = 12$ So $400 + 800 = 1200$</p> <p>Remodelling strategy $243 + 198$ $241 + 200 = 441$</p> <p>Place value materials to represent 3 digit numbers Base 10 and then place value counters.</p>  	<p>Start with least significant digit</p> $\begin{array}{r} 67 \\ + 24 \\ \hline 11 \text{ (7+4)} \\ + 80 \text{ (60+20)} \\ \hline 91 \end{array}$ <p>“7 add 4 equals 11 and 60 add 20 equals 80. 1+ 0 = 1 and 1 ten + 8 tens = 9 tens”</p>   $\begin{array}{r} 625 \\ + 48 \\ \hline 13 \text{ (5+8)} \\ 60 \text{ (20 + 40)} \\ +600 \text{ (600 + 0)} \\ \hline 673 \end{array}$ <p>All language in the context of the place value and the mental addition of the totals to be done in any order.</p>	<p>Columnar addition</p> $\begin{array}{r} 625 \\ + 48 \\ \hline 673 \\ 1 \end{array}$ <p>Teach the carried digit.</p> <p>Representing problems There are 334 children at Springfield School and 75 at Oak Nursery. How many children are there altogether?</p>	<p>Using known facts $40 + 80 = 120$ using $4 + 8 = 12$ So $400 + 800 = 1200$ and $4000+8000=12,000$</p> <p>Remodelling strategy $3548 + 1998$ $3546 + 2000 = 5546$</p> <p>Place value materials to represent calculations</p>	<p>Columnar addition</p> $\begin{array}{r} 587 \\ + 475 \\ \hline 1062 \\ 11 \end{array}$ <p>“7 add 5 equals 12. That’s 2 units and 1 ten to carry over. 80 add 70 equals 150 and the 1 ten to carry makes 160. That’s 6 tens and 100 to carry over. 500 add 400 equals 900 and the 1 hundred to carry makes 1000”</p> $\begin{array}{r} 7648 \\ +1486 \\ \hline 14 \text{ (8+6)} \\ 120 \text{ (40+80)} \\ 1000 \text{ (600+400)} \\ + 8000 \text{ (7000+1000)} \\ \hline 9134 \\ 111 \end{array}$	<p>Columnar addition (decimals) in contexts such as money and measurement</p> $\begin{array}{r} 12.45 \\ 7.36 \\ + 24.50 \\ \hline 44.31 \\ 111 \end{array}$ <p>Representing problems There are 259 more boys than girls in Lucy’s school. If there are 789 girls, how many pupils are there altogether?</p> 
Known facts	Derive and use addition and subtraction facts to 100, e.g. $33+ 67 =100$.			Derive and use addition and subtraction facts (for multiples of 10) to 1000, e.g. $330+ 670=1000$.		

Addition KS2

Essential knowledge	Add single digit bridging through boundaries	Add multiples of 10,100	Fluency of 2 digit + 2 digit	Add multiples of 10, 100 and 1000
	Partition second number to add	Pairs of 100 (complements of 100)	Partition second number to add	Decimal pairs of 10 and 1
	Use near doubles to add	Add near multiples of 10 and 100 by rounding and adjusting	Use near doubles to add	Adjust both numbers before adding
	Partition and recombine		Add near multiples	Partition and recombine

Year	5		6	
Developing Conceptual/ Procedural Understanding	<p>Columnar addition Include calculations involving more than 2 numbers and carrying figures >1.</p> $\begin{array}{r} 25567 \\ 16397 \\ +15984 \\ \hline 57948 \\ \small{1\ 1\ 2\ 1} \end{array}$ <p>Include calculations with 'empty columns'. $124.9 + 7.25$</p> $\begin{array}{r} 124.90 \\ + 7.25 \\ \hline 132.25 \\ \small{1\ 1} \end{array}$	<p>Representing problems If 2541 is the answer, what's the question? - Can you create three addition calculations? - Can you create three subtraction calculations? - Did you use a strategy?</p>	<p>Columnar addition Include calculations with up to 3 'empty columns'. $128.7 + 3.014$</p> $\begin{array}{r} 128.700 \\ +3.014 \\ \hline 131.714 \\ \small{1} \end{array}$	<p>Representing problems 7208 females attended a concert as well as 8963 males. There were originally 20000 seats on sale. How many empty seats were there at the concert?</p>
Known facts	Derive and use addition and subtraction facts to 10 and 1, e.g. $3.3 + 6.7 = 10$ and so $0.33 + 0.67 = 1$.		All the KS2 required facts	
Essential knowledge	Fluency of 2 digit + 2 digit including with decimals	Add multiples of 10, 100, 1000 and tenths	Fluency of 2 digit + 2 digit including with decimals	Add multiples of 10, 100, 1000, tenths and hundredths
	Partition second number to add	Use number facts, bridging and place value	Partition second number to add	Use number facts, bridging and place value
	Adjust numbers to add	Partition and recombine	Adjust numbers to add	Partition and recombine