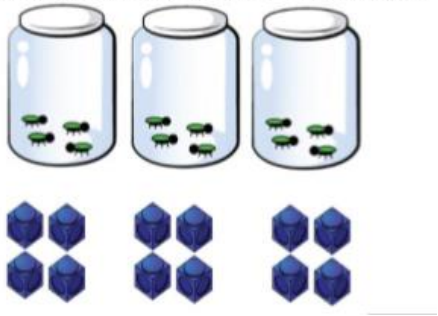
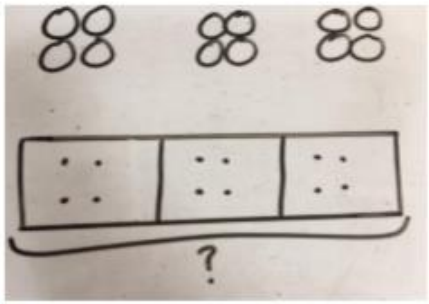
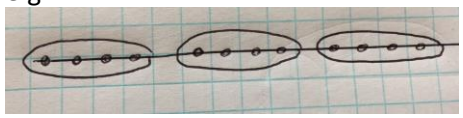
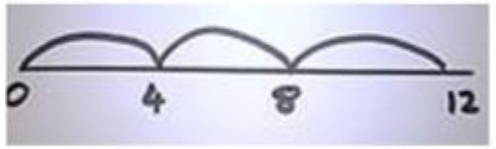
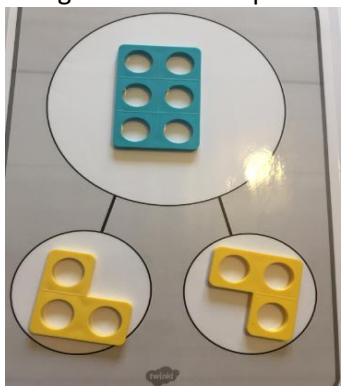
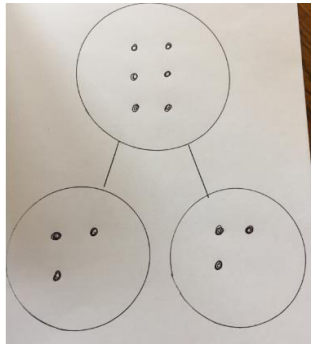
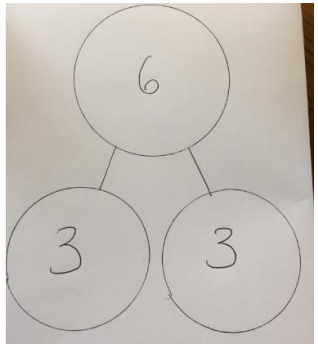
YEAR 1 – MULTIPLICATION

