## Addition and Subtraction EYFS to Key Stage 1

| EYFS | Reception: Early Learning Goals <br> Number <br> - Have a deep understanding of number to 10 , including the composition of each number. <br> - Subitise (recognise quantities without counting) up to 5 . <br> - 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. <br> Numerical Patterns <br> - Verbally count beyond 20, recognising the pattern of the counting system. <br> - Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. <br> - Explore and represent patterns within numbers up to 10 , including evens and odds, double facts and how quantities can be distributed equally. |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | 1 Addition |  |  |  | 2 Addition |  |
| Layers of vocabulary | Basic to subject specific (Beck's Tiers): <br> +, add, more plus make, sum, total altogether score double, near double one more, two more... ten more how many more to make...? how many more is... than...? how much more is...? |  |  | Basic to subject specific (Beck's Tiers): <br> +, add, addition, more, plus make, sum, total altogether score double, near double one more, two more... ten more... one hundred more how many more to make...? how many more is... than...? how much more is...? |  |  |
| Appendix 1a <br> Beck's Tiers of <br> Vocabulary <br> Appendix <br> 1b: <br> Vocabulary book | Instructional vocabulary: <br> start from, start with, start at look at point, to show me |  |  | Instructional vocabulary: <br> 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... |  |  |
| NC 2014 | Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. |  |  | Using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods |  |  |
|  | Concrete, pictorial, abstract |  |  | Concrete, pictorial, abstract |  |  |
| Developing Conceptual/ Procedural Understanding | Number bonds <br> We have 10 pegs on the coathangers, how can we split them into 2 groups? Is there another way? How can we be sure we have got them all? |  | Whole-part model $\square$ <br> Fill in the missing numbers <br> Balance image for concept of | Base 10 <br> Whole-part model | Adjustment strategy <br> (Round and adjust) <br> Doubles then near | Partition and recombine <br> Record partitioned steps in number sentences then add mentally. $\begin{aligned} & 40+20=60 \\ & 6+7=13 \\ & 60+13=73 \end{aligned}$ <br> Moving on to: $46+27=60+13=$ |

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|  | 0000000000 <br> $\because(\square=10$ <br>  <br> $\stackrel{\circ}{\circ}$ <br> Hungarian frames <br> Ten Frames <br> 10- $\square=3$ <br> $10-\square=9$ <br> $10-0=\square$ <br> Use the pattern to complete the number sentences. <br> Use bonds of 10 to calculate bonds of 20. |  | , on number s. <br> knowledge milies. <br> 10 <br> 7 $\begin{aligned} & 3+7 \\ & 7+3 \\ & 7=3 \\ & 3=7 \end{aligned}$ <br> 20 <br> 17 $\begin{aligned} & 3+17 \\ & 17+3 \\ & 3=17 \\ & 17=3 \end{aligned}$ | equality. $\begin{aligned} & 9=9 \\ & 9=8+1 \\ & 9=7+2 \\ & 8+1=7+2 \end{aligned}$ $\square$ $\begin{aligned} & 10=10 \\ & 10=8+2 \\ & 10=6+4 \\ & 8+2=6+4 \end{aligned}$ |  | doubles $5+$ $7+$ $8+$ $47+5$ <br> Re-arra <br> $18+4$ = <br> Tell me <br> know a <br> 3+1, 2+ <br> $18+4=$ <br> the 4 in <br> $18+2+2$ <br> $59+24=$ <br> the 24 <br> and rea <br> into $1+3$ <br> So 59+2 <br> 59+20+ <br> 59+1+2 | $20+4$ <br> ge the 4 $=$ $=83$ | Regrouping the 10. <br> Balance in the equation $\begin{aligned} & 14=8+6,7+6=8+5 \\ & \square=13+9 \\ & 3+\square+6=16 \\ & 14+\diamond=15+27 \end{aligned}$ <br> Decision making <br> Using statements such as: <br> Ben did $14+9=23$ <br> How could he have done it? |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Known facts | Represent \& use number bonds and 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 more |  | Number bonds: 5 and 6 |  | 10 more |  | Number bonds:20,12 and 13 |  |
|  | Largest number first. |  | Number bonds: 7 and 8 |  | Add 1 digit to 2 digit by bridging |  | Number bonds: 14 and 15 |  |
|  | Add 10. |  | Number bonds:9 and 10 |  | Partition second number and add tens then ones. |  | Number bonds: 16 and 17 |  |
|  | Ten plus ones. |  | Use number bonds of 10 to derive bonds of 11 |  | Add 10 and multiples of 10. |  | Number bonds: 18 and 19 |  |
|  | Doubles up to 10. |  |  |  | Doubles up to 20 and multiples of 5. |  | Partition and recombine. |  |
|  |  |  |  |  | Add near multiples of 10. |  |  |  |

