Frogwell

Primary School & Complex Needs Resource Base

Headteacher: Ms Rachel Neville

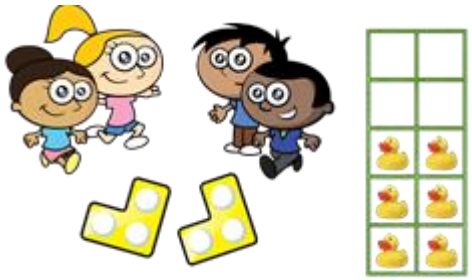
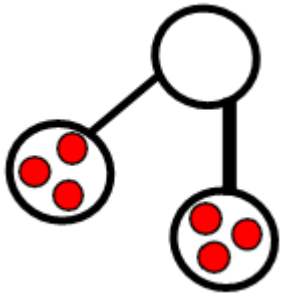
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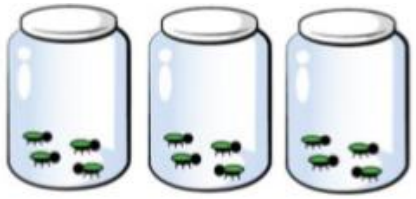
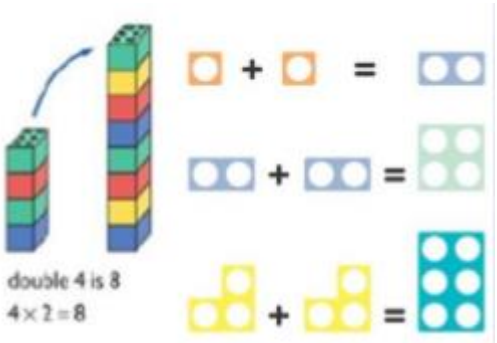
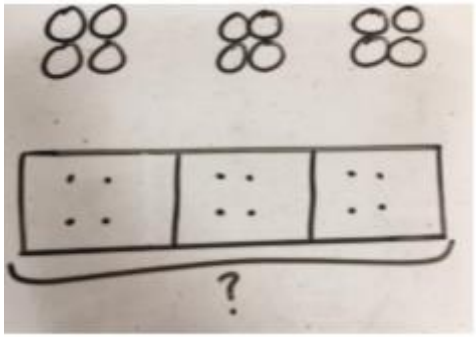
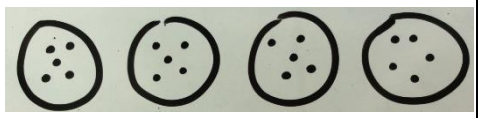
Vocabulary and Stem sentences

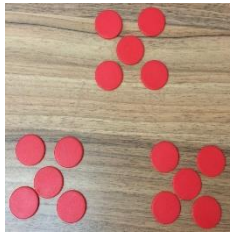
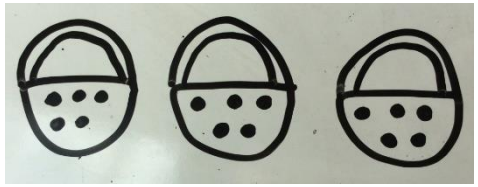
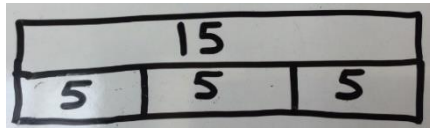
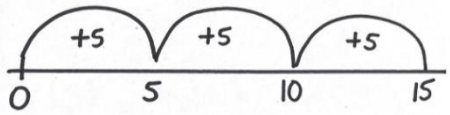
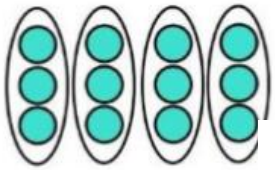
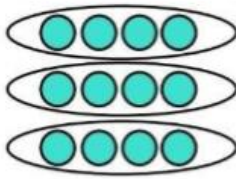
double, repeated addition, times, multiplied by, the product of, groups of, lots of, equal groups, array, multiple