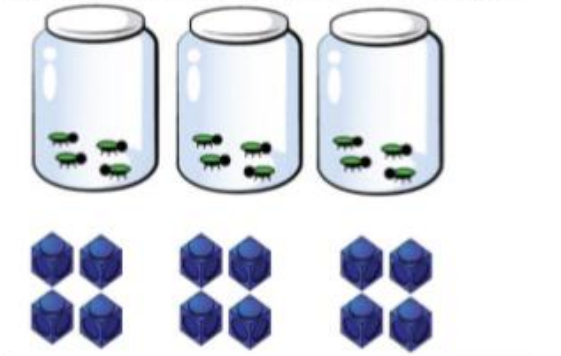
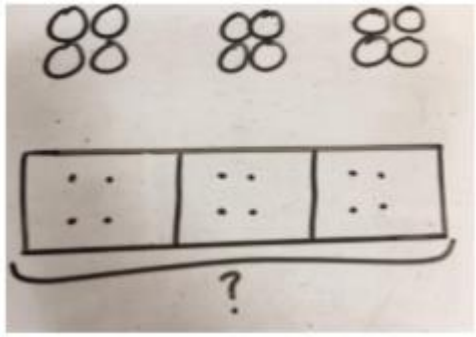
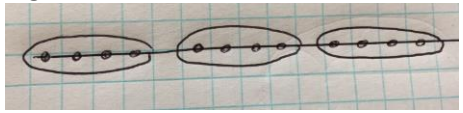
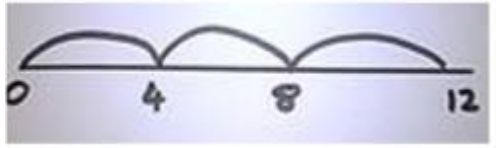
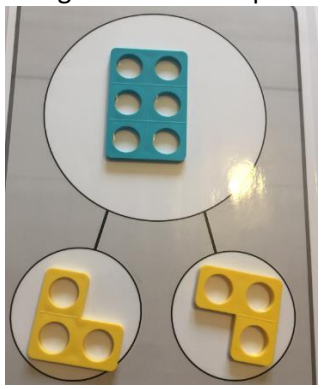
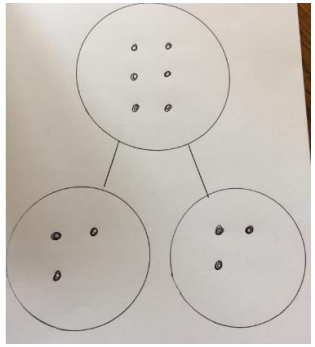
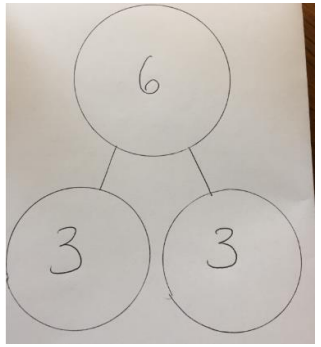
	CONCRETE	PICTORIAL	ABSTRACT
Repeated grouping/ repeated addition	3 × 4 4 + 4 + 4 There are 3 equal groups, with 4 in each group. 	Children to represent the practical resources in a picture and use a bar model. 	***TEACHER MODEL*** *Use alongside concrete/pictorial representation* 3 × 4 = 12 4 + 4 + 4 = 12
Numberlines to show repeated groups	Using a beadstring 3x4 	Represent this pictorially alongside a number line e.g 	***TEACHER MODEL*** *Use alongside concrete/pictorial representation* Abstract number line showing three jumps of four 
Doubling	Using Numicon with part-whole model 	Using dots with part-whole model 	Using numbers with part-whole model 

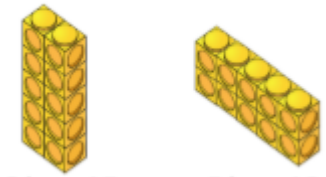
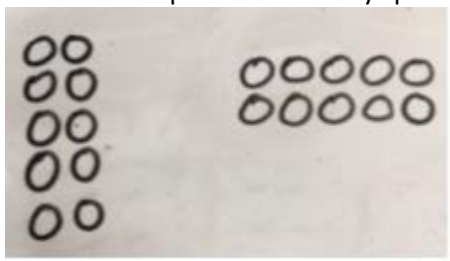
YEAR 1 – MULTIPLICATION

VOCABULARY ***(new vocab in bold/italic)***	**STEM SENTENCES** ***(new vocab in bold/italic)***
repeated addition ***grouping*** ***equal groups of*** ***double*** ***multiply*** ***times*** ***lots of***	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6)

YEAR 2 – MULTIPLICATION

N.B. Similar strategies to Y1

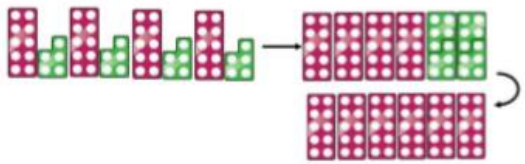
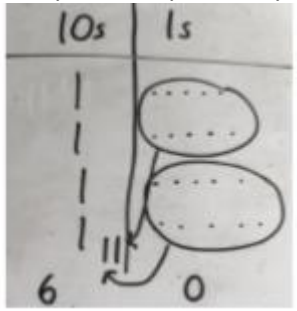
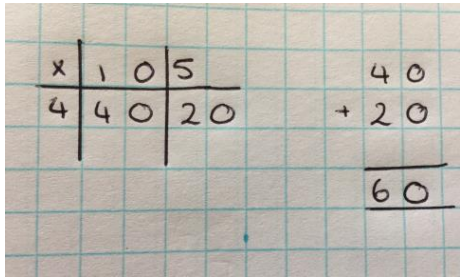
	CONCRETE	PICTORIAL	ABSTRACT
Repeated grouping/ repeated addition	3 × 4 4 + 4 + 4 There are 3 equal groups, with 4 in each group. 	Children to represent the practical resources in a picture and use a bar model. 	Use alongside concrete/pictorial representation 3 × 4 = 12 4 + 4 + 4 = 12
Numberlines to show repeated groups	Using a beadstring 3x4 	Represent this pictorially alongside a number line e.g 	Abstract number line showing three jumps of four 
Doubling	Using Numicon with part-whole model 	Using dots with part-whole model 	Using numbers with part-whole model 

