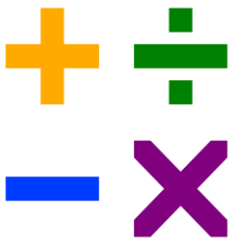
BRYN COCH PRIMARY SCHOOL

MOLD

Calculations Policy



Ysgol Bryn Coch - Calculations Policy

'Chwarae, dysgu hwyl a sbri'

MISSION

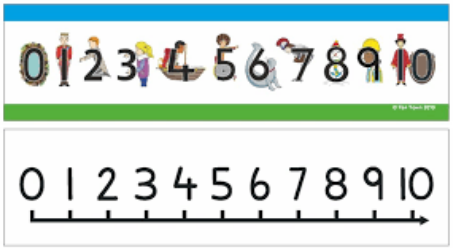
Create an inspiring and nurturing environment that enables all children to become resilient, independent, healthy, life -long learners, achieving their full potential in our happy, caring school.

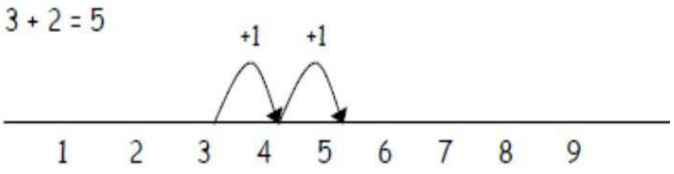
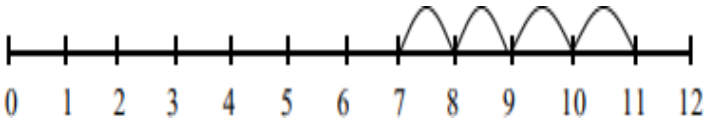
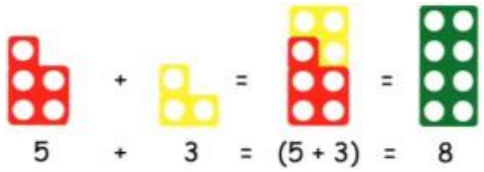
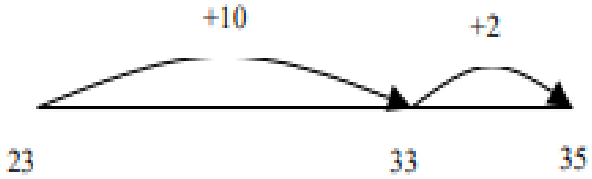
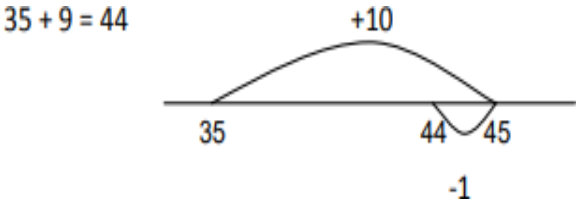
This policy supports the teaching of Mathematics and Numeracy throughout the school. This calculation policy should be used to support children to develop a deep understanding of number and calculation.

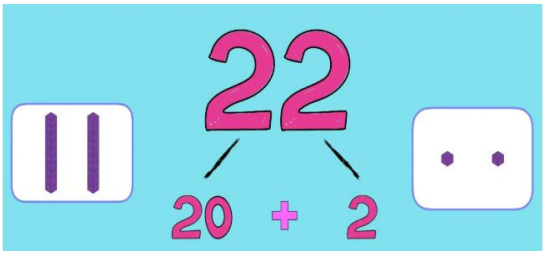
Children will progress when they are competent at the method they are using. In the early stages repetition and consolidation is needed for children to understand place value and numbers. Therefore, **all children will progress at different rates and methods will be taught with that in mind, rather than by the child's age.**

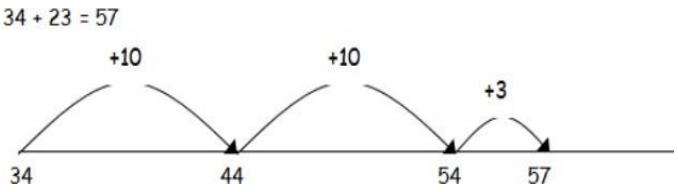
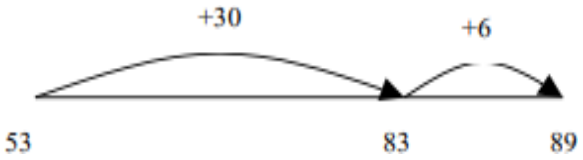
This policy is intended to provide guidance to all staff on how to teach the four operations based upon providing pupils with a high-quality mathematics education and shares the aims of the Curriculum for Wales, where 'knowledge of and competence in, number and quantities are fundamental to learners' confident participation in the world. Computational fluency is essential for problem solving and progression in all areas of learning and experience. Fluency is developed through using the four basic arithmetic operations (addition subtraction, multiplication and division) and acquiring an understanding of the relationship between them'.

