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| **Progression in the teaching of counting in Foundation Stage** | | | |
| 1. **Pre-counting**   The key focus in pre-counting is an understanding of the concepts more, less and the same and an appreciation of how these are related. Children at this stage develop these concepts by comparison and no counting is involved. | 1. **Ordering**   Count by reciting the number names in order forwards and backwards from any starting point. | 1. **One to one correspondence**   One number word has to be matched to each and every object. Lack of coordination is a source of potential error – it helps if children move the objects as they count, use large rhythmic movements, or clap as they count. | 1. **Cardinality (Knowing the final number counted is the total number of objects)**   Count out a number of objects from a larger collection. Know the number they stop counting at will give the total number of objects. |
| **Pre-counting ideas**  Provide children with opportunities to sort groups of objects explicitly using the language of **more** and **less.**    Which group of apples has the most?  Which group of apples has the least? | **Ordering ideas**  Provide children with opportunities to count orally on a daily basis. Rote count so that children are able to understand number order and can hear the rhythm and pattern. Use a drum or clap to keep the beat. | **One to one correspondence ideas**  Play counting games together moving along a track, play games involving amounts such as knocking down skittles. Use traditional counting songs throughout the day ensuring children have the visual/kinaesthetic resources eg. 5 little ducks, 10 green bottles. | **Cardinal counting ideas**    How many bananas are in my fruit bowl?  Allow children to physically handle the fruit.  Provide children with objects to point to and move as they count and say the numbers. |
| **Progression in the teaching of counting in Foundation Stage** | | | |
| 1. **Subitising (recognise small numbers without counting them)**   Children need to recognise small amounts without counting them eg. dot patterns on dice, dots on tens frames, dominoes and playing cards as well as small groups of randomly arranged shapes stuck on cards. | 1. **Abstraction**   You can count anything – visible objects, hidden objects, imaginary objects, sounds etc. Children find it harder to count things they cannot move (because the objects are fixed), touch (they are at a distance), see, that move around.  Children also find it difficult to count a mix of different objects, or similar objects kfhfof very different sizes. | 1. **Conservation of number – MASTERY!**   Ultimately children need to realise that when objects are rearranged the number of them stays the same. | **End of year counting expectations**   * count reliably to 20 * count reliably up to 10 everyday objects * estimate a number of objects   then check by counting   * order numbers 1-20 * say 1 more/ 1 less than a given number to 20 |
| **Subitising ideas**  Provide children with opportunities to count by recognising amounts. | **Abstraction ideas**  Provide children with a variety of objects to count.    How many pigs are in this picture? |  |

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| **Progression of Skills using the CPA approach** | | |
| **BUILD IT** | Use a real-life representation of the concept which children can see, touch and feel. |  |
| **DRAW IT** | Show a pictorial representation of the concept. Children can create their own drawing of the concept. |  |
| **SOLVE IT** | Show the mathematical representation of the concept, using numbers and symbols. | 6 x 2 = 12  2 x 6 = 12  12 ÷ 2 = 6  12 ÷ 6 = 2  Factors of 12 are: 1, 2, 3, 4, 6 and 12 |
| **PRACTICE IT** | Encourage children to practice the concept in order to become fluent.  ***Interactive opportunity*** – ask children to respond to questions as they begin to prove their thoughts. They can apply their method to a variety of different concepts. | 1 x 2 = 2  2 x 2 = 4  3 x 2 = 6 etc. |
| **CHALLENGE IT** | Set a challenge to be solved.  ***Interactive opportunity*** – leave real-life objects or manipulatives for children to use to help solve the challenge.  Children begin to solve problems and are given the opportunity to apply reasoning to a problem and explain how they know. | How many different ways can 12 eggs be arranged into arrays?  What if you try 24 eggs?  What patterns do you notice between the two? |
| **SAY IT** | Use vocabulary related to the concept. | Multiply, times, repeated addition, array, divide, group, multiples, factors |