	CONCRETE	PICTORIAL	ABSTRACT
Using arrays to illustrate commutativity	Counters and other objects can also be used. $2 \times 5 = 5 \times 2$  2 lots of 5 5 lots of 2	Children to represent the arrays pictorially. 	Children to be able to use an array to write a range of calculations. $10 = 2 \times 5$ $5 \times 2 = 10$ $2 + 2 + 2 + 2 + 2 = 10$ $10 = 5 + 5$

YEAR 2 – MULTIPLICATION

VOCABULARY *(new vocab in bold/italic)*	STEM SENTENCES *(new vocab in bold/italic)*
repeated addition grouping equal groups of double multiply times lots of ***array***	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6)

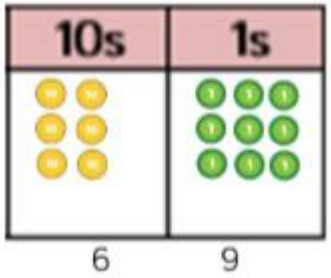
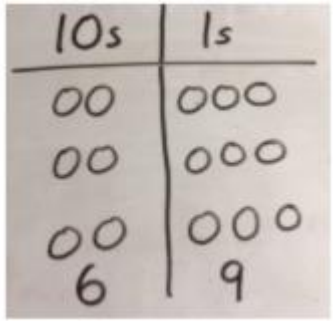
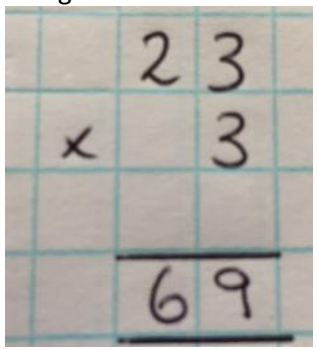
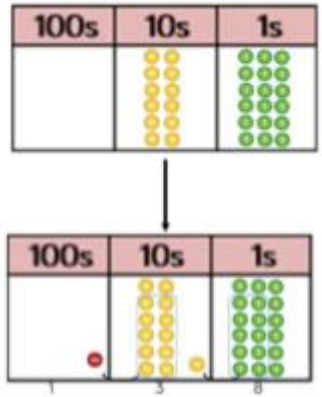
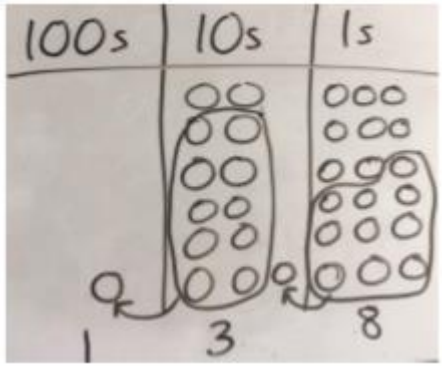
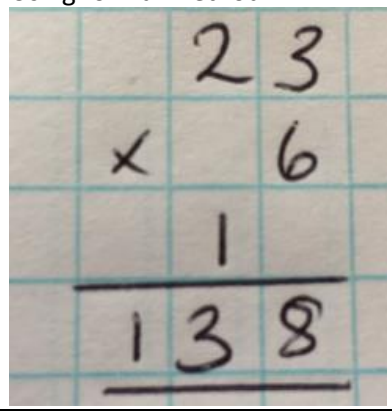
YEAR 3 – MULTIPLICATION

	CONCRETE	PICTORIAL	ABSTRACT
Partition to multiply.	Using Numicon, base 10 (dienes or place value counters) or Cuisinaire rods 4 × 15 	Children to represent the concrete manipulatives pictorially. 	Use grid method 

YEAR 3 – MULTIPLICATION

VOCABULARY *(new vocab in bold/italic)*	STEM SENTENCES *(new vocab in bold/italic)*
repeated addition grouping equal groups of double multiply times lots of array ***partitioning*** ***grid method*** ***product***	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6) ***The product is _____ there are _____equal groups of _____ (****The product is 24 there are 4 equal groups of 6)*

