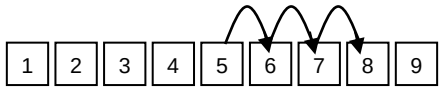
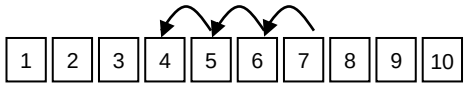
The Eliot Bank and Gordonbrock Schools Federation

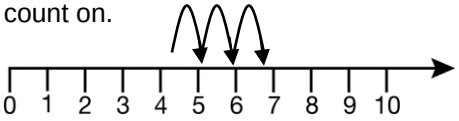
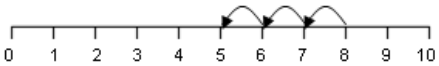
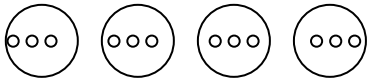
Calculation Policy

Reception

Addition	Subtraction	Multiplication	Division
Counting to make total practically Drawing objects Tallying/mark making Using a completed number track to count on.  	Take away practically Drawing objects and crossing out Using a completed number track to count back.  	Grouping objects. Eg: 2 + 2 + 2 + 2 = 8 4 groups of 2 = 8	Sharing and grouping objects. How many groups of 2 in 6? •• •• •• = 3

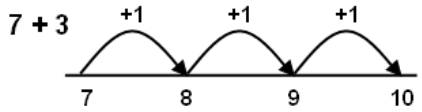
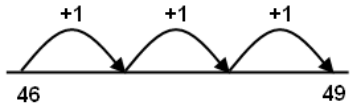
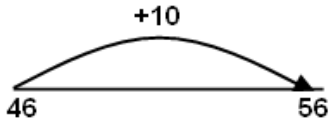
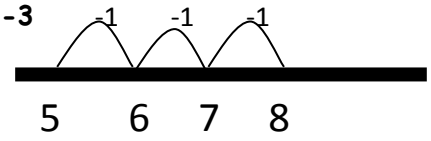
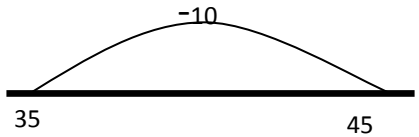
Calculation Policy

Year 1

Addition	Subtraction	Multiplication	Division
Using a completed number line to count on.  	Using a completed number line to count back.  	Grouping pictorially. 2 + 2 + 2 + 2 = 8 4 groups of 2 = 8 4 x 2 ● ● ● ● ● ● ● ● 2 x 4 COUNT IN 2s, 5s AND 10s. – with teacher support Record using **arrays**. 6 x 2 = • • • • • • • • • • • • 2 x 6 = • • • • • • • • • • • •	**Sharing and Grouping** pictorially. Sharing 12 sweets between 4…How many do each have?  COUNT IN 2s, 5s AND 10s. – with teacher support Understand division as GROUPING and link to times tables: **“12 split into GROUPS OF…”** 12 ÷ **3** = 4 (use 3 times table) 12 ÷ **2** = 6 (use 2 times table) 12 ÷ **4** = 3 (use 4 times table)

Calculation Policy

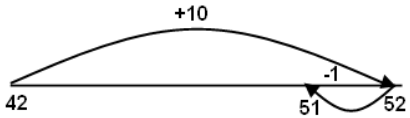
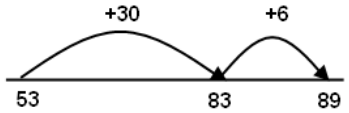
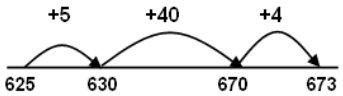
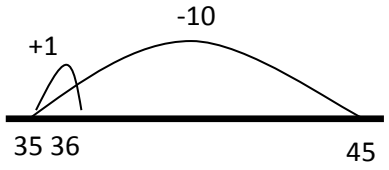
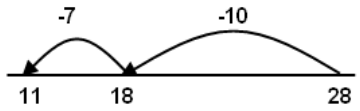
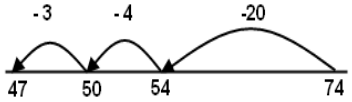
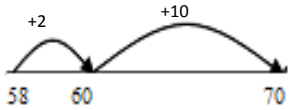
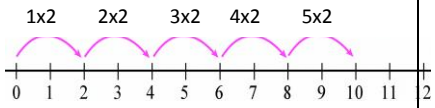
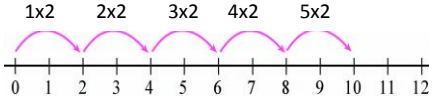
Year 2

