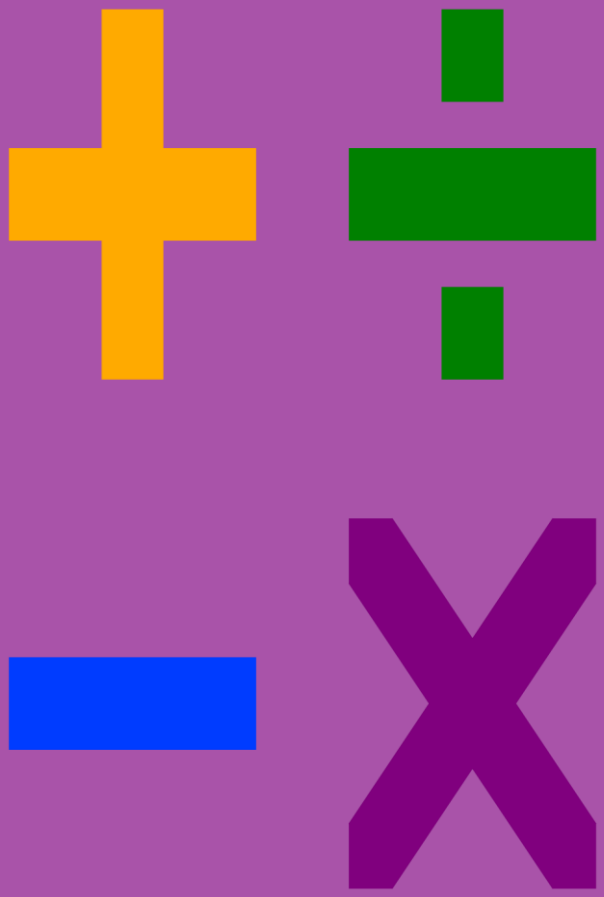
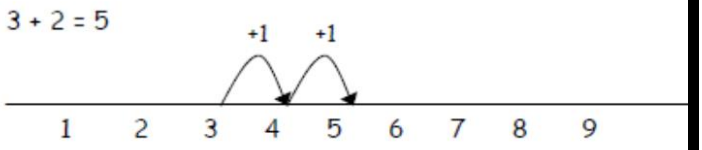
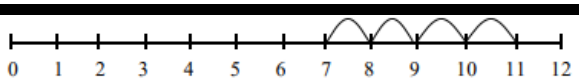
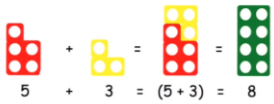
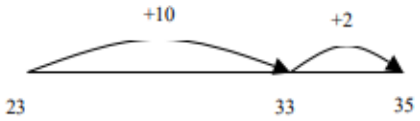


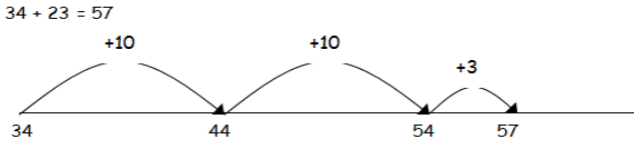
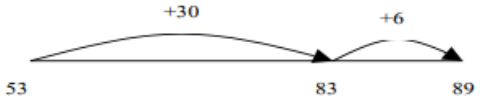
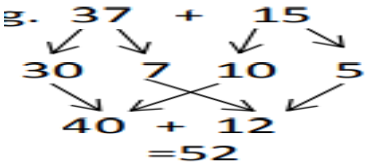
Ysgol Bro Dyfrdwy Calculation Methods

Progression Step 1 - 3-5years
Progression Step 2 - 6-8years
Progression Step 3 -9-11years
Progression Step 4 - 11+years

Addition Steps

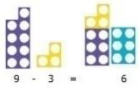
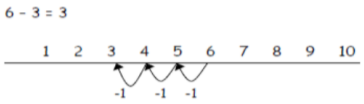
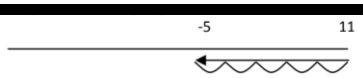
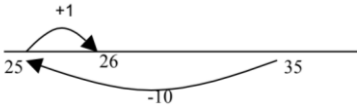
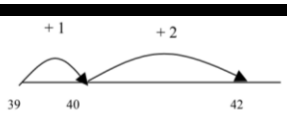
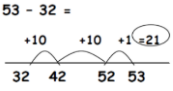
Progression Step 1	Identify and name numbers from 0 -10	
	Count objects one by one to 10 and beyond.	
	Use fingers to count from 1-10. Start with little finger as 1 and 6.	
	Count sets of objects and develop ways to record numbers in a range of ways e.g dots, pictures words or symbols.	