## Addition and Subtraction EYFS to Key Stage 1

| EYFS | Reception: Early Learning Goals <br> Number <br> - Have a deep understanding of number to 10 , including the composition of each number. <br> - Subitise (recognise quantities without counting) up to 5. <br> - 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. <br> Numerical Patterns <br> - Verbally count beyond 20, recognising the pattern of the counting system. <br> - Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. <br> - Explore and represent patterns within numbers up to 10 , including evens and odds, double facts and how quantities can be distributed equally. |  |
| :---: | :---: | :---: |
| Year | 1 Subtraction | 2 Subtraction |
| Layers of vocabulary <br> Appendix 1a <br> Beck's Tiers of <br> Vocabulary <br> Appendix <br> 1b: <br> Vocabulary book | Basic to subject specific (Beck's Tiers): <br> take away, distance between, difference between, less than. How many more? <br> How much greater? <br> How many fewer? <br> 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 <br> Instructional vocabulary: <br> start from, start with, start at <br> look at point, to show me | Basic to subject specific (Beck's Tiers): <br> 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 <br> difference, <br> partition, <br> rearrange, <br> inverse, place value <br> Instructional vocabulary: <br> 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... |
| NC 2014 | Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. | Using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods |

Addition and Subtraction EYFS to Key Stage 1

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| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Concrete，pictorial，abstract |  |  |  | Concrete，pictorial，abstract |  |  |  |
| Developing Conceptual／ Procedural Understanding |  | Count bac track． <br> 15－6＝9 <br> Difference $\begin{aligned} & 13-8= \\ & 8+=\overline{13} \end{aligned}$  <br> 8－3＝？ <br> Subtractio difference <br> Peter fitititi d <br> Jenny 解解会 <br> How many does Pete Jenny？ | k on a number <br> between． <br> n－take away <br> ？ <br> ＇s cakes <br> Cakes eaten <br> n－finding the $\qquad$ <br> more cakes <br> have than $8-3=$ ？ | Develop knowledge of fact families． <br> $0000000 \quad \begin{array}{ll}7=5+2 & 2+5=7 \\ 7-2=5 & 7-5=2\end{array}$ <br> Whole－part model <br> 10 $\square$ <br> ？ <br> 6 <br> 10 <br> ？ <br> Fill in the missing numbers | Whole－part model <br> Fill in the missing numbers All answers to be recorded in a number sentence following any informal recording． <br> Adjustment strategy $\begin{aligned} 77-9 & = \\ 77-10+1 & =67+1 \\ & =68 \end{aligned}$ <br> （Round and adjust） <br> What is the nearest 10？ <br> 55－27＝ $\begin{aligned} 55-30+3 & =25+3 \\ & =28 \\ 91-48 & = \end{aligned}$ <br> Add 2 to both sides <br> $93-50=43$ | Re－arran 35－8＝ Tell me about 8， 35－8＝ Rearrang 3 So 35－5 55－27＝ Partition ＋7 and re into $5+2$ <br> So 55－2 <br> Taking a exchang <br> about 76 ？ $\qquad$ | you know <br> $2+6,5+3$ <br> e 8 into $5+$ <br> $30-3=27$ <br> 27 into 20 ange the 7 <br> 55－20－5－2 <br> 35－5－2 <br> 28 <br> and | Subtract mentally pairs of multiples of 10 using known facts <br> $60-20=40$ because $6-$ $2=4$ <br> Partitioning of the second number strategy $74-47$ <br> $74-40=34$ <br> $34-4-3=27$ <br> $74-47=$ <br> $77-50=27$ <br> Balange in the equation <br> 35 － $\square$ $=31$ <br> 20 － $\square$ $=14-3$ <br> （Op $\square$ nded） <br> 18 － $\square$ ＝ 15 － $\square$ <br> De $\square$ $=12$ <br> Sam works out $27-15=12$ ． <br> 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 |  | Numb | 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. |  |  |  |

## Addition and Subtraction EYFS to Key Stage 1

Appendix 1

## Beck's tiers of vocabulary



Beck's tiers of vocabulary: mathematics


Addition and Subtraction EYFS to Key Stage 1 Beck's tiers of vocabulary: mathematics


Beck's tiers of instructional vocabulary


## Addition and Subtraction EYFS to Key Stage 1

Continuing Professional
Development
Standard
National Centre
for Excellence in the
Teaching of Mathematics

Haylock and Cockburn (2008)

## Making Connections



Haylock's connective model