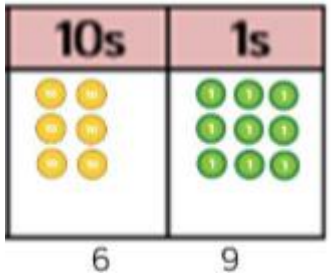
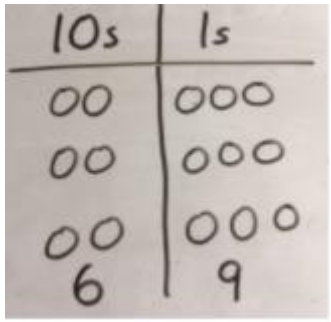
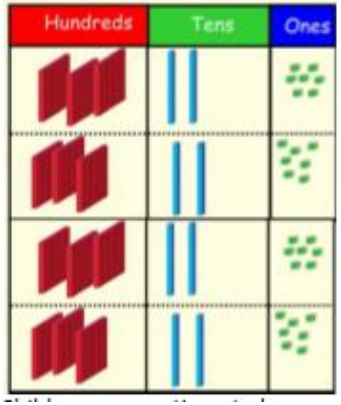
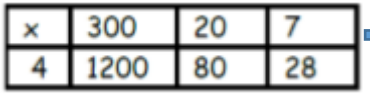
There are ___ groups
There are ___ in each group
There are ___ altogether

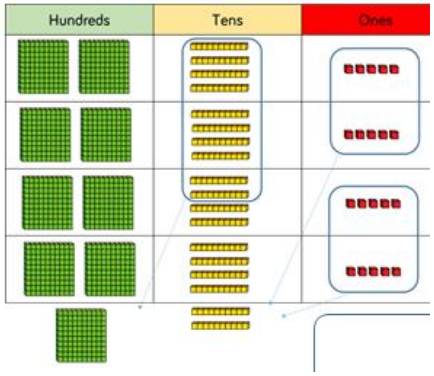
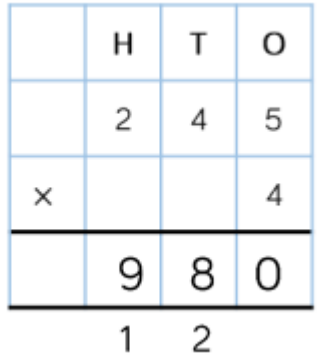
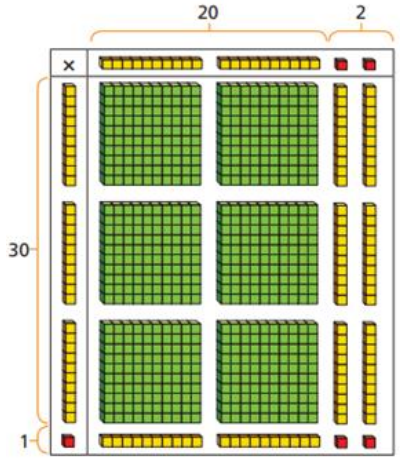
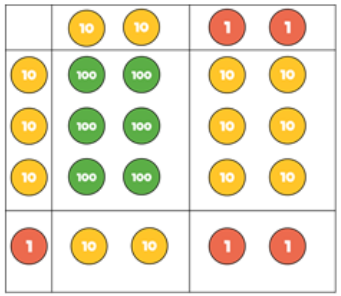
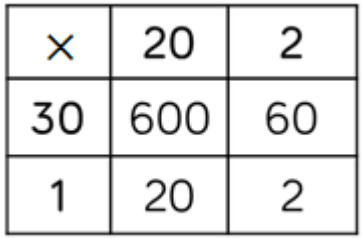
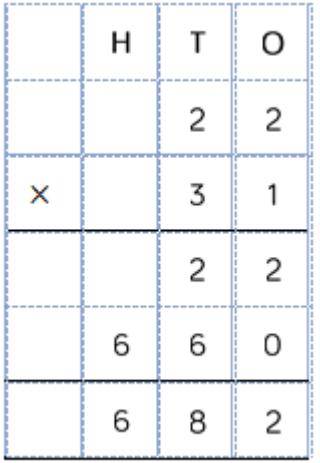
5 X 3 = 5 multiplied 3 times **or** 3 lots of 5