Addition Progression Steps

Progression Step 1	Identify and name numbers from 0 - 10 https://youtu.be/cXQ-jFzVxKQ	
	Count objects one by one to 10 and beyond. https://youtube.com/shorts/F_sEbMPhV0o	 
	Use fingers to count from 1-10. Start with thumb as 1 and 10. https://youtube.com/shorts/-5rwmsr6np4	
	Count sets of objects and develop ways to record numbers in a range of ways e.g dots, pictures, words or symbols.	

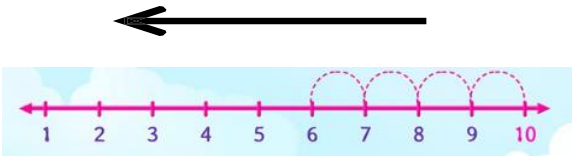
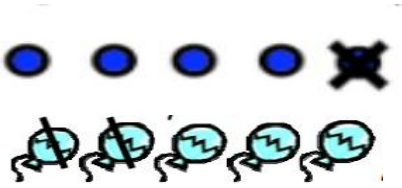
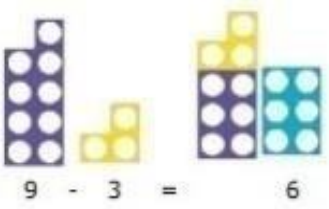
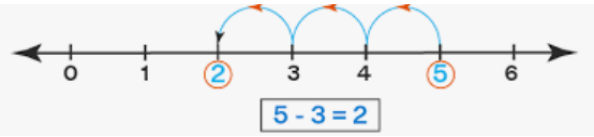
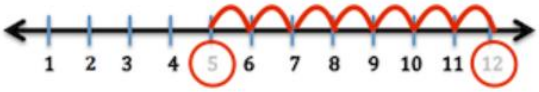
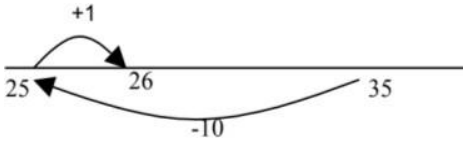
	Use a number line to 10 to count one by one. https://youtube.com/shorts/W0DJx7V8Cug	
	Use a number line to 20 to count one by one. E.g 7 + 4 =	
	Use Numicon https://youtube.com/shorts/uXSeGkuFhKQ	
	8 + 7 = 15 First add 2 to make 10 and then add 5 to make 15.	
	Use a number line to count onwards in tens and ones. First of all jump 10 then 2 23 + 12 = 35	
	Add 9 or 11 and adjust 1	
	Identify number bonds to 20 in your head.	0 + 20 = 20 1 + 19 = 20 2 + 18 = 20

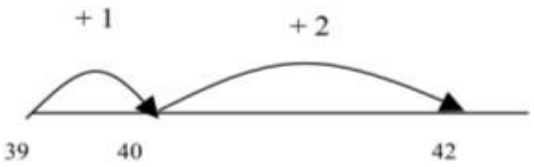
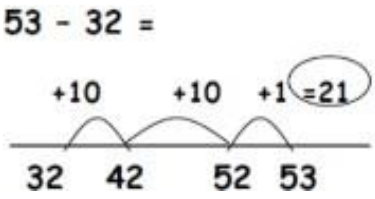
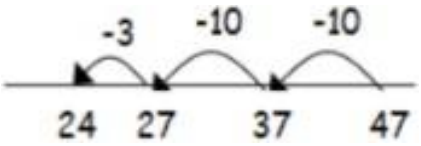
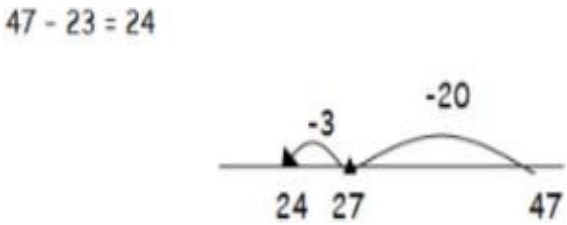
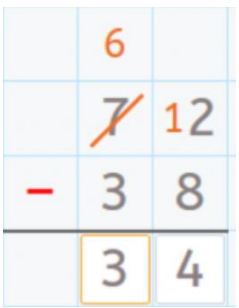
Progression Step 2	Partition tens and units 22 20 + 2 https://youtu.be/HxTZHLeDp2Y	22 = 20 + 2 

