Calculation Knowledge and Skills Progression: SUBTRACTION

<table>
<tr><td></td><td colspan="2">Progression in Knowledge and Skills in NUMBER in Nursery and Reception - Bridging into Year 1 through ‘subitising’ activities and seeing INSIDE the number</td></tr>
<tr><td></td><td>Nursery: Birth to Three
• Combine objects like stacking blocks and cups. Put objects inside others and take them out again.
• Take part in finger rhymes with numbers.
• React to changes of amount in a group of up to three items.
• Compare amounts, saying ‘lots’, ‘more’ or ‘same’.
• Counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence.
• Count in everyday contexts, sometimes skipping numbers - ‘1-2-3-5.’

Nursery: Three and Four year olds
• Recite numbers past 5.
• Say one number for each item in order: 1,2,3,4,5.
• Show ‘finger numbers’ up to 5.
• Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.
• Experiment with their own symbols and marks as well as numerals.
• Solve real world mathematical problems with numbers up to 5.
• Compare quantities using language: ‘more than’, ‘fewer than’.</td><td>Reception:
• Count objects, actions and sounds.
• Subitise.
• Link the number symbol (numeral) with its cardinal number value.
• Count beyond ten.
• Compare numbers.
• Understand the ‘one more than/one less than’ relationship between consecutive numbers.
• Explore the composition of numbers to 10.
• Automatically recall number bonds for numbers 0–10.</td></tr>
<tr><td></td><td colspan="2">Key KNOWLEDGE and VOCABULARY</td></tr>
<tr><td></td><td colspan="2">Early Learning Goals</td></tr>
<tr><td></td><td colspan="2">Number
• Have a deep understanding of number 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 (including subtraction facts) and some number bonds to 10, including double facts.

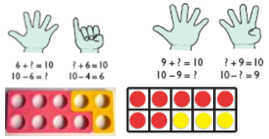
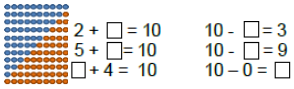
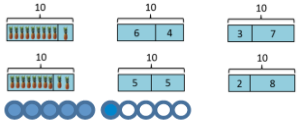
Numerical Patterns
• Verbally count beyond 20, recognising the pattern of the counting system.
• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</td></tr>
</table>

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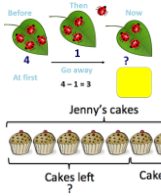
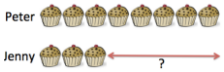
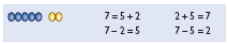
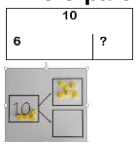
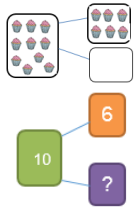
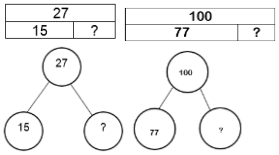
<table>
<tr><th>Year</th><th colspan="3">1</th><th colspan="3">2</th></tr>
<tr><td>Layers of vocabulary

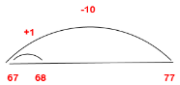
Appendix 1a
Beck's Tiers of Vocabulary
Appendix 1b:
Vocabulary book</td><td colspan="3">Basic to subject specific (Beck's Tiers):
take away, distance between, difference between, less than. How many more?
How much greater?
How many fewer?
how much more is…? − subtract, take (away), minus, leave, how many are left/left over? how many have gone? one less, two less, ten less… how many fewer is… than…? how much less is…? difference between half, halve = equals, sign, is the same as

Instructional vocabulary:
start from, start with, start at
look at point, to show me</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 difference,
partition,
rearrange,
inverse, place value
exchange
inverse
Instructional vocabulary:
tell me, describe, name, pick out, discuss, talk about, explain, explain your method, explain how you got your answer, give an example of… show how you…</td></tr>
<tr><td>NC 2014</td><td colspan="3">Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.</td><td colspan="3">Recording subtraction in columns supports place value and prepares for formal written methods with larger numbers.</td></tr>
<tr><td>Developing Conceptual/ Procedural Understanding</td><td>Number bonds


Numicon Ten Frame
Difference between 7 and 10.

2 + ☐ = 10 10 - ☐ = 3
5 + ☐ = 10 10 - ☐ = 9
☐ + 4 = 10 10 – 0 = ☐
Use the pattern to complete the number sentences.

6 less than 10 is 4.
Count out, then count how many are left.
7 – 4 = 3</td><td>Count back on a number track.
15 – 6 = 9

Difference between.
13 - 8 =__
8+ __= 13

Subtraction-take away

8-3=?
Subtraction-finding the difference
</td><td>Develop knowledge of fact families.

Whole-part model


Fill in the missing numbers</td><td>Whole-part model

Fill in the missing numbers
All answers to be recorded in a number sentence following any informal recording.

Adjustment strategy
77 - 9 =
77-10 +1 =67+ 1
=68

(Round and adjust)
What is the nearest 10?
55 – 27 =
55 – 30 +3 =25 + 3
= 28</td><td>Re-arranging
35 - 8 =
Tell me what you know about 8, e.g. 2 + 6, 5 + 3
35 - 8=
Rearrange the 8 into 5 + 3
So 35 - 5 - 3= 30 - 3 =27

55 - 27 =
Partition the 27 into 20 +7 and rearrange the 7 into 5 + 2.
So 55 – 27 = 55 -20 -5 -2
= 35 – 5 - 2
= 28
Taking away and exchanging
73 – 46 =</td><td>Subtract mentally pairs of multiples of 10 using known facts
60 – 20 = 40
because 6 – 2 = 4

Partitioning of the second number strategy
74 – 47
74 – 40 = 34
34 – 4 – 3 = 27

Balance in the equation
35 - = 31
☐ - 12 =34
20 - = 14 - 3
(Open-ended)
18 - ☐ = ☐ -

Decision making
27 - ☐ = 12</td></tr>
</table>

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		How many more cakes does Peter have than Jenny? 8-3=?		91 – 48 = 91-50 +2=41 +2 =43	 What do we know Exchange to make about 76? '60 and 13'.  73 - 46 = 27 Now take away the 46.	Sam works out 27 – 15 = 12. How could he have done this?

Known facts	Represent & use number bonds and related subtraction facts within 20 Add and subtract 1 digit and 2 digit numbers to 20, including zero		Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.	
Essential knowledge	1 less	Number bonds: subtraction 5 and 6	10 less	Number bonds: subtraction 20,12 and 13
	Count back	Number bonds: subtraction 7 and 8	Subtract 1 digit from 2 digit by bridging	Number bonds: subtraction 14 and 15
	Subtract 10.	Number bonds: subtraction 9 and 10	Partition second number and count back in tens then ones.	Number bonds: subtraction 16 and 17
	Teens subtract 10	Difference between	Subtract 10 and multiples of 10.	Number bonds: subtraction 18 and 19
			Subtract near multiples of 10.	Difference between
			Add near multiples of 10.	