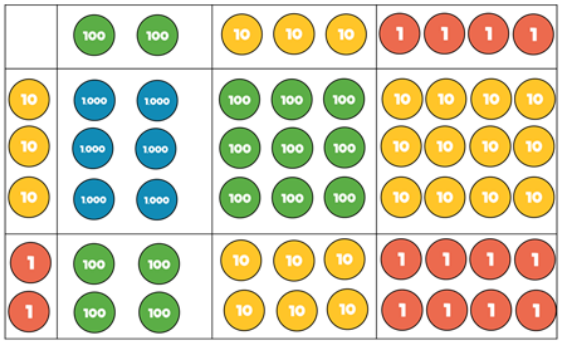
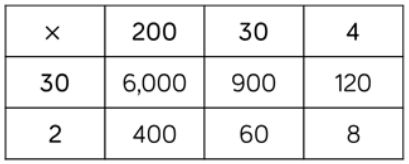
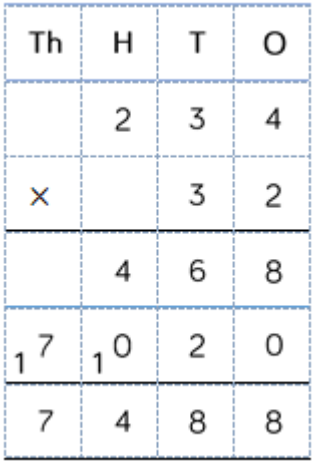
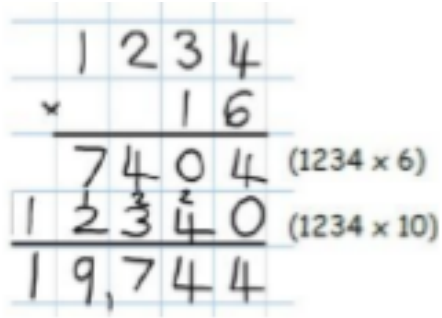
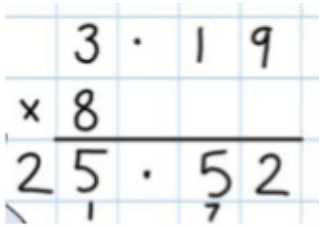
Objective	Concrete	Pictorial	Abstract
EYFS **ELG: Number** Automatically recall number bonds (+) up to 5 and some number bonds to 10, including double facts. *(link to halving)* **ELG: Numerical Patterns** Explore and represent patterns within numbers up to 10, including evens and odds, double facts …	Children should explore different ways to build doubles using real objects and practical equipment 	 Eg. Children draw circles to represent the objects	**"1+1=2"** **"Double 1 is 2"** **"2+2=4"** **"Double 2 is 4"** **…**

Objective	Concrete	Pictorial	Abstract
Year 1 Multiplication (Y1)solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. *Non statutory guidance* *Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities. They make connections between arrays, number patterns, and counting in twos, fives and tens.*	 Use concrete resources to explore doubling 		There are __ groups. There are ___ in each group. There are ___ altogether. **4 + 4 + 4 = 12** Introduce repeated addition **1 + 1 = 2** **"Double 1 is 2"…**
Objective	**Concrete**	**Pictorial**	**Abstract**
Year 2 Multiplication (Y2) calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.	Make equal groups using different resources. 	 Draw pictures to represent problems.	Use repeated addition to represent the calculation. **5 + 5 + 5 + 5 = 20** Introduce the multiplication symbol. **5 X 4 = 20**

(Y2) solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	Represent multiplication problems using concrete resources. *There are 3 baskets.* *There are 5 apples in each basket.* *How many apples altogether?* ***5X3*** 	 Begin to use Bar Models to represent multiplication statements.  Draw jumps on a number line to count multiples. 	Ensure that children have a secure understanding of what each number represents in the equation. **5 X 3 = 15** **3 lots of 5 = 15** **5 multiplied by 3 = 15**
Objective	**Concrete**	**Pictorial**	**Abstract**
(Y2) show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	 Use arrays to show that 2X5 is the same as 5X2   Use counters, cubes and Numicon to show commutativity.	  Use representations of arrays to show different calculations and explore commutativity.	**5 X 2 = 2 X 5**