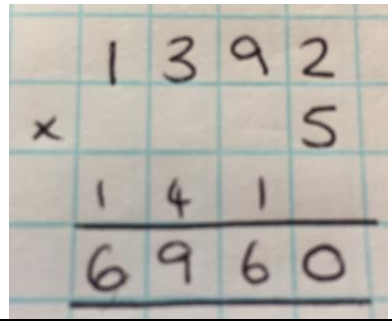
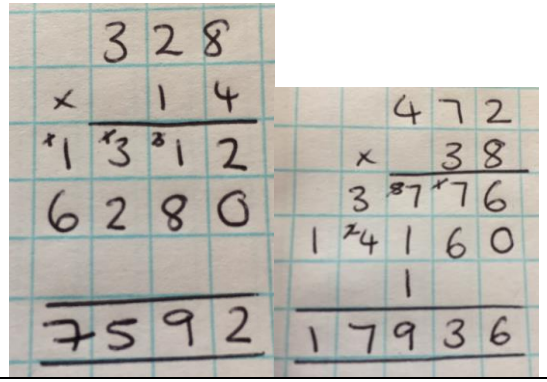
YEAR 4 – MULTIPLICATION

	CONCRETE	PICTORIAL	ABSTRACT
Formal column method **No exchanging**	With place value counters 3 x 23 	Children to represent the counters pictorially 	Using formal method. 
Formal column method **Exchanging required** **TO x O** **HTO x O**	With place value counters 	Children to represent the counters pictorially 	Using formal method. 

YEAR 4 – MULTIPLICATION

VOCABULARY *(new vocab in bold/italic)*	STEM SENTENCES *(new vocab in bold/italic)*
repeated addition, grouping, equal groups of, double, multiply, times, lots of, array, partitioning, grid method, product, ***short multiplication***, ***column***, ***exchange***	The whole is _____ there are _____equal parts of _____(The whole is 24 there are 4 equal parts of 6) The product is _____ there are _____equal groups of _____ (The product is 24 there are 4 equal groups of 6)

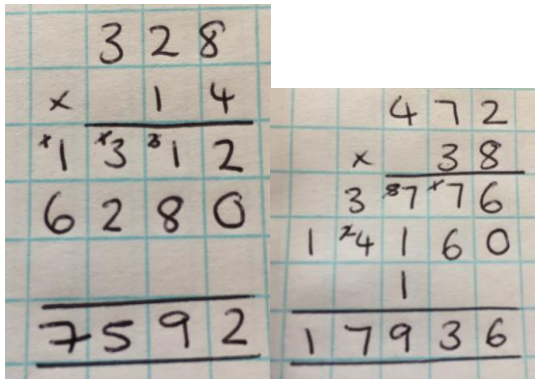
YEAR 5 – MULTIPLICATION

	CONCRETE	PICTORIAL	ABSTRACT
Short multiplication **ThHTO x O**			Using formal method. 
Long multiplication **ThHTO x O**	*When children start to multiply 3d × 3d and 4d × 2d etc., they should be confident with the abstract*		Using formal method. 

YEAR 5 – MULTIPLICATION

VOCABULARY *(new vocab in bold/italic)*	STEM SENTENCES *(new vocab in bold/italic)*
repeated addition grouping equal groups of double multiply times lots of array partitioning grid method product short multiplication column exchange ***long multiplication***	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6) The product is _____ there are _____equal groups of _____ (The product is 24 there are 4 equal groups of 6)

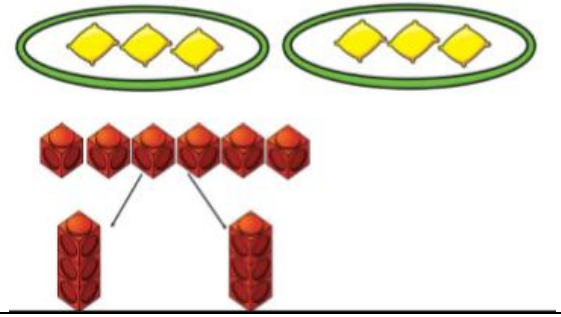
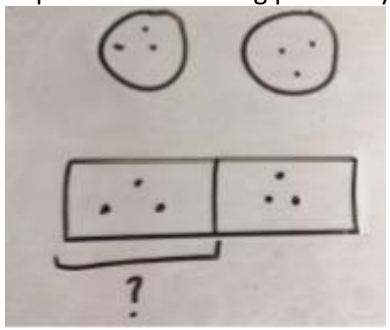
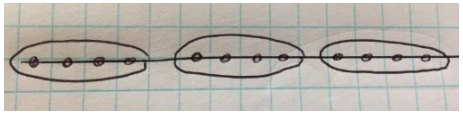
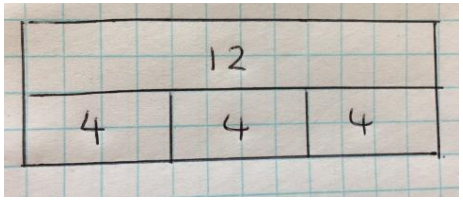
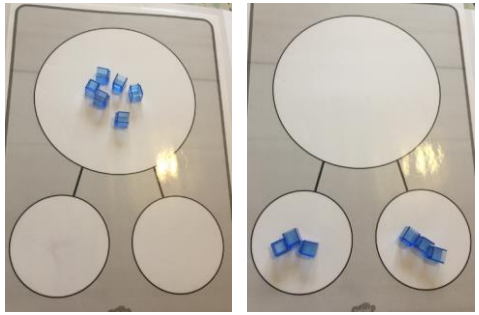
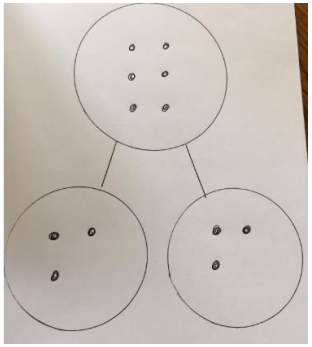
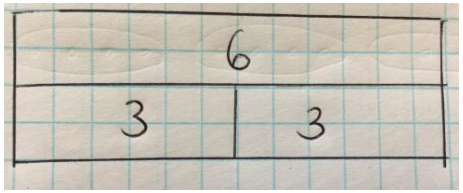
YEAR 6 – MULTIPLICATION

