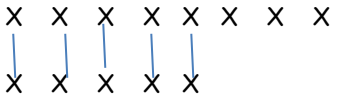
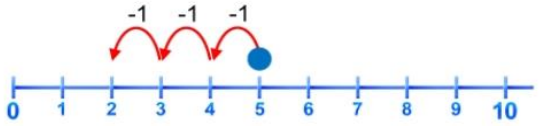
Calculation progression in Subtraction

	Principle	Example
Yr R	Counting – stable order principle	Understand the counting sequence stays consistent, 1 2 3 4 5 identify error of sequence in incorrect order
	One to one correspondence	Each object must be given one count, teach tagging, move once counted
	Conservation principle	The count of a set remains the same whether they are close together or spread out. Identify if children need to re-count if objects are moved
	Abstract principle	You can count according to a range of criteria eg count a group of toys which might contain different sizes, colours, shapes, types of toy
	Can count one more, one less than 5, then 10	Using real objects/situations, how many if one more came to tea? What if one animal got away? etc.
	Begin to relate subtraction to 'take away' and counting how many are left	Wide range of contexts, real objects Apparatus is used to physically separate a smaller group from a larger one Recording can be with pictures, drawings, crossing out the smaller group
	1:1 correspondence to find the difference	Use physical apparatus and drawings to match sets with one-to-one correspondence to find 'the difference'  The difference between 8 and 5 is 3
	Begin to find out how many have been removed from a set by counting up	This needs to be in real contexts, e.g. We had 6 teddies, we now have 3, how many am I hiding?
Yr 1	Develop the range of informal recordings/ jottings	Provide opportunities for children to develop their own ways of recording eg, pictorial representations of problem solving, tally marks, icons, which are then crossed out for the subtraction
	Begin to link informal recording to mathematical statements involving -, = signs	Introduce -, = signs and their meanings. Discuss = as balancing, one side is the same value as the other. Use scales to demonstrate when appropriate. One digit from one digit One digit from 2 digit to 20

Structured Number line
- Teacher demonstrates how to use number line and then how to count back in ones
Single digits, then numbers from 20

Subtract the other number by moving left along the number line. In this example, subtracting 3 means moving back 3 places. You can draw an arrow to show this.

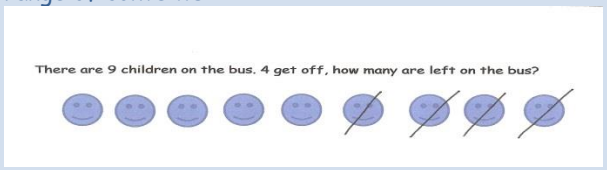


The answer is the number where you end up.

5 - 3 = 2

Solve one-step problems using concrete objects and pictorial representation

These will usually be word or diagram problems in a range of contexts



Solve missing number problems

12 – 7 = ?
? – 12 = 7
12 - ? = 7
7 = 12 - ?
? = 12 - 7

Requires a lot of physical practical exploration before relying on interpretation of written number sentence
Relate to the previous learning of = means balances with

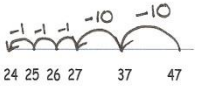
Yr 2

Unstructured Numberline
Initially with no bridging of tens
- Children then need to be able to bridge through the tens in order to progress.
Always subtract the larger first eg, 100's then 10's then units/ones last

Counting back

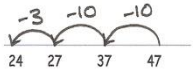
- Counting back in tens and ones

47 - 23 = 24

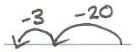


- Then helping children to become more efficient by subtracting the units in one jump (by using the known fact 7 – 3 = 4)

47 - 23 = 24

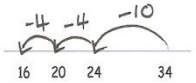


- Subtracting the tens in one jump and the units in one jump



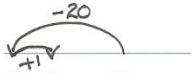
- Subtracting using knowledge of number bonds to bridge ten (e.g. in this calculation, subtracting 8 units/ones can be done in two jumps, one jump of 4 to a multiple of ten, then subtract another 4)

34 - 18 = 16



- Subtracting a multiple of 10 and adjusting

78 - 19 = 59



Yr 3	If numbers are relatively close together, complete subtraction by counting on	123 – 109 More efficient to count on from 109 to 123
Yr 3+	<u>Column Subtraction</u> -This method must only be used when the unstructured number line is totally confident. Moving on before this is damaging as this is an abstract method	1) 38 − 12 = 26 2) 63 − 15 = 48 3) 523 − 59 = 464 4) 810 − 43 = 757
Yr 3	Formal method of column subtraction	Up to three digits
Yr 4	Formal method of column subtraction	Up to four digits
Yr 5	Formal method of column subtraction	Subtract whole numbers with more than four digits
Yr 6	Formal method of column subtraction	Solve subtraction within problem solving, including decimals

This method can be expanded to larger numbers with tens of thousands etc. It can also be used for decimals, but always start on the extreme right column and move left. If introducing decimals with this try to use money to start, with pounds and pence.

2362 - 548 = 1814

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 2 3 5 6 12
 - 5 4 8
 1 8 1 4
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72.5 - 45.7 = 26.8

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 6 7 11 2 .15
-4  5 .7
 2  6 .8
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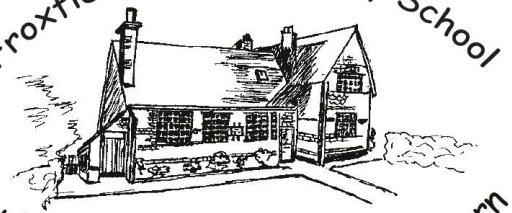

A place where children love to learn

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