Addition	Subtraction	Multiplication	Division
Using **empty** number line to count on in ones.  **46 + 3**  Using empty number line to count on ten… then **multiples of 10**. 	Using **empty** number line to count back in ones. **8-3**  Using empty number line to back ten… then **multiples of 10**. 	Record using **arrays**. 6 x 2 = • • • • • • • • • • • • 2 x 6 = • • • • • • • • • • • •	Understand division as GROUPING and link to times tables: **"12 split into GROUPS OF…"** 12 ÷ **3** = 4 (use 3 times table) 12 ÷ **2** = 6 (use 2 times table) 12 ÷ **4** = 3 (use 4 times table)

Year 2 continued on next page

Calculation Policy

Year 2

Addition	Subtraction	Multiplication	Division
Add 9 by adding 10 & adjusting: **42 + 9 = 51**  Partition numbers to add tens, then units: **53 + 36 = 89**  Partition units, looking for jumps to tens barriers: **625 + 49 = 673**  	Subtract 9 by subtracting 10 and adjusting: **45 – 9 = 36**  Partition numbers to subtract tens then units: **28 – 17 = 11**  Partition units, looking for jumps to tens barriers: **74 – 27 = 47**  Where there is a SMALL difference between the 2 numbers, count on to find the difference: **70 – 58 = 12**  	Multiplication as **repeated addition** using **completed** number line: **5 x 2**  LEARN TIMES TABLES 2 x 5 x 10 x	Division as grouping: 10 ÷ 2… **how many groups of 2 make 10?** (using **completed** number line)  LEARN DIVISION FACTS FOR 2 x 5 x 10 x

Calculation Policy

Year 3

Addition

Expanded column addition
Always start with units

625 + 48 = 673

625
48+
13 5 + 8
60 20 + 40
600 600 + 0
673

587 + 475 = 1062

587
475 +
12 7 + 5
150 80 + 70
900 500 + 400
1062

Column addition
***Always start with units**carry at the top*

587 + 475 = 1062

1 1
587
475 +
1062

Subtraction

Expanded column subtraction… no stealing
Always start with units

286 - 123 = 163

200 80 6
100 20 3 -
100 60 3

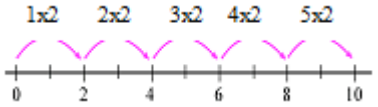
Expanded column subtraction… with stealing
Always start with units**steal only for units, then tens, then both**extend to thousands etc

754 – 86 = 668

600 140 14
~~700~~ ~~50~~ 4
80 6 -
600 60 8

Multiplication

Multiplication as **repeated addition** using an **empty** number line: **5 x 2**



IMPORTANT: In order to move on to the next stage, children MUST be able to…
1)multiply any number by 10
2)multiply any number by 100
3)multiply 1 digit by a multiple of 10 (5 x 30) and multiple of 100 (4 x 600)
4)Multiply multiples of 10 (20 x 50)

Partitioning to multiply
Column addition to find the total

47 x 5 =
/ \
40 7

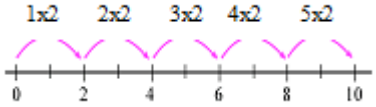
40 x 5 = 200
7 x 5 = 35

200
35+
235

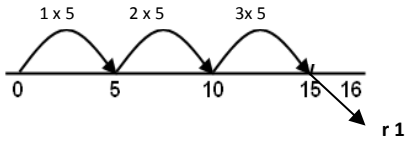
LEARN TIMES TABLES 3 x 4x 8x

Division

Division as grouping: 10 ÷ 2… **how many groups of 2 make 10?** (using **empty** number line)