	CONCRETE	PICTORIAL	ABSTRACT
Long multiplication **ThHTO x O**			Using formal method. 
Using known number facts			7 x 3 = 21 0.7 x 3 = 2.1 0.7 x 0.3 = 0.21 70 x 3 = 210 70 x 30 = 2100

YEAR 6 – MULTIPLICATION

VOCABULARY *(new vocab in bold/italic)*	STEM SENTENCES *(new vocab in bold/italic)*
repeated addition grouping equal groups of double multiply times lots of array partitioning grid method product short multiplication column exchange long multiplication	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6) The product is _____ there are _____equal groups of _____ (The product is 24 there are 4 equal groups of 6)

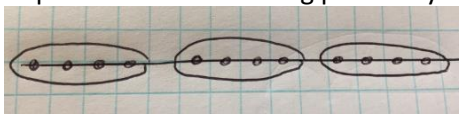
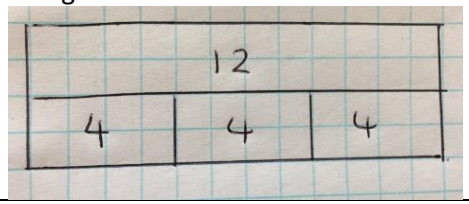
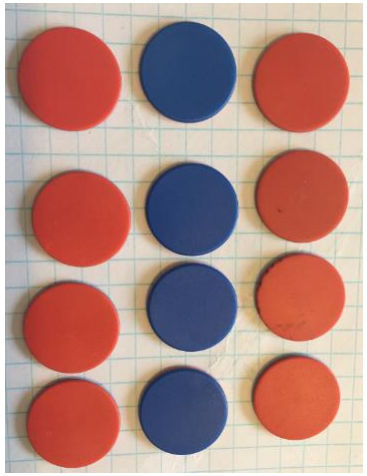
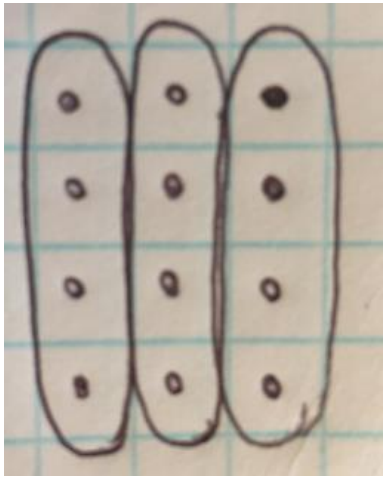
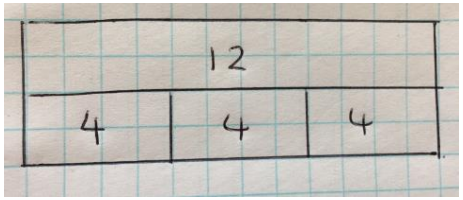
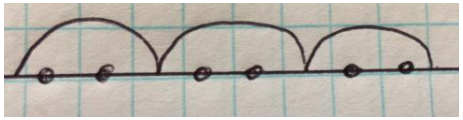
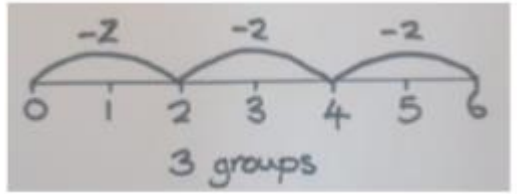
YEAR 1 –DIVISION

