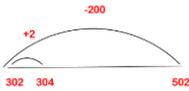
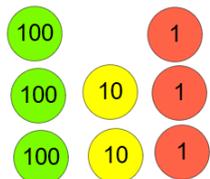
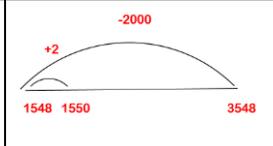
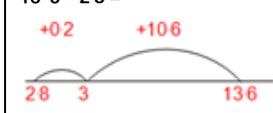




Subtraction KS2

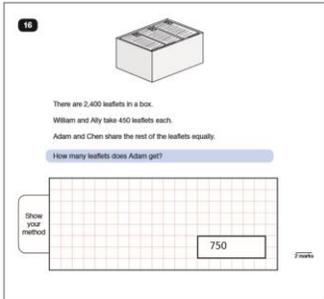
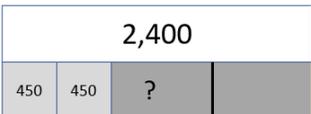
<p>KS1</p>	<p>Pupils should practise subtraction to 20 and within to become increasingly fluent. They should use the facts they know to derive others, e.g using $10 - 7 = 3$ and $7 = 10 - 3$ to calculate $100 - 70 = 30$ and $70 = 100 - 30$. Know the effect of zero.</p> <p>As well as number lines, 100 squares could be used to model calculations such as $74 - 11$, $77 - 9$ or $36 - 14$, where partitioning or adjusting are used. Pupils should learn to check their calculations, including by adding to check. They should continue to see subtraction as both take away and finding the difference and should find a small difference by counting up. They should use Dienes to model partitioning into tens and ones* and learn to partition numbers in different ways e.g. $23 = 20 + 3 = 10 + 13$.</p>					
<p>Year</p>	<p>3</p>			<p>4</p>		
<p>Layers of vocabulary</p>  <p>Appendix 1a Beck's Tiers of Vocabulary</p> <p>Appendix 1b: Vocabulary book</p>	<p>Basic to subject specific (Beck's Tiers): subtract, subtraction, take (away), minus leave, how many are left/left over? one less, two less... ten less... one hundred less how many fewer is... than...? how much less is...? difference between half, halve = equals, sign, is the same as tens boundary, hundreds boundary exchange, carried digits</p> <p>Instructional vocabulary: explain your method explain how you got your answer give an example of... show how you... show your working</p>			<p>Basic to subject specific (Beck's Tiers): subtract, subtraction, take (away), minus, decrease leave, how many are left/left over? difference between half, halve how many more/fewer is... than...? how much more/less is...? equals, sign, is the same as tens boundary, hundreds boundary, inverse exchange, carried digits</p> <p>Instructional vocabulary: calculate, work out, solve investigate, question answer check</p>		
<p>NC 2014</p>	<p>Add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction. Least significant digit is always dealt with first to establish if the exchange is needed.</p>			<p>Add and subtract numbers with up to 4 digits using the formal written method of columnar addition and subtraction where appropriate. Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p>		
<p>Developing Conceptual/ Procedural Understanding</p>	<p>Subtract mentally pairs of multiples of 100 using known facts $600 - 200 = 400$ because $6 - 2 = 4$</p> <p>Adjustment strategy $502 - 198$ by - 200 then + 2 (Round and adjust)</p> 	<p>Start with least significant digit - decomposition</p> $\begin{array}{r} 81 = 80 \quad 1 \\ - 57 \quad 50 \quad 7 \\ \hline \end{array}$ $\begin{array}{r} 81 = 70 \quad 11 \\ - 57 \quad 50 \quad 7 \\ \hline 24 \quad 20 \quad 4 \end{array}$ <p>"1 subtract 7 is tricky so I will rearrange 81 into 70 and 11. 11 subtract 7 equals 4 and 70 subtract 50 equals 20. 20 and 4 make 24."</p>	<p>Columnar subtraction</p> $\begin{array}{r} 8 1 \\ 7 5 4 \\ - 2 8 6 \\ \hline 4 6 8 \end{array}$ <p>Emphasis on language of place value, i.e. 14 units subtract 6 units, 14 tens subtract 8 tens, and 6 hundreds subtract 2 hundreds.</p>	<p>Subtract mentally pairs of multiples of 1000 using known facts $6000 - 2000 = 4000$ because $6 - 2 = 4$</p> <p>Remodelling strategy (keeping the difference the same) $3548 - 1998$ $3550 - 2000 = 1550$</p> <p>Adjustment strategy $3548 - 1998$ by - 2000 then +2 (Round and adjust)</p>	<p>Columnar subtraction $2344 - 187$</p> $\begin{array}{r} 2 3 1 \\ 2 3 4 4 \\ - 0 1 8 7 \\ \hline 2 1 5 7 \end{array}$ <p>$6467 - 2684$</p> $\begin{array}{r} 5 1 3 1 \\ 6 4 6 7 \\ - 2 6 8 4 \\ \hline 3 7 8 3 \end{array}$ <p>Columnar subtraction (decimals) in contexts such as money and</p>	<p>Representing problems Check the answer to the following calculations using the inverse. Show all your working.</p> 