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| **Progression in the use of manipulatives to support learning** | | | | | | |
| **EYFS** | **Y1** | **Y2** | **Y3** | **Y4** | **Y5** | **Y6** |
| Real-life objects | Real-life objects | Real-life objects | Real-life objects | Real-life objects | Real-life objects | Real-life objects |
| 0 – 9 digit cards | 0 – 9 digit cards | 0 – 9 digit cards | 0 – 9 digit cards | 0 – 9 digit cards | 0 – 9 digit cards | 0 – 9 digit cards |
| Number track to 10 | Number line to 20 | Number line to 100 | Number line to 100 | Number line including | Number line including | Number line including |
| Tens frame | Tens frame | Tens frame |  |  |  |  |
| Bead strings – ten | Bead strings – twenty | Bead strings – hundred |  |  |  |  |
| Numicon shapes | Numicon shapes | Numicon shapes | Numicon shapes | Numicon shapes |  |  |
| Place value charts – Tens and ones | Place value charts – Tens and ones | Place value charts – Hundreds, tens and  ones | Place value charts – Thousands, hundreds,  tens and ones | Place value charts – Ten thousands,  thousands, hundreds,  tens, ones and tenths | Place value charts to a million and three decimal places | Place value charts – to 10 million and three decimal places |
| Base 10 | Base 10 | Base 10 | Base 10 & PV counters | Base 10 & PV counters | Base 10 & PV counters | Base 10 & PV counters |
| Place value arrow – tens and ones | Place value arrow – tens and ones | Place value arrow - tens and  ones | Place value arrow -  Hundreds, tens and  ones | Place value arrow -Thousands, hundreds,  tens and ones | Place value arrow | Place value arrow |
| Part-part-whole model | Part-part-whole model | Part-part-whole model | Part-part-whole model | Part-part-whole model | Part-part-whole model | Part-part-whole model |
| Bar model with real-life  objects/cubes | Bar model with real  life objects/pictorial  objects/representative  objects e.g. counters or cubes | Bar model with  Objects progressing to  numbers | Bar model with numbers and cuisenaire rods | Bar model with numbers and cuisenaire rods | Bar model with numbers and cuisenaire rods | Bar model with numbers and cuisenaire rods |
| Cuisenaire rods | Cuisenaire rods | Cuisenaire rods | Cuisenaire rods | Cuisenaire rods | Cuisenaire rods | Cuisenaire rods |
| Multilink cubes | Multilink cubes | Multilink cubes | Multilink cubes | Multilink cubes | Multilink cubes | Multilink cubes |
| Double sides counters | Double sides counters | Double sides counters | Double sides counters | Double sides counters | Double sides counters | Double sides counters |

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| **Progression in the teaching of the 4 Written Operations** | | | | | | | |
|  | **EYFS** | **Y1** | **Y2** | **Y3** | **Y4** | **Y5** | **Y6** |
| Addition | To add two groups by counting all  To add by counting on from the largest number | To add by counting on from the largest number  Making ten then adding on the remainder  Adding by separating the tens and ones | Column method with two digit numbers.  Start with no renaming in the ones column.  Progress to remaining in the ones column.  To add three digit numbers using the column method | Column addition of 3 digit numbers with renaming.  Using the bar model to represent addition/subtraction (part-part whole model) | Column addition of 4 digit numbers with renaming in any column. | To add numbers within 1 000 000 using the column method of addition.  Addition of decimal numbers | |
| Subtraction | Subtracting by crossing out or taking away  Subtracting by counting back. | Subtracting by crossing out or taking away  Subtracting by counting back  Subtracting from the ones column | Column subtraction starting with a two digit number – a one digit number.  Progress two using two two digit numbers, first without and then with renaming. | Column subtraction of 3 digit numbers with renaming.  Using the bar model to represent addition/subtraction (part-part whole model) | Column subtraction of 4 digit numbers with renaming in any column. | To subtract numbers within 1 000 000 using the column method of subtraction. | |
| Multiplication | Understanding doubling is the same as two equal groups. | To identify equal groupings  To organise objects into equal rows  Understanding doubling is the same as two equal groups. | Recognise multiplication as repeated addition.  To understand the commutative law (arrays)  Identifying patterns in the 2, 5 and 10 times table | To represent multiplication by 3, 4 and 8 using arrays.  Understand commutative facts.  To understand relational properties  Representing multiplication using the bar model.  Multiplying multiples of 10 by a one digit number  Multiply two digit number by a one digit number using expanded method of multiplication. | To multiply by 6,7,9, 11 and 12.  To understand relational properties  Representing multiplication using the bar model – comparative model  To multiply three digit numbers with renaming | To multiply using column multiplication – up to 4 digit by a one or two digit number. | Column method with regrouping and renaming – 4 digit numbers multiplied by |
| Division | Understanding halving is the same as sharing between two equal groups.  Share even numbers into equal groups | Determining how many groups will be made if sharing equally  Dividing even numbers into equal groups | To divide by 2, 5 and 10 by making equal groups  Grouping is a way of dividing  To understand the commutative law (arrays) | Dividing where there is a need to regroup  Simple two digit by one digit division | To divide with remainders.  Representing division using the bar model – comparative model  To divide three digit numbers with remainders | Dividing 4 digit number one a digit number.  To divide a three digit number by a one digit number where there is a remainder. | Short division 4 digit divided by a two digit (and with remainders).  Expressing the remainders in a variety of ways |