Objective	Concrete	Pictorial	Abstract
Year 3 Multiplication (Y3) write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	 **23 X 3**		3×23 = 20 + 3 $3 \times 20 = 60$ $3 \times 3 = 9$ $60 + 9 = 69$ 23 × 3 = 69
Objective	**Concrete**	**Pictorial**	**Abstract**
Year 4 – 6 Multiplication (Y4) multiply two-digit and three-digit numbers by a one-digit number using formal written layout	 327 X 4 Remind children to multiply the ones first.		327 × 4 28 80 1200 1308 3 2 7 × 4 1 3 0 8 1 2 When child is ready this may lead onto compact method.

			
(Y5) multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers	 		

		 Encourage children to move towards the formal written method, seeing the links with the grid method.	
Objective			**Abstract**
(Y6) multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.		When multiplying 4-digits by 2-digits, children should be confident in the written method. If they are still struggling with times tables, provide multiplication grids to support when they are focusing on the use of the method.	
(Y6) multiply one-digit numbers with up to two decimal places by whole numbers		Remind children that the singe digit belongs in the ones column. Line up the decimal point in the calculation.	

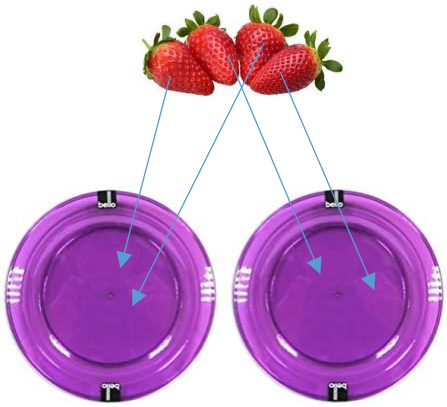
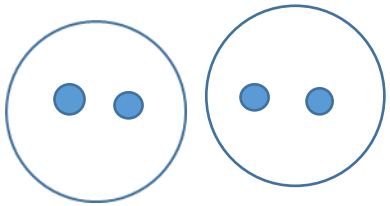
DIVISION

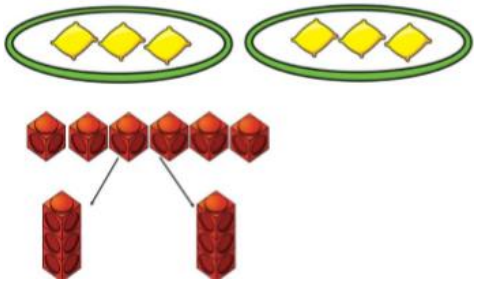
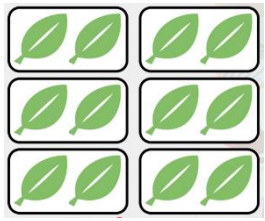
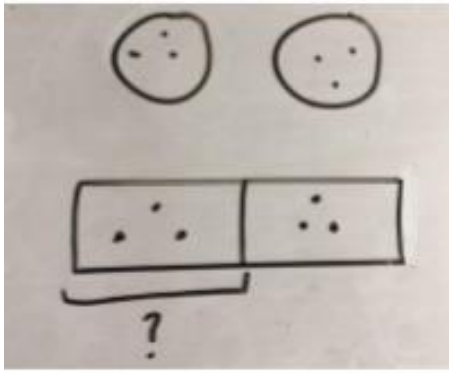
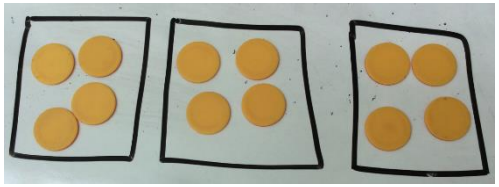
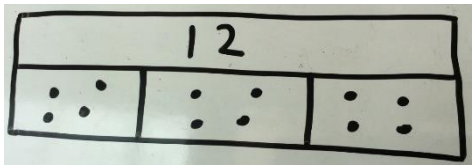
Vocabulary and Stem sentences

