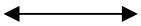
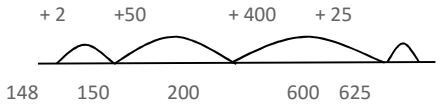
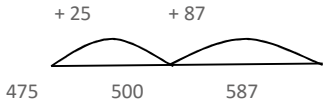
Progression in Calculation – Minimum Expectations in Subtraction

Year	Calculating	Counting & Mental Calculation
	Children will notice that a group of things changes in quantity when something is taken away. Children will sing some subtraction rhymes, knowing to take away	Teacher recording if appropriate
Minimum expectations by end of EYFS	Practical, counting objects and combining sets. Use of number tracks/counting sticks. Making their own.	Use of number tracks. Use of numicon, base 10 and ten frames.
Y1	Number tracks leading to number lines introduced for recording 'jumps' back. 1 2 3 4 5 6 7 8  *Can you count back 5? Take away 5.* Difference introduced practically and then on number tracks and lines, e.g. 12 - 7 Understand subtraction as: • Steps backwards along a number track moving towards a number line counting backwards. • Removing sets to find an answer. Pupils use concrete apparatus to experience take away and difference in practical activities. Continued use of counting sticks, base 10, Numicon, bundles of straws in ten and other concrete apparatus up to 10. Using empty number lines up to 20. Subtraction problems to be discussed and solved in familiar practical contexts, including using quantities. *Count out 16 straws. If you give your friend 7, how many will you have left?* *Can you make a rod 12 blocks long? My block is 7 blocks long. What's the difference?* *difference* *0 1 2 3 4 5 6 7*  0 1 2 3 4 5 6 7 8 9 10 11 12 Problems should use the term **difference.** Use of practical and informal written methods to support the U - U or a TU – U (up to 20). e.g. 3 – 2 = □ □ - □= 4 10 – 3 – 1 = □ 10 = 16 - □	• Counting backwards from 100, or from any given number. • Counting backwards in steps of 2, 5 and 10 from 20, 50 and 100. <u>Mental Calculations</u> Emphasis on mental calculations. Memorise and reason with subtraction facts within 10 and 20. Recall the 101 subtraction facts by the end of Y1. Recognise the effect of adding zero. Record simple subtraction calculations in a number sentence using – and = Recognise the relationship between addition and subtraction and use the word 'inverse'.
Y2	Pupils now use empty number lines to answer questions such as: • 55 - 27 • 61 - 14 +3 +20 +5 so 55 – 27 = 28 27 30 50 55 Also to use associated facts. E.g. 55 – 27 = 28 27 + ? = 55 55 - ? =27 ? + 26 = 55 When pupils have a good understanding of place value and partitioning, introduce the column methods for subtraction that do not involve regrouping using concrete apparatus laid in in a column form.	• Counting backwards in steps of 2, 5 and 10 from 100. • Counting backwards in 10 from any given number. <u>Mental Calculations</u> Pupils to undertake mental calculations with jottings (including the number line) starting with informal jottings, e.g. 32 – 17 This calculation will require an informal jotting, e.g. number line so as not confuse pupils. e.g. 32 – 17 = 30 – 10 No! 2 - 7 also: 30 – 10 5 – 2 40 - 7

	T 1s 50 7 - 20 4 30 3 57 - 24 33 Using Numicon and Base 10 to show 34 – 22, linking this to 34p – 22p Ensure that pupils understand that subtraction is not commutative. e.g. 7 – 3 is not the same as 3 – 7	Records mental calculations in a numbers sentence. Use knowledge of number facts to check answers.
Y3	Pupils build on their understanding of place value, partitioning and their concrete experiences to develop column methods for subtraction which bridge the tens, then hundreds, initially in the expanded form. Pupils should begin with 2 digit numbers and progress to 3 digit numbers 81-57 = difference +3 +20 +1 =24 57 60 80 81 81 – 57 = take away 81 = 80 1 "1 take away 7 is tricky so regroup" - 57 - 50 7 70 11 80 1 - 50 7 20 4 = 24 and check answers with inverse. Pupils progress to subtract numbers with up to 3 digits 341- 123 30 11 300 40 1 -100 20 3 200 10 8 or 341- 123 30 11 300 ~~40~~ 1 -100 20 3 200 10 8 For some a contracted version of the above. Pupils practise solving varied subtraction problems. Learn to use a calculator to check (as well as other methods learned in Y2) Estimate answers to questions such as 76 – 28 by rounding to the nearest multiple of 10 and then checking answer against estimate. e.g. 76 – 28 My estimate is 80 – 30 = 40 If 76 – 28 = 48, is my answer reasonable? To include money notation: e.g. £3.75 – £1.24 Subtract fractions with the same denominators (within a whole), e.g. $\frac{5}{8} - \frac{2}{8} = \frac{3}{8}$	• Count back in multiples of 4, 8, 50 and 100. • Find 10 or 100 less than a given number (up to 1000). • Count down in tenths Mental Calculations Pupils continue to use the number line to support mental calculation, such as: 378 – 6 476 – 50 372 - 200 Note: no regrouping If I spent £2.55 on a toy, how much change would I have from £5.00?
Y4	Pupils use the compact columnar method for subtraction. 7 1 7 ~~8~~ ~~4~~ - 5 6 7 2 8 Progressing to 4 digit numbers 2754 = 2000 700 ~~50~~ 4 -1562 1000 500 60 2 1192 1000 100 90 2 600 100 6 1 2 ~~7~~ ~~5~~ ~~4~~ 1562 1192	• Count back in multiples of 6, 7, 9, 25, 1000 • Count 1000 less than a given number. • Count backwards through zero (negative numbers) to - 20 • Count backwards in hundredths. • Count backwards in simple fractions, e.g. ½, ¼, ⅓, $\frac{1}{4}$, $\frac{1}{10}$ etc Mental Calculations Pupils continue to use mental methods from Y3 and calculate difference mentally using a number line.

