Progression in Calculation – Subtraction

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| **Foundation Stage** | | | |
| **Objective & Strategy** | **Concrete** | **Pictoral** | **Abstract** |
| **Subtract a single digit number (from 20 or less)** | Physically taking away objects from a group/set  If I had six pegs and four pegs are taken away, how many will be left? | Children draw the concrete objects they are using and cross out. | Only to be used with concreete and pictorial examples  2 less than 5 is 3  5 subtract 2 is 3    5 – 2 = 3    Also 5 – 3 = 2 |
| **Count back to subtract** | Count back using range of apparatus, removing one at atime and counting back as the set get smaller.  (Numicon with pegs, counters on ten frames, pegs on boards, beads on a line) | Children draw what they have made, labelling with numbers | Counting back on a number track  2 less than 6 is 4  6 subtract 2 is 4  6 – 2 = 4 |
| **Comparing numbers more/less**  **Finding the difference** | Using manipulatives: How many more? How many less? What is the difference? | Pupils draw the apparatus and circle the difference | Verbally  “5 is more than 3”  “5 is 2 more than 3”  “3 is 2 less than 5”  etc |
| **Year 1** | | | |
| **Counting back**  **(To find a few less, or to subtract multiples of 10)** | Count back using range of apparatus, removing one at atime and counting back as the set get smaller.  (Numicon with pegs, counters on ten frames, pegs on boards, beads on a line) |  | Introduce numberlines 9 – 5 = |
| **Using number bonds to count back to 10 , then carry on** | 15 – 7 = | Ch’n draw apparatus to show 2 steps | Drawn on numberline |
| **Finding the difference**  **(to 20)** | Using manipulatives incl cubes and numicon, compare two sets. How many more? How many less? What is the difference? | Pupils draw the apparatus and circle the difference | 15 is more than 3  3 is less than 15  2 is less than 15  15 is 2 more than 3  3 is 2 less than 15  All developing the understanding the relationship of numbers |
| **Year 2** | | | |
| **Subtracting 2 digits without regrouping** | 28 – 13 =  Count and remove apparatus to model subtraction (ones then tens) | Draw and cross out (ones then tens) | Subtraction by partitioning |
| **Subtracting 2 digits with regrouping** | 34 - 16 | Draw 34  Draw again after exchanging  Then cross out 16 |  |
| **Find the difference** | Introduce the idea that this can be a more efficient method of subtracting  45 – 38 =  If I had 38  How many more are needed to make 45? | Count on to find the difference.  38  How many more? | Count on using number bonds and multiples of ten to become more efficient |
| **Year 3 and 4** | | | |
| **Subtraction**  **(Formal without exchanging)** | Use Base 10 to make the bigger number then take the smaller number away.  *It is important that this is modelled alongside the abstract representation.* | Draw the Base 10 or place value counters alongside the written calculation to help to show working.  *It is important that this is modelled alongside the abstract representation.* | This will lead to a clear written column subtraction. |
| **Subtraction**  **(Formal with exchanging)** | 126 – 72 =  Start by making the number:  Children will identify where they need to exchange. Children will then identify they need to exchange the 100 for 10, 10s.  Children then physically remove what they need to which will reveal the answer.  *It is important that this is modelled alongside the abstract representation.* | 126 – 72 =  Drawing the starting number using either base 10 pictures or place value counters.  When going through children can use their pencil or a different colour to see their work as shown below:  *It is important that this is modelled alongside the abstract representation.* | The layout is crucial. Children need to identify the starting number and place it on the top in the correct place value. |
| **Subtraction**  **(Formal method)** | 263 – 26.5 =  Make the starting number in the number sentence to take away from. Then subtract from each value, exchanging when necessary.   |  |  | | --- | --- | |  | *It is important that this is modelled alongside the abstract representation* |   IMG_8218 | 263 – 26.5 =  Children are encouraged to complete the calculation using pictures. Different colours are good because they can show where they have exchanged. Children labelling the values is important or using a place value grid they have made can help too.  *It is important that this is modelled alongside the abstract representation.* | 263 – 26.5 =  Deconstructed subtraction can help to represent what the children are doing at each stage of the calculation.  This will then proceed to a more compact method to complete the calculation: |