Subtraction KS2

	<p>Remodelling strategy (keeping the difference the same) 502 – 198 504 – 200 = 304</p> <p>Re-arranging Use of apparatus to understand rearrangements, e.g. 55 as 40 and 15(not as part of calculations).</p> <p>Place value materials to represent numbers in calculations</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> </div>	$\begin{array}{r} 754 \\ - 86 \\ \hline \end{array}$ $\begin{array}{r} 700 \\ \quad 80 \\ \hline \end{array}$ $\begin{array}{r} 50 \\ \quad \quad 80 \\ \hline \end{array}$ $\begin{array}{r} 4 \\ \quad \quad \quad 6 \\ \hline \end{array}$ $\begin{array}{r} 754 \\ - 86 \\ \hline 668 \end{array}$ $\begin{array}{r} 600 \\ \quad 60 \\ \hline 660 \end{array}$ $\begin{array}{r} 140 \\ \quad \quad 6 \\ \hline 146 \end{array}$ <p>“It’s tricky to take 6 from 4 and 80 from 50. I need to rearrange the number. I will exchange one ten from 50 which leaves 40 and makes 14 in the units. 40 to subtract 80 is tricky. I will exchange one hundred from 700 and make 140. 14 subtract 6 equals 8. 140 subtract 80 equals 60 and 600 subtract 0 equals 600.”</p>	<p>Representing problems There are 386 pupils at Oak Primary. If 79 pupils have sandwiches, how many have dinners?</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td style="text-align: center;">386</td></tr> <tr><td style="text-align: center;">? 79</td></tr> </table>	386	? 79	<div style="text-align: center;">  </div> <p>Find the difference strategy 13.6 – 2.8 =</p> <div style="text-align: center;">  </div> <p>13.6 – 2.8 = 10.8</p> <p>Place value materials to represent calculations Appendix 1.</p>	<p>measurement</p> $\begin{array}{r} 32.34 \\ - 14.18 \\ \hline 18.16 \end{array}$ <p>NUMBER BOARDS</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 2px solid black; padding: 5px; margin: 5px;">2456</div> <div style="border: 2px solid black; padding: 5px; margin: 5px;">1822</div> <div style="border: 2px solid black; padding: 5px; margin: 5px;">734</div> </div>
386							
? 79							
With jottings... or in your head	Add and subtract numbers mentally, including: a 3 digit number and ones; a 3 digit number and tens; a 3 digit number and hundreds.		Add and subtract numbers mentally, including: a 4 digit number and ones; a 4 digit number and tens; a 4 digit number and hundreds.				
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.				
Checking strategies	Estimate the answer to a calculation and use inverse operations to check answers.		Estimate and use inverse operations to check answers to a calculation. Approximate using the most significant digit, rounding skills.				
Essential knowledge	Subtract single digit bridging through boundaries	Subtract multiples of 10,100	Fluency of 2 digit - 2 digit	Subtract multiples of 10, 100 and 1000			
	Partition second number to subtract	Pairs of 100 (complements of 100)	Partition second number to subtract	Decimal subtraction from 10 or 1			
	Difference between	Subtract near multiples of 10 and 100 by rounding and adjusting	Difference between	Subtract near multiples by rounding and adjusting			
	Partition and recombine						