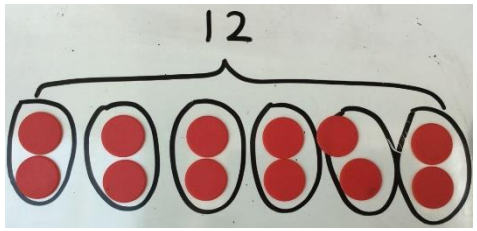
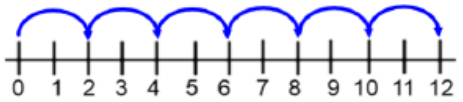
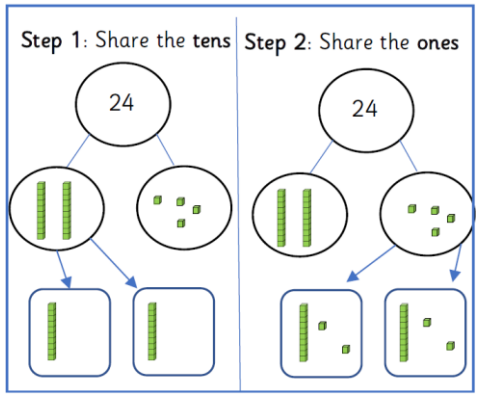
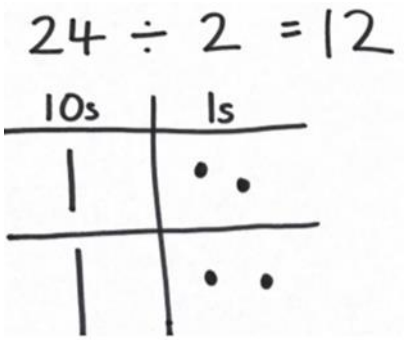
share, group, divide, divided by, half. (KS1)
quotient, dividend, divisor, divisible by, divisibility (KS2)

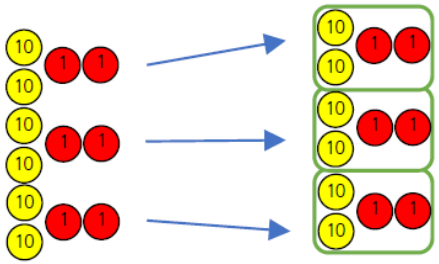
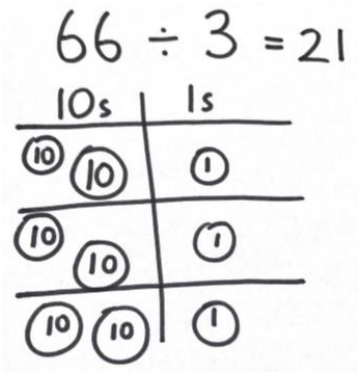
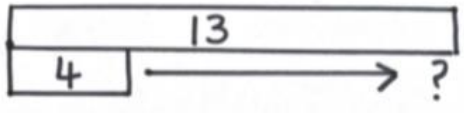
There are __ altogether
There is __ in each group
There are __ groups (grouping)

