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|  | Addition and Subtraction | Hinge Questions for pupil | Comments |
| E  M  E  R  G  E  N  T | Emergent Chapter 5: Nurturing Perceptual Counting | | |
| Can count perceived items.  This may involve seeing, hearing and feeling items. | Give me 7.  Give me 14.  Lay out 12. How many? |  |
| Can count 2 or more perceived collections together. This may involve seeing, hearing and feeling items. | I have 8 here and 4 here. How many do I have altogether? |  |
| P  E  R  C  E  P  T  U  A  L | Perceptual Chapter 6: Nurturing Figurative Counting | | |
| Can count items in two screened collections. | I have 7 hiding under this screen and 5 more here. How many do I have altogether? ( 7 + 5 )  CHECK |  |
| I have 9 hiding under this screen and 4 under this screen. How many do I have altogether? ( 9 + 4 )  CHECK |  |
| F  I  G  U  R  A  T  I  V  E | Figurative Chapter 7: Nurturing Initial Number Sequences (counting in ones) | | |
| Can count on rather than count from ‘one’ to solve addition and missing addend tasks e.g.  6 + \_ = 9 | I have 12 hiding under this screen and 4 under this screen. How many do I have altogether? ( 12 + 4 )  CHECK |  |
| I have 6 hiding under this red screen and some more hiding under this yellow screen. I have 14 altogether. How many are hiding under the yellow screen? (6 +? = 14 )  CHECK |  |
| Figurative Chapter 7: Nurturing Intermediate Number Sequences ( most efficient count-by-one strategies) | | |
| Use a CDF strategy to solve removed item tasks (e.g. 17 – 3 as 16, 15, 14, answer is 14). | I have 16 hiding under this screen. I have taken away 7. How many do I have left?  ( 16 – 7 = ) |  |
| Use a CDT strategy to solve missing subtrahend (e.g. 15 - \_ = 11) and written tasks such as 17 – 14 (16, 15, 14, answer is 3). | I have 12 hiding under this screen. I have taken some away and now I have 8 left. How many did I take away?  ( 12 - \_ = 8 ) |  |
| Can choose the most efficient from count-by-one strategies (including CDF/CDT strategies)  Can choose the most efficient from count-by-one strategies (including CDF/CDT strategies) | Adding Collections  11 + 5 = |  |
| Missing Addends 1  \_ + 12 = 18  9 + \_ = 14 |  |
| Missing Addends 2  2 + \_ = 19  \_ + 2 + 14 |  |
| Removed Item 1  19 – 6 = |  |
| Removed Item 2  19 – 17 = |  |
| Missing Subtrahend 1  14 - \_ = 9 |  |
| Missing Subtrahend 2  12 - \_ = 2 |  |
| Missing Minuend 1  ­\_ - 15 = 3 |  |

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|  | Addition and Subtraction | Hinge Questions for pupil | | | Comments |
| C  O  U  N  T  I  N  G  O  N | Counting On Chapter 8: Nurturing Facile Number Sequences to 20 ( Facile Number Sequences to 20 – non count-by-one strategies to 20) | | | | |
| Can use understanding of number structures to develop and explain a range of non-count-by-one strategies to solve tasks within 20 such as: compensation, using a known results, adding to ten, partitioning using 5 and 10 as a base (5-wise) commutativity, subtraction as the inverse of addition, awareness of the ‘ten’ in a teen number, using doubles and near doubles | Compensation  Using a known result | Look for this throughout. | |  |
| Add to ten  Subtract from ten | 7 + \_ = 10  10 - \_ = 6 | |  |
| Partitioning using 5 and 10  Adding/  subtracting through 10 | 7 + 5  9 + 4  8 + 6  13 – 5  14 – 6  15 – 7 | |  |
|  |
| Commutativity | 2 + 9  4 + 8 | |  |
| Subtraction as the inverse of addition | 6 + 9 =  So what is 15 – 6? | |  |
| Awareness of ten in the teen number | 10 + 6  18 – 8 | |  |
| Using doubles and near doubles | 6 + 6  7 + 6  9 + 9  18 – 9 | |  |
| F  A  C  I  L  E | Facile Chapter 9: Nurturing Facile Number Sequence to 100 | | | | |
| Can use their understanding of number structures to develop and explain their own range of non-count-by-one strategies to solve two digit addition and subtraction tasks within 100  Key:  JS = Jump Strategy  P = Partitioning numbers to simplify problem | Addition of tens | | 23 + 40  53 + 30 |  |
| Addition of tens and ones | | 23 + 42  54 + 42 |  |
| Addition of tens and ones through decade | | 54 + 37  36 + 48 |  |
| Subtraction of tens | | 65 – 20  87 – 40 |  |
| Subtraction of tens and ones | | 58 – 45  87 – 45 |  |
| Subtraction of tens and ones through decades | | 45 – 28  65 – 46 |  |
| Use knowledge of partitioning to simplify the problems | | 84 – 19  49 + 31 |  |

Glossary of terms:

Addend = A number to be added. In 8 + 6 + 14, 8 and 6 are addends, and 14 is the sum.

CDF = Counting Down From = A strategy used by children to solve Removed Items tasks, for example 11 remove 3 – “eleven, ten, nine – eight”. Also referred to as counting-off-from or counting-back-from.

CDT = Counting Down To = Regarded as the most advanced of the counting-by-ones strategies. Typically used to solve missing subtrahend tasks, e.g. have 11, remove some, and there are eight left – “eleven, ten, nine – three”. Also referred to as counting-back-to.

Jump Strategy = A category of mental strategies for 2-digit addition and subtraction. Strategies in this category involve starting from one number and incrementing or decrementing that number by tens or ones.

Minuend/Subtrahend = In subtraction of standard form, e.g. 12 – 3 = 9, 12 is the minuend, 3 is the subtrahend and 9 is the difference. Thus the difference is the answer obtained in subtraction, the subtrahend is the number subtracted and the minuend is the number from which the subtrahend is subtracted.

Non-count-by-ones = A class of strategies which involve aspects other than counting-by-ones and which are used to solve addition and subtraction tasks. Part of the strategy may involve counting-by-ones but the solution also involves a more advanced procedure. For example 6 + 8 is solved by saying 6 + 6 = 12, then 13, 14.

Partitioning = An arithmetical strategy involving partitioning, or breaking up, a number into two parts without counting, e.g. partitioning 6 into 5 and 1.