Year	5	6
Layers of vocabulary	<p>Basic to subject specific (Beck’s Tiers): subtract, subtraction, take (away), minus, leave, how many are left/left over? ten less... one hundred less how many fewer is... than...? how much less is...? difference between half, halve = equals, sign, is the same as tens boundary, hundreds boundary, inverse,</p>	<p>Basic to subject specific (Beck’s Tiers): subtract, subtraction, take (away), minus, decrease leave, how many are left/left over? difference between half, halve how many more/fewer is... than...? how much more/less is...? equals, sign, is the same as tens boundary, hundreds boundary, units boundary, tenths boundary, inverse</p>

Subtraction KS2

<p>Appendix 2a Beck's Tiers of Vocabulary</p> <p>Appendix 2b: Vocabulary book</p>	<p>units boundary, tenths boundary exchange, carried digits</p> <p>Instructional vocabulary: put, place arrange, rearrange change, change over adjusting, adjust split, separate</p>		<p>Instructional vocabulary: put, place arrange, rearrange change, change over adjusting, adjust split, separate carry on, continue, repeat what comes next? predict describe the pattern, describe the rule find, find all, find different investigate</p>	
<p>NC 2014</p>	<p>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p>		<p>Solve problems involving addition, subtraction, multiplication and division.</p>	
<p>Developing Conceptual/ Procedural Understanding</p>	<p>Columnar subtraction</p> $\begin{array}{r} & 2 & 3 & 1 & \\ 5 & 2 & 3 & 4 & 4 \\ - & 1 & 1 & 8 & 7 \\ \hline 5 & 1 & 1 & 5 & 7 \end{array}$ <p>Include calculations with 'empty columns'. 324.9 - 7.25</p> $\begin{array}{r} 1181 \\ 324.90 \\ - 7.25 \\ \hline 317.65 \end{array}$	<p>Representing problems Kangchenjunga is the third highest mountain in the world at 28,169 feet above sea level. Lhotse is the fourth highest at 27,960 feet above sea level. Find the difference in heights mentally.</p> <p>Molly is always trying to beat her score on her favourite computer game. Today, Thursday, her best score is 45,780. This is an increase of 12,999 on Wednesday's score and an increase of 15,000 on Tuesday's score. What did she score on Tuesday and Wednesday?</p> <p>Tuesday's score <input type="text"/></p> <p>Wednesday's score <input type="text"/></p> <p>Thursday's score <input type="text"/> 12,999</p> <p>45,780</p> <p>Keeping the difference, the same to make the numbers easier to calculate with.</p> <p>122, 456 - 11,999</p> <p>122, 457 - 12,000</p>	<p>Columnar subtraction Include calculations with up to 3 'empty columns'. 128.7 - 3.014</p> $\begin{array}{r} & 6 & 9 & 1 & \\ 128.700 \\ - & 3.014 \\ \hline 125.686 \end{array}$	<p>Representing problems Katie was given the calculation below $47326 - 1900 =$ She said "I will just take off 2000 then subtract another 100 so my answer is 45126." Is she correct? Would you use her method? Explain your answer</p>  
<p>With jottings... or in your head</p>	<p>Add and subtract numbers mentally with increasingly large numbers.</p>		<p>Undertake mental calculations with increasingly large numbers and more complex calculations.</p>	
<p>Known facts</p>	<p>Derive and use addition and subtraction facts to 10 and 1, e.g. $3.3 + 6.7 = 10$ leads to $10 - 3.3 = 6.7$ and $0.33 + 0.67 = 1$ so $1 - 0.67 = 0.33$</p>		<p>All the KS2 required facts</p>	
<p>Checking strategies</p>	<p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p>		<p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p>	

Subtraction KS2

	Promote decision making so that pupils choose an appropriate method/strategy. REINFORCE Decimals, fill 'empty columns' with zeros as place holders			
Essential knowledge	Fluency of 2 digit - 2 digit including with decimals	Subtract multiples of 10, 100, 1000 and tenths	Fluency of 2 digit - 2 digit including with decimals	Subtract multiples of 10, 100, 1000, tenths and hundredths
	Partition second number to subtract	Use number facts, bridging and place value	Partition second number to subtract	Use number facts, bridging and place value
	Adjust numbers to subtract	Difference between	Adjust numbers to subtract	Difference between