Subtraction KS2

<table>
<tr><td>KS1</td><td colspan="5">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.

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.</td></tr>
<tr><td>Year</td><td colspan="3">3</td><td colspan="2">4</td></tr>
<tr><td>Layers of vocabulary

Appendix 1a Beck’s Tiers of Vocabulary Appendix 1b: Vocabulary book</td><td colspan="3">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

Instructional vocabulary:
explain your method explain how you got your answer give an example of… show how you… show your working

NFER Arithmetic</td><td colspan="2">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

Instructional vocabulary:
calculate, work out, solve investigate, question answer check

NFER Arithmetic</td></tr>
<tr><td>NC 2014</td><td colspan="3">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.</td><td colspan="2">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.</td></tr>
<tr><td>Developing declarative, procedural, and conditional knowledge</td><td>Subtract mentally pairs of multiples of 100 using known facts
600 – 200 = 400 because 6 – 2 = 4

Remodelling strategy (keeping the difference the same)
502 – 198
504 – 200 = 304

Re-arranging
Use of apparatus to understand rearrangements, e.g. 55 as 40 and 15(not as part of calculations).</td><td>Start with least significant digit - decomposition
81 = 80 1
- 57 50 7
—— ——
81 = 70 11
- 57 50 7
24 20 4

“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.”

754 700 50 4</td><td>Columnar subtraction
6 14 1
7 5 4
- 2 8 6
4 6 8

Emphasis on language of number facts, i.e., 14 subtract 6 , 14 subtract 8 , and 6 subtract 2</td><td>Subtract mentally pairs of multiples of 1000 using known facts
6000 – 2000= 4000 because 6 – 2 = 4

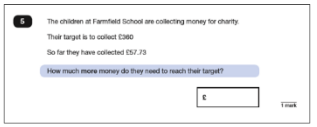
Remodelling strategy (keeping the difference the same)
3548 - 1998
3550 – 2000 = 1550

Find the difference strategy
13·6 – 2·8 =

13·6 – 2·8 = 10·8</td><td>Columnar subtraction
2344 -187
2 1 3 1
2344
-187
2157

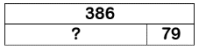
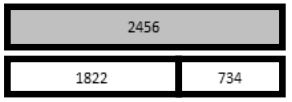
6467 – 2684
5 13 1
6467
- 2684
3783

Columnar subtraction (decimals) in contexts such as money and measurement

32.34 – 14.18</td><td>Representing problems
Check the answer to the following calculations using the inverse. Show all your working.
 

Conditional knowledge</td></tr>
</table>

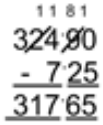
Subtraction KS2

	Place value materials to represent numbers in calculations 	- 86 80 6 754 600 140 14 - 86 80 6 668 600 60 8 "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."	**Representing problems** There are 386 pupils at Oak Primary. If 79 pupils have sandwiches, how many have dinners?  		2 1 2 1 32,34 -14.18 18.16	2456- 734 = 1822 
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.		
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 **Appendix 2a** Beck's Tiers of Vocabulary **Appendix 2b:** Vocabulary book	**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, units boundary, tenths boundary exchange, carried digits **Instructional vocabulary:** put, place arrange, rearrange change, change over adjusting, adjust split, separate NFER Arithmetic	**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 **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 NFER Arithmetic

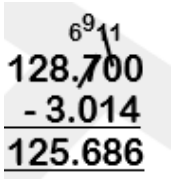
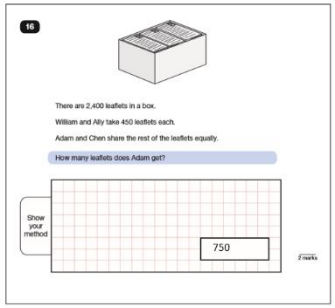
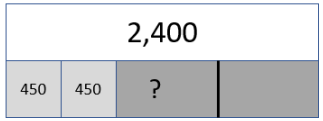
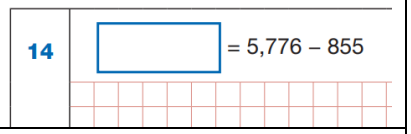
Subtraction KS2

<table>
<tr><td>'NC 2014</td><td colspan="2">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.</td><td colspan="2">Solve problems involving addition, subtraction, multiplication and division.</td></tr>
<tr><td>Developing declarative, procedural, and conditional knowledge</td><td>Columnar subtraction

Include calculations with 'empty columns'.
324.9 - 7.25
  </td><td>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.

Keeping the difference, the same to make the numbers easier to calculate with.

122, 456 – 11,999

122, 457 – 12,000</td><td>Columnar subtraction
Include calculations with up to 3 'empty columns'.
128.7 - 3.014
  </td><td>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
 
 
Condtional knowledge
  </td></tr>
<tr><td>Known facts</td><td colspan="2">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</td><td colspan="2">All the KS2 required facts</td></tr>
<tr><td rowspan="3">Essential knowledge</td><td>Fluency of 2 digit - 2 digit including with decimals</td><td>Subtract multiples of 10, 100, 1000 and tenths</td><td>Fluency of 2 digit - 2 digit including with decimals</td><td>Subtract multiples of 10, 100, 1000, tenths and hundredths</td></tr>
<tr><td>Partition second number to subtract</td><td>Use number facts, bridging and place value</td><td>Partition second number to subtract</td><td>Use number facts, bridging and place value</td></tr>
<tr><td>Adjust numbers to subtract</td><td>Difference between</td><td>Adjust numbers to subtract</td><td>Difference between</td></tr>
</table>