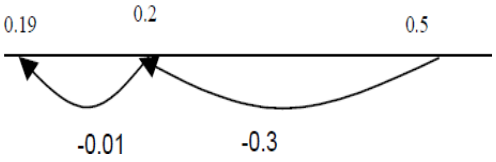
	Partition tens and units (ones) 34 + 23 = 57	
	Partition tens and units 36+53= 53 + 30 + 6 = 83 + 6 = 89	
	37 + 15 = https://youtube.com/shorts/8Fj_XhKgYyY	Add the tens: 30 + 10 = 40 Add the units: 7 + 5 = 12 Add the tens and units: 40 + 12 = 52
	65 + 57 =	**65 + 57 =** 110 + 12 = 122
	Vertical addition Ensure understanding of place value. Start with adding the units. https://youtu.be/hIyAFf2yKMc	346 + 273 9 110 500
	Once the previous method is understood. Start counting from the **units**. Carry over **underneath** if needed. https://youtube.com/shorts/26uAR_8CfIQ	3464 + 2739 6203 1 1 1

Progression Step 3	Decimal addition https://youtube.com/shorts/PG5FS1cGXgw	2 3.5 6 + 1 9.7 5 4 3.3 1 1 1 1

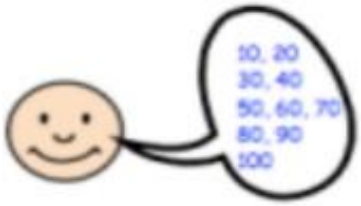
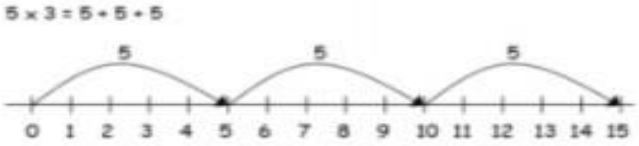
Subtraction Progression Steps

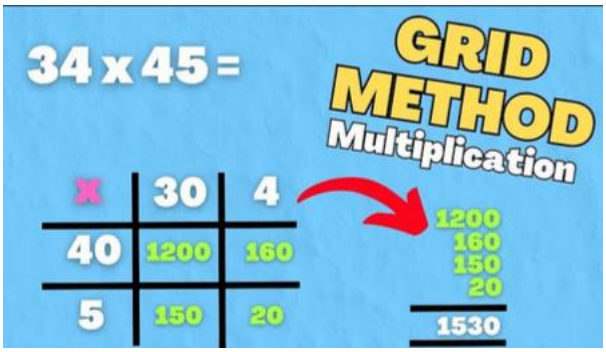
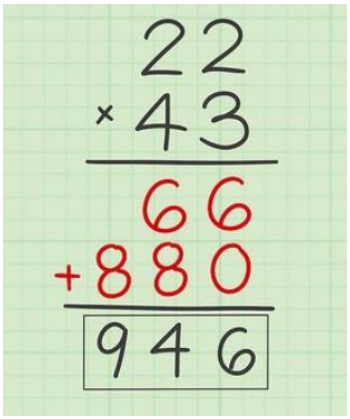
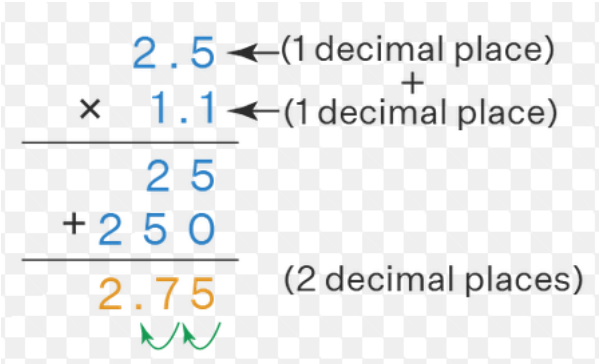
Progression Step 1	Count back one by one from 10 – 0	
	Count sets of objects and develop ways to record numbers in a range of ways e.g dots, pictures words or symbols.	
	Use fingers to count back from 10. Start with thumb as 10 and 1. https://youtube.com/shorts/efextNcL0kg	
	Use Numicon https://youtube.com/shorts/VUv_2KpyQUs	
	Use number line to 10 to count back one by one.	
	Count back on a number line over 10. 12 – 8 =	
	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 Step 2	Discover the difference by subtracting and counting backwards in steps. 47 – 23 = 24	
	Discover the difference by subtracting and counting backwards in more advanced steps. 47 – 23 = 24	
	Traditional column method, ensure largest number on top, subtracting starting with the units. https://youtu.be/rZaOzFtk178	36 – 23 13
	Regrouping - ensure largest number on top. Borrow ten from previous column when not possible to complete the calculation. Subtract starting with the units. https://youtube.com/shorts/9CNP8gQPk44	