	CONCRETE	PICTORIAL	ABSTRACT
Sharing	Using a range of objects 6 ÷ 2 	Represent the sharing pictorially 	Using bar model 6 ÷ 2 = 3  Children should also be encouraged to use their 2 times tables facts.
Grouping	Using a beadstring 	Represent the bead string pictorially 	Using bar model 
Halving of even number	Using cubes 	Represent the halving pictorially 	Using bar model 

YEAR 1 - DIVISION

VOCABULARY *(new vocab in bold/italic)*	STEM SENTENCES *(new vocab in bold/italic)*
sharing ***divide*** ***grouping*** ***half*** ***halving***	***The whole is _____ there are _____equal parts of _____*** *(The whole is 24 there are 4 equal parts of 6)*

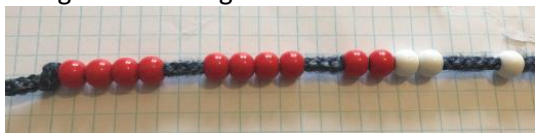
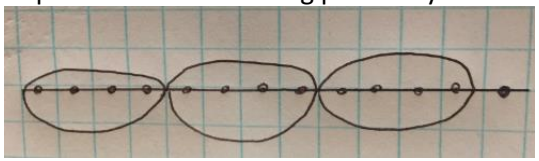
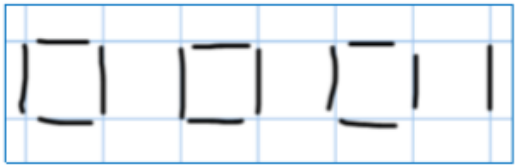
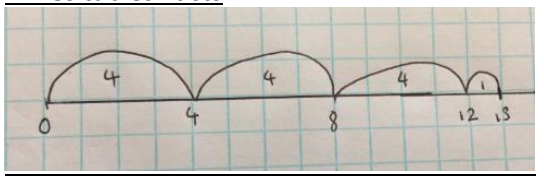
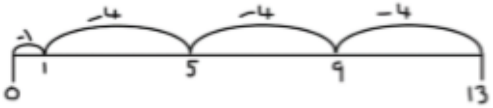
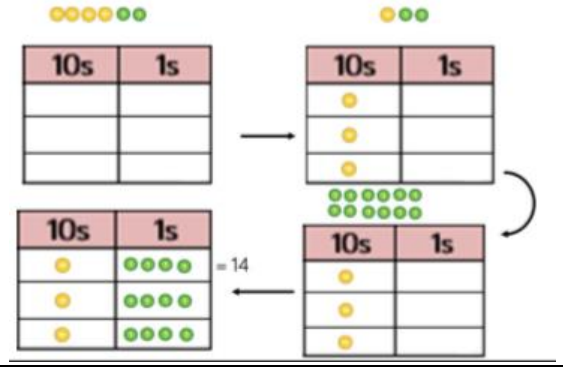
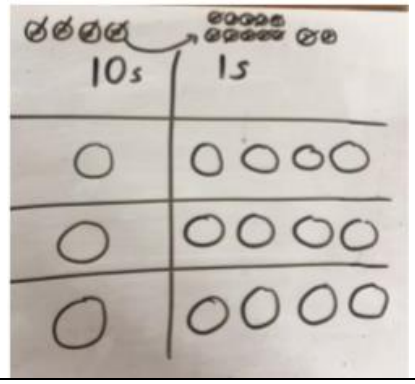
YEAR 2 –DIVISION

	CONCRETE	PICTORIAL	ABSTRACT
Grouping **Same as Y1**	Using a bead string 	Represent the bead string pictorially 	Using bar model 
Arrays	Using cubes or counters 	Represent the array pictorially 	Using bar model 
Repeated subtraction	Using a bead string 	Children to represent the bead string pictorially 	Abstract number line to represent the equal groups that have been subtracted. 