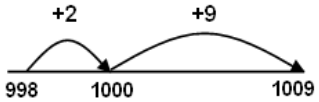
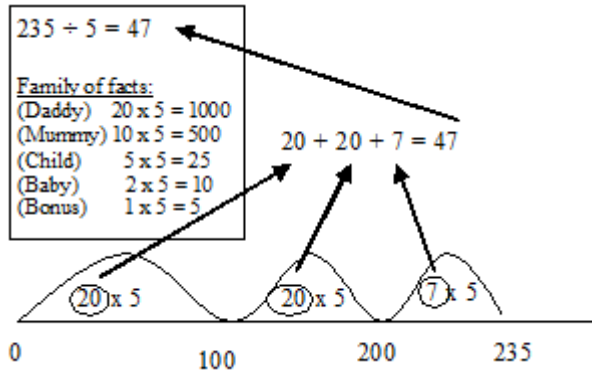
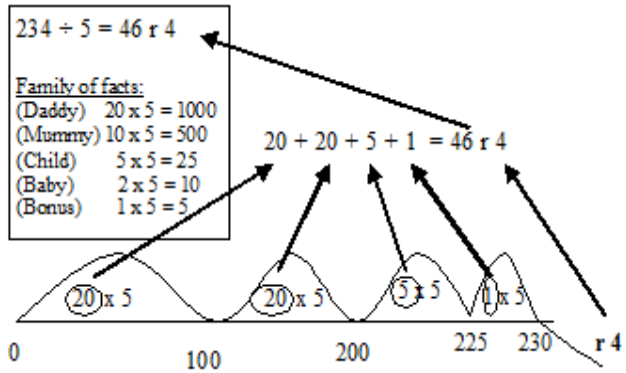
Finding remainders: 16 ÷ 5 = 3 r 1



LEARN DIVISION FACTS FOR 3 x 4x 8x

Calculation Policy

Year 4

Addition	Subtraction	Multiplication	Division
Column addition ***Always start with units**carry at the top**ext to thousands etc*** **587 + 475 = 1062** 1 1 587 475 + 1062 **Extend to decimals** **24.9 + 7.25 = 32.15** 1 1 24.90 7.25 + 32.15 IMPORTANT: Children must understand how to insert zeros as place holders when dealing with decimal numbers.	**Column subtraction** ***Always start with units**steal only for units, then tens, then both**extend to thousands etc**extend to decimals*** 6 14 14 7 5 4 - 8 6 - 6 6 8 IMPORTANT: Do not use columns to subtract from a number with **lots of zeros** or when numbers are **close** together…teach the children to let the numbers determine the best method: **1009 – 998 = 11**  	**Grid Method … TU x U** **23 x 8 = 184** x | 20 | 3 8 | 160 | 24 160 24+ 184 **Grid Method … HTU x U** **235 x 8 = 1880** x | 200 | 30 | 5 8 | 1600 | 240 | 40 1600 240 40+ 1880 **Grid Method … TU x TU** **56 x 27 = 1512** x | 50 | 6 20 | 1000 | 120 7 | 350 | 42 1 1000 120 350 42+ 1512 LEARN TIMES TABLES 6 x 7x9X11X12X	**Chunking on a number line**  **Chunking on a number line … with remainders**  LEARN DIVISION FACTS FOR 6 x 7x9X11X12X

Calculation Policy

Year 5 & 6

Addition	Subtraction	Multiplication	Division
		Short Multiplication ***Remember to carry at the top*** **Step 1 = TU x U** **Step 2 = HTU x U** **Step 3 = TU x TU** **34 x 5 = 170** 34 5x --- 20 150 + --- 170 **56 x 27 = 1512** 1 14 56 27 x --- 392 1120 + --- 1512	**Chunking vertically … without then with remainders.** 256 ÷ 7 = **36 R4** 256 - 140 (20 x 7) 116 - 70 (10 x 7) 46 - 42 (6 x 7) 4 Family of Facts: 20 x 7 = 140 10 x 7 = 70 5 x 7 = 25 2 x 5 = 10 1 x 5 = 5 **Long Division (bus stop method)** **8764 ÷4 = 2191** 2191 4 ⟌ 8764 8↓ 07 4↓ 36 36↓ 04 4 0 **546 ÷ 31 = 17r19** 17 r 19 31 ⟌ 546 31↓ 236 217 19 **Short Division (bus stop method)** 9 7 2 9²1 General Rule: When dividing by a single digit = bus stop When dividing by a double digit = vertical chunking… then long division