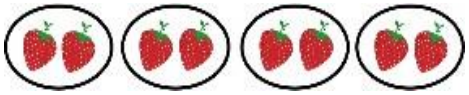
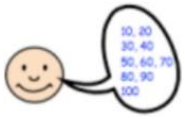
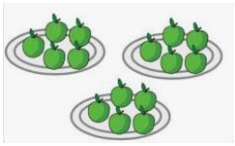
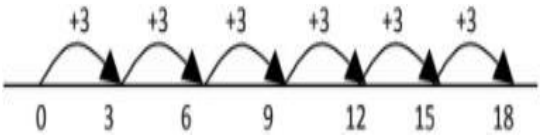
Progression Step 3	Use knowledge of number bonds and place value to subtract. (count back)	0.5 – 0.31 = 0.19 
	Remember to keep the decimal point in the same place. Always start from the column furthest to the right, in this case the hundredths. https://youtube.com/shorts/dgweJaxDcAs	0 1 5 1 176 . 48 93 . 72 82 . 76

Multiplication Progression Steps

Progression Step 2	Count every 2, 5, or 10. Recognise doubles to 10 https://youtube.com/shorts/KZHcdSM-Pf0	
	Count sets of objects https://youtube.com/shorts/VSySxwfv210	Count every 2 e.g. count legs, socks, eyes Count every 5 Count every 10 
	Draw pictures / markings	There are 3 sweets in 1 bag. How many sweets are there in 5 bags? 
	Recognise doubles to 20	5 x 2 = 10 10 x 2 = 20
Progression Step 2 x 2,3,4,5 and 10	Introduce that multiplication is repetitive addition.	 2 x 4 or 2 + 2 + 2 + 2
	Use symbols = and x to complete number sentences.	10 x 5 = ___ 8 x___ = 16
	Grid method to partition tens and units.	15 x 2 = 30 X | 10 5 2 | 20 10 = 30

Progression Step 3	Grid method – multiplying a 2 digit number by another 2 digit number. https://youtube.com/shorts/Cm_40gPYCH0	
	Expanded column method https://youtu.be/AuuKNQc0P7c	23 x12 6 (2x3) 40 (20 x2) 30 (10 x 3) 200 (20 x 10) 276
	Long multiplication https://youtube.com/shorts/8wblGJlTkUE	
	Long multiplication with decimals https://youtube.com/shorts/VPLWvn2Umgc	

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 x 2,3,4,5 and 10	Group numbers whilst jumping on a number line.	How many groups of 3 in 18? 
	Use the symbols = and ÷ to complete number sentences.	10 ÷ 5 = ___ 8 ÷ __ = 4

Progression Step 3	**Short Division** (Bus stop divisions) No remainders https://youtube.com/shorts/IJBIEckwVj0 With remainders With remainders in fraction form https://youtube.com/shorts/a90rSkmgBLE	78 ÷ 3 becomes 2 6 3 ⟌ 7 1 8 Answer: 26 432 ÷ 5 becomes 8 6 r2 5 ⟌ 4 3 3 2 *Answer:* 86 remainder 2 496 ÷ 11 becomes 4 5 r1 11 ⟌ 4 9 5 6 Answer: $45\frac{1}{11}$
	Short Division With remainders in decimal form https://youtube.com/shorts/JzOY13W9cAQ	142 ÷ 4 = 35.5 0 3 5 · 5 4 ⟌ 1 1 4 2 2 · 2 0

Long Division

Use the divide, multiply, subtract and bring down method (no remainders)

https://youtube.com/shorts/B8AQgoX4Cm4

Use the divide, multiply, subtract and bring down method (with remainders)

e.g 155 ÷5 = 31

```
  31
5)155
-150      (30x5)
   5      (1x5)
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