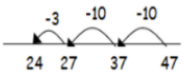
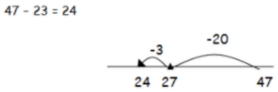
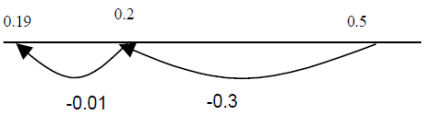
	Use a number line to 10 to count one by one.	
	Use a number line to 20 to count one by one. E.g 7 + 4 =	
	Use numicon	
	8 + 7= 15 First add 2 to make 10 and then add 5 to make 15.	
	Use a number line to count onwards in tens and ones. First of all jump 10 then 2 23 + 12 = 35	
	Add9 or 11 and adjust 1	
	Identify number bonds to 20 in your head.	5 + 2 =7 15+ 2 =17 50 + 20 = 70
Progression step 2	Partition tens and units 29 20 + 9	29 = 20 + 9 Tens 20 = Tap the chest twice  Units = 9  

	Partition tens and units (ones) 34 + 23 = 57	
	Partition tens and units 36 + 53= 53 + 30 + 6 = 83 + 6 = 89	
	37 + 15=	Add the tens 30 + 10 = 40 Add the units 7 + 5 = 12 Add the tens and units 40 + 12 = 52
	Partition tens and units using the diamond.	
	Vertical addition Ensure understanding of place value. Start with adding the units.	346 + 273 9 110 500
	Once understood the previous method. Start counting from the units. Carry over if needed.	3464 +2739 6203 1 1 1

Progression step 3	**Decimal addition**	2 3.5 6 + 19.7 5 4 3.3 1 1 1 1

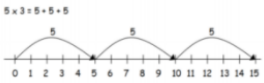
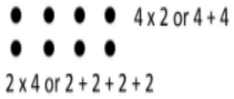
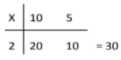
Subtraction Steps

Progression Steps 1	Count back one by one from 10 – 0	0 1 2 3 4 5 6 7 8 9 10
	Count sets of objects and develop ways to record numbers in a range of ways e.g dots, pictures words or symbols.	
	Use your fingers to subtract to 10. Start with little finger as 1 and 6.	
	Use numicon	
	Use number line to 10 to count back one by one.	
	Count back on a number line over 10. 11 – 5 =	
	Subtract 9 or 11 and adjust 1 35 – 9 =26	
	Use a number line to count forwards to discover the difference. 42 – 39 = 3	
	Discover the difference by counting forwards..	

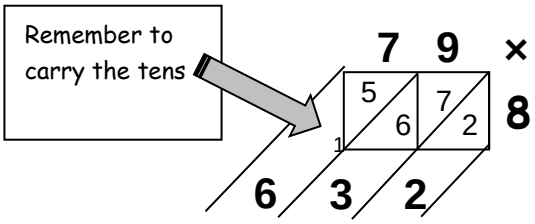
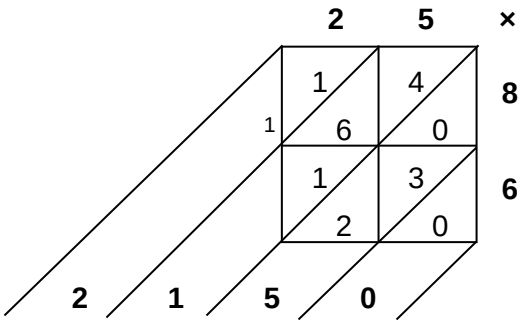
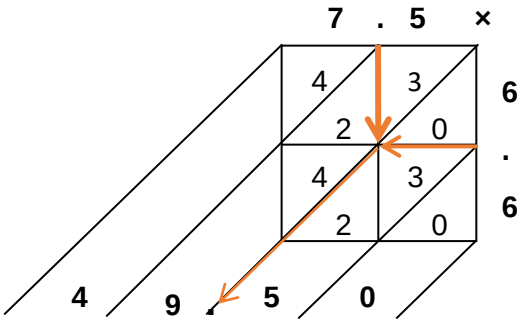
	53 – 32 = 21	
Progression Steps 2	Discover the difference by subtracting and counting backwards in steps.. 47 – 23 = 24	
	Discover the difference by subtracting and counting backwards in steps of tens. 47 – 23 = 24	
	Traditional method, ensure largest number on top, subtracting starting with the units.	28 - 5 23
	Ensure largest number on top. Borrow ten from previous column when not possible to complete the calculation. Subtract starting with the units.	6 14 1 ~~7~~ ~~5~~ 4 - 297 457
Progression Step 3	Use knowledge of number bonds and place value to subtract. (count back)	0.5 – 0.31 = 0.19 