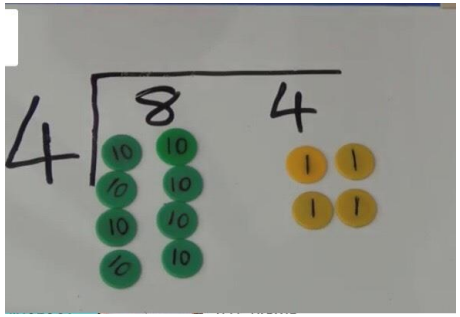
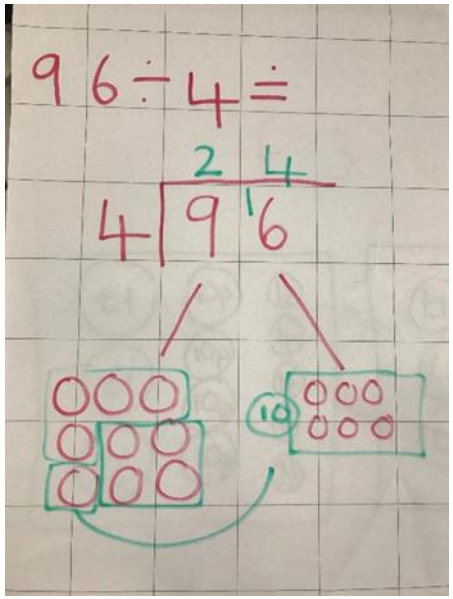
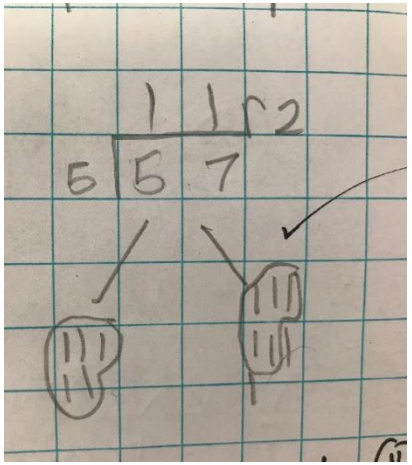
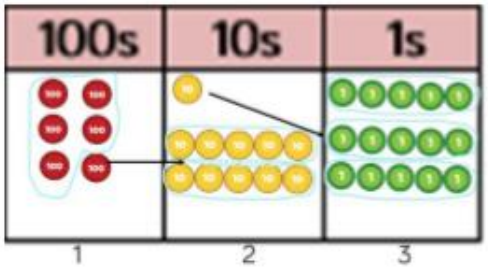
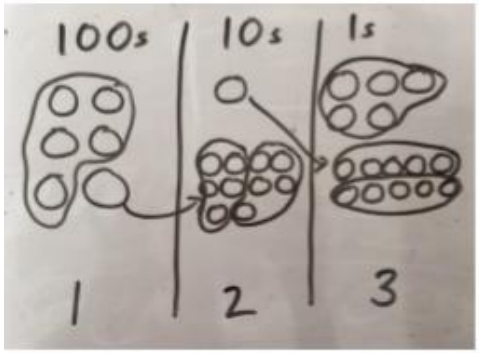
__ shared between ___ is ___ in each group (sharing)

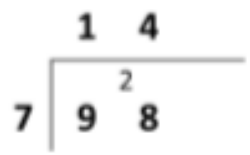
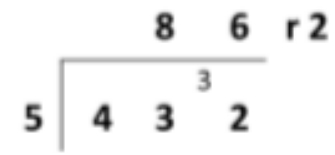
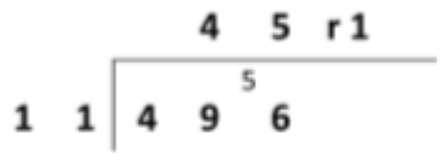
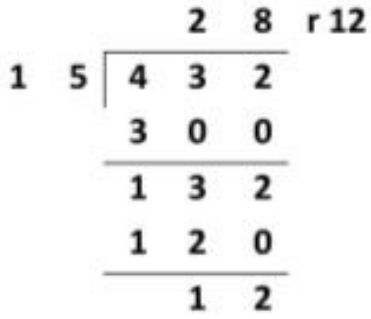
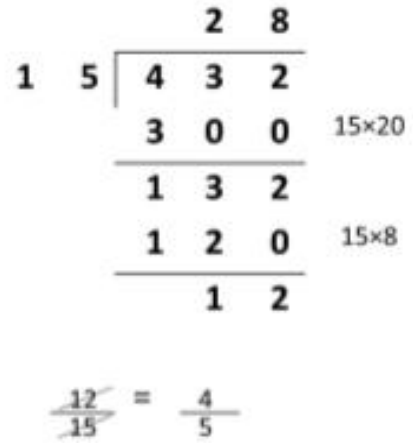
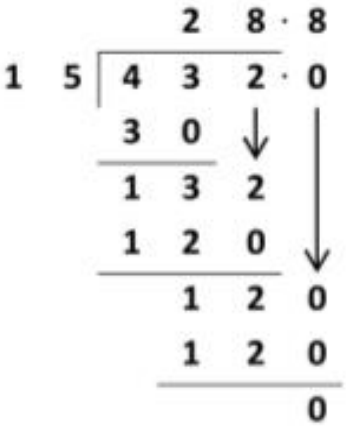
Objective	Concrete	Pictorial	Abstract
EYFS **ELG: Number** Automatically recall number bonds (+) up to 5 and some number bonds to 10, including double facts. *(link to halving)* **ELG: Numerical Patterns** Explore and represent patterns within numbers up to 10, including… how quantities can be distributed equally.	 cutting items into halves (2 *equal* parts) 	 Children draw circles to represent the objects	**“ This is the whole…”** **“This is half of the … and this is half of the …”** **“ 2 halves makes the whole”** Ensure children understand that the 2 parts are equal **“ There are 4 strawberries”** **“ Shared between 2 ”** **“ There are 2 each”**