YEAR 2 - DIVISION

VOCABULARY *(new vocab in bold/italic)*	STEM SENTENCES *(new vocab in bold/italic)*
sharing divide grouping half halving ***arrays*** ***repeated subtraction***	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6)

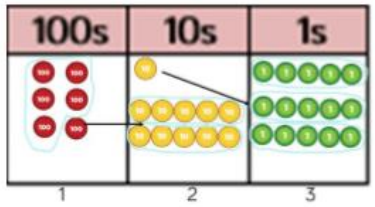
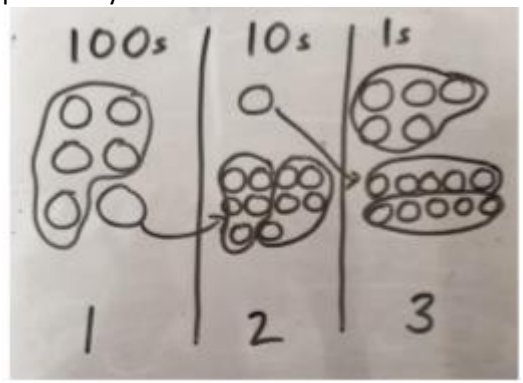
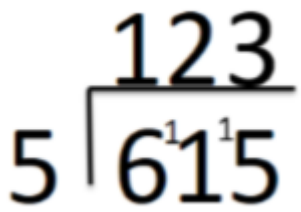
YEAR 3 –DIVISION

	CONCRETE	PICTORIAL	ABSTRACT
TO÷O with remainders	Using a bead string  Using lollipop sticks. 13 ÷ 4 Use of lollipop sticks to form wholes- squares are made because we are dividing by 4.  There are 3 whole squares, with 1 left over.	Represent the bead string pictorially  Represent the lollipop sticks pictorially  There are 3 whole squares, with 1 left over.	Using number line 13 ÷ 4 – 3 remainder 1 Children should be encouraged to use their times table facts; they could also represent repeated addition on a number line. '3 groups of 4, with 1 left over' <u>Times tables Facts</u>  <u>Repeated Subtraction</u> 
Sharing	Using place value counters 42 ÷ 3 = 14  	Children to represent the place value pictorially  	Write calculation to show steps 42 ÷ 3 42 = 30 + 12 30 ÷ 3 = 10 12 ÷ 3 = 4 10 + 4 = 14

YEAR 3 - DIVISION

VOCABULARY ***(new vocab in bold/italic)***	**STEM SENTENCES** ***(new vocab in bold/italic)***
sharing divide grouping half halving arrays repeated subtraction ***remainders***	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6) ***The whole is _____ there are _____equal parts of _____ and _____ remainders (****The whole is 26 there are 4 equal parts of 6 and 2 remainders)*

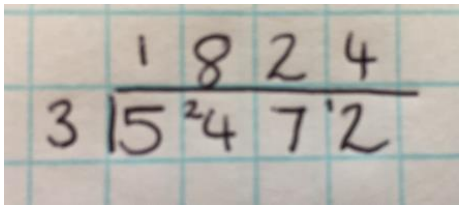
YEAR 4 –DIVISION

	CONCRETE	PICTORIAL	ABSTRACT
Short division	Using place value counters to group. 615 ÷ 5  1. Make 615 with place value counters. 2. How many groups of 5 hundreds can you make with 6 hundred counters? 3. Exchange 1 hundred for 10 tens. 4. How many groups of 5 tens can you make with 11 ten counters? 5. Exchange 1 ten for 10 ones. 6. How many groups of 5 ones can you make with 15 ones?	Represent the place value counters pictorially.  	Use the short division scaffold to calculate 

YEAR 4 - DIVISION

VOCABULARY *(new vocab in bold/italic)*	STEM SENTENCES *(new vocab in bold/italic)*
sharing divide grouping half halving arrays repeated subtraction remainders ***short division*** ***bus shelter***	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6) The whole is _____ there are _____equal parts of _____ and _____ remainders (The whole is 26 there are 4 equal parts of 6 and 2 remainders)

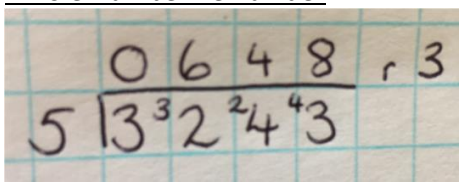
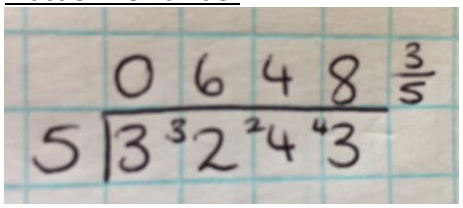
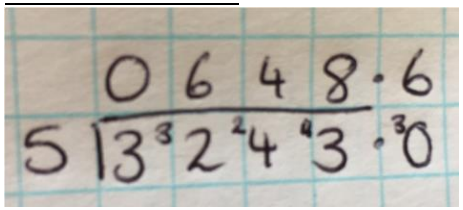
YEAR 5 –DIVISION