	Subtract decimals as 'bunk beds' when dealing with larger numbers. Remember to keep the decimal point in the same place. Always start from the units.	0 1 5 1 ~~1~~~~7~~6 . 48 93 . 72 82 . 76

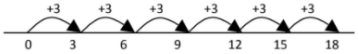
Multiplication steps

Progression step 2	Count every 2,5, or 10. Recognise doubles to 5	
	Count sets of objects.	Count every 2 e.g count legs, socks, eyes Count every 5 e.e fingers Count every 10 e.e count hands 
	Draw pictures / markings	 There are 3 sweets in 1 bag. How many sweets arethere in 5 bags?
	Recognise doubles to 20	5 x 2 = 10 10 x 2 = 20
Progression step 2 Use multipliaction 2,3,4,5 and 10	Introduce that multiplication is repetative addition.	 4 x 2 or 4 + 4 2 x 4 or 2 + 2 + 2 + 2
	Use symbols = and x to complete number sentences.	10 x 5 = ___ 8 x __ = 16
		 15 x 2 = 30

	Grid method to partition tens and units. .	
Progression step 3	Grid method – partition 2 digit numbers. 	ee. 57 × 45 x) 7 40 2000 | 280 =2280 250 | 35 = 285 5 2565
	Column method Partition numbers into tens and units. (2 digit x 1 digit)  **Column method** Partition numbers into tens and units. (2 digit x 2 digit)	38 x 5 = 38 X 5 40 (5x8) 150 (5x30) 190 38 x 14 = 38 x 14 32 (4 x 8) 120 (4 x 30) 80 (10 x 8) 300 (10 x 30) 532 1

	Napier rods method Another grid method, but this time divide the boxes diagonally to enable you to multiply digits individually (tens on the top and units on the bottom). Then add the diagonal columns to reach the final answer. 2 x 1 digit 2 x 2 digits	**Multiply with single number** **e.e79 × 8 = 632** Remember to carry the tens  **e.g 25 × 86 = 2150** 
	Napier rods method Multiply with decimals. Ensure the decimal point is moved using the red arrows as a guide.	7.5 x 6.6 = 49.5 

Division Progression steps

Progression step 1	Divide objects equally.	E.g share the milk bottles, share pencils or share fruit. 
	Count every 2,5 and 10.	
	Count confidently to share objects correctly. 	 Share 6 sweets with 2 people.
	Group objects into sets of 2, 5 or 10.	 How many pair of socks are there? 
Progression step 2 Use multiplication 2,3,4,5 and 10	Group numbers whilst jumping on the number line. 	How many groups of 3 in 18? 
	Use the symbols = and ÷ to complete number sentences.	10 ÷ 5 = __ 8 ÷ __ = 4
	<u>Chunking division while subtracting</u> Subtract familiar multiples in steps and then add the amount.	e.g 155 ÷5 = 31 31 5)155 -150 (30x5) 5

		5 (1 x 5)
	Chunking division while subtracting Subtract familiar multiples in steps and then add the amount and remember the reminder.	ee. 235 ÷ 7 = 33 r4 7)235 -70 (10 x 7) -1 6 5 - 7 0 (10 x 7) 9 5 - 7 0 (10 x 7) 2 5 - 2 1 (3 x 7) g 4 7 into 235, 33 times with a reminder of 4.
Progression step 3	**Short division method** Use multiplication knowledge to divide numbers into specific numbers.	eg. 57 ÷ 3 = 19 (3 × 1 = 3) 1 9 3 5 ²7 2 reminder