Objective	Concrete	Pictorial	Abstract
Year 1 Division (Y1) solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. *Non statutory guidance* *Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities.*	 Division as **sharing**. Use different concrete resources. 6 shared between 2 = 3. Link with halving.  12 leaves in groups of 2 = 6 groups. How many 2s in 12? Division as **grouping.** Use concrete resources to make equal groups.	 	**6 shared between 2 is 3 in each group** **There are 12 altogether** **There is 2 in each group** **There are 6 groups**
Objective	**Concrete**	**Pictorial**	**Abstract**
Year 2 Division calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	Divide by **sharing** into equal groups. Share 12 counters between 3 boxes. 	Draw bar models to **share** 12 between 3 groups. 	***___ has been shared equally into ___ equal groups.*** ***I have ___ in each group.*** Division symbol is introduced to children. **12 ÷ 3 = 4**

Objective	Concrete	Pictorial	Abstract
Year 2 Division	Divide by **making equal groups**. They then count on to find the total number of groups.  	Draw jumps on a number line to count equal groups.  	***There are __ altogether. There are __ in each group. There are __ groups.*** **12 ÷ 2 = 6** Children need to recognise the link between division, multiplication and repeated addition. **2 X 6 = 12** **2 + 2 + 2 + 2 + 2 + 2 = 12**
	Use dienes to **share** a two digit number. 24 ÷ 2 = _____  	Draw representations of dienes or place value counters and **share** into equal groups.  	**24 ÷ 2 = 12**

Objective	Concrete	Pictorial	Abstract
Year 3 Division write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. *Divide a two-digit number by a one digit number.*	Use place value counters to **share** a two digit number. 66 ÷ 3 = _____ 	Draw representations of dienes or place value counters and **share** into equal groups. 	**66 ÷ 3 = 21**
	Use Numicon or Cuisenaire rods on a ruler to show equal groups. Bead strings can also be used to make equal groups. 	Draw equal jumps on a number line. How many 4s in 13? Introduce remainders.  Use a bar model to show how number of groups. 	**13 ÷ 4 = 3 r 1**

Objective	Concrete	Pictorial	Abstract
Introduce formal written method	Use place value counters or dienes to introduce short division. Make 84. How many groups of 40 can we make? How many groups of 4? 	 Draw groups of 4 and show where 10 is exchanged into ones.	
Year 4 division *Pupils practise to become fluent in the formal written method of short multiplication and short division with exact answers (see Mathematics Appendix 1).*	 **615 ÷ 5** 1. Make 615 with p.v counters 2. How many groups of 5 hundreds can you make with 6 hundred counters? (1) 3. Exchange 1 hundred for 10 tens. 4. How many groups of 5 tens can you make with 11 ten counters? (2) 5. Exchange 1 ten for 10 ones. 6. How many groups of 5 ones can you make with 15 ones?		$\begin{array}{r} 123 \\ 5\overline{)615} \end{array}$

Objective			Abstract
Year 5 Division divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	**Short division** 98 ÷ 7 becomes  Answer: 14	432 ÷ 5 becomes  Answer: 86 remainder 2	496 ÷ 11 becomes  Answer: $45\frac{1}{11}$
	Answers should be expressed as remainders, fractions, decimals or by rounding to suit the context.		
Year 6 Division divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context	**Long division** 432 ÷ 15 becomes  Answer: 28 remainder 12	432 ÷ 15 becomes  Answer: $28\frac{4}{5}$	432 ÷ 15 becomes  Answer: 28·8