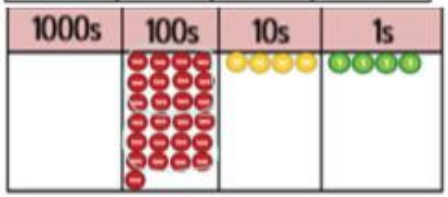
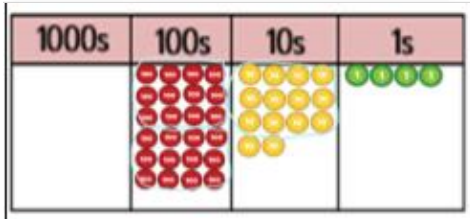
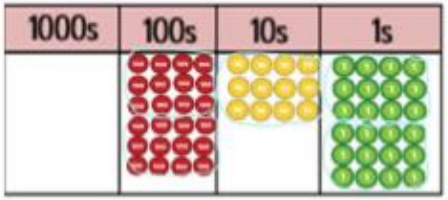
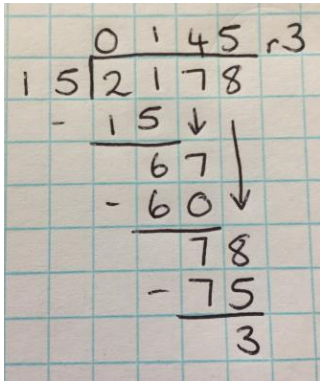
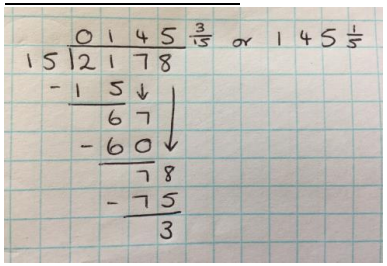
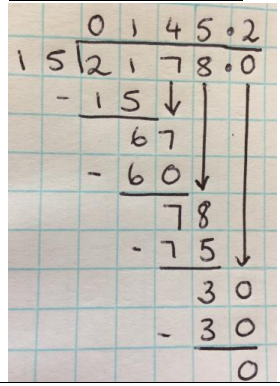
	CONCRETE	PICTORIAL	ABSTRACT
Short division **Up to ThHTO ÷O**			Using formal method 

YEAR 5 - DIVISION

VOCABULARY *(new vocab in bold/italic)*	STEM SENTENCES *(new vocab in bold/italic)*
sharing divide grouping half halving arrays repeated subtraction remainders short division bus shelter	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6) The whole is _____ there are _____equal parts of _____ and _____ remainders (The whole is 26 there are 4 equal parts of 6 and 2 remainders) ***The quotient of _____ and _____ is _____*** *(The quotient of 24 and 6 is 4)*

YEAR 6 –DIVISION

	CONCRETE	PICTORIAL	ABSTRACT
Short division **Interpret remainders as whole numbers, fractions or decimals**			Using formal method <u>Whole Number Remainder</u>  <u>Fraction Remainder</u>  <u>Decimal Remainder</u> 

	CONCRETE	PICTORIAL	ABSTRACT
Long division **Interpret remainders as whole numbers, fractions or decimals**	2544 ÷ 12  We can't group 2 thousands into groups of 12 so will exchange them.  We can group 24 hundreds into groups of 12 which leaves with 1 hundred.  After exchanging the hundred, we have 14 tens. We can group 12 tens into a group of 12, which leaves 2 tens.  After exchanging the 2 tens, we have 24 ones. We can group 24 ones into 2 group of 12, which leaves no remainder.	02 12 | 2544 24 1 021 12 | 2544 24 14 12 2 0212 12 | 2544 24 14 12 24 24 0	Using formal method Whole Number Remainder  Fraction Remainder  Decimal Remainder 

YEAR 6 - DIVISION

VOCABULARY ***(new vocab in bold/italic)***	**STEM SENTENCES** ***(new vocab in bold/italic)***
sharing divide grouping half halving arrays repeated subtraction remainders short division bus shelter ***long divsion***	The whole is _____ there are _____equal parts of _____ (The whole is 24 there are 4 equal parts of 6) The whole is _____ there are _____equal parts of _____ and _____ remainders (The whole is 26 there are 4 equal parts of 6 and 2 remainders) The quotient of _____ and _____ is _____ (The quotient of 24 and 6 is 4)