	Extend to decimals with 2 decimal places (link to money and measure) $\begin{array}{r} {\scriptstyle 1\ \ 12\ 1} \\ \cancel{2}.\cancel{3}4 \\ -\ 1.57 \\ \hline 0.77 \end{array}$ Estimate and use the inverse to check answers. Subtract fractions with the same denominators (beyond a whole) $1\frac{1}{4} - \frac{3}{4} = \frac{5}{4} - \frac{3}{4} = \frac{2}{4} = \frac{1}{2}$	625 – 148  To be able to solve two step subtraction problems in contexts.
Y5	Pupils use the compact column method to calculate with decimal numbers, i.e. with more than one decimal place and with differing numbers of digits. e.g. *0 1 12 1* ~~123~~. 04 - 85 .6 37.44 Subtractions of whole numbers with more than 4 digits, e.g. 32856 – 3974 or 6467 - 2684 $\begin{array}{r} {\scriptstyle 5\ 13\ 16} \\ 6\cancel{4}67 \\ -\ 2684 \\ \hline 3783 \end{array}$ To use rounding to check answers and determine accuracy. Subtract fractions with the same denominators (one the multiple of the other), e.g. $\frac{1}{3} - \frac{2}{9} = \frac{3}{9} - \frac{2}{9} = \frac{1}{9}$	Count back in $\frac{1}{1000}, \frac{1}{100}, \frac{1}{10}$, 1, 10, 100, 1000 Count backwards in decimals with up to 3 decimal places and fractions (bridging zero). Count backwards in simple fractions, e.g. ½, ¼, ⅓, $\frac{1}{5}$, $\frac{1}{100}$ etc <u>Mental Calculations</u> Subtraction of larger numbers mentally, partitioning the smaller number, e.g. 587 – 475  Subtraction of decimals with jottings: 3.2 – 4.6 0.6 – 0.25 7 – 1.8 Ensuring money and measure are used as a meaningful context. To know complements to 1. To be able to solve multi-step subtraction problems in contexts.
Y6	To continue to reinforce Y5 expectations and build on these including: • Negative numbers • Subtraction of fractions with different denominators, including mixed fractions e.g. $\frac{1}{3} - \frac{1}{4} = \frac{4}{12} - \frac{3}{12} = \frac{1}{12}$ $1\frac{1}{2} - \frac{5}{8} = \frac{3}{2} - \frac{5}{8} = \frac{12}{8} - \frac{5}{8} = \frac{7}{8}$ Subtraction of larger whole numbers using the columnar method. Subtraction of decimals with differing numbers of decimal places using the column method. Pupils may fill empty columns with zeros initially, to preserve place value. To continue to estimate and use the approximate symbol (≈) for any calculation including decimals. (b) 6467 – 2684 *5 1 3 1* 6 4 ~~6~~ 7 - 2 6 8 4 3 7 8 3 and check answer 3783 + 2684 6467 *1 1* then 324.9 – 7.25 *1 1 8 1* 3 ~~2~~ 4.~~9~~0 - 7.2 5 3 1 7.6 5 and continue to use inverse to check .	Continue to count backwards in different intervals including decimals and fractions. e.g. $\frac{3}{4}, \frac{2}{3}$ *etc*. To be able to solve subtraction multi-step problems in context. <u>Mental Calculations</u> To continue to reinforce and build upon Y5 expectations.