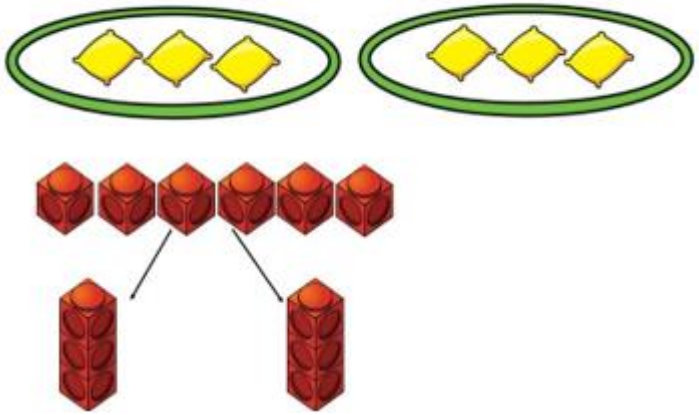
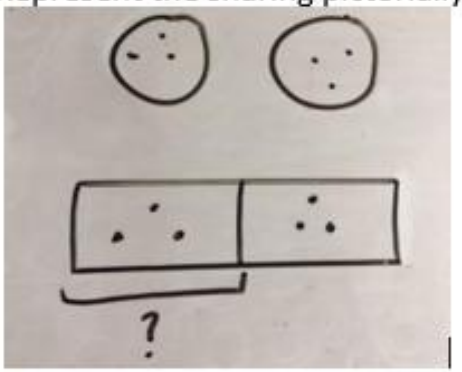
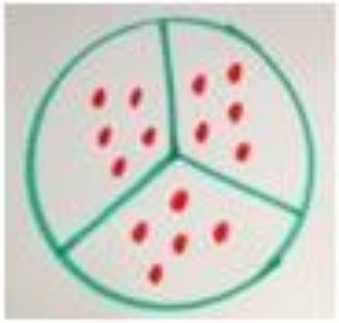
Fierte Multi-Academy Trust Calculation policy – division

Key language: divided by, share, divisible by, share equally, group, divide into

Concrete	Pictorial	Abstract
Sharing using a range of objects 6 ÷ 2 	Represent the sharing pictorially.  	6÷ 2 = 3 6 / 3 | 3 6÷3=2 6 / 2 | 2 | 2



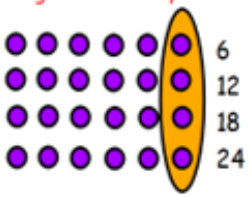

Grouping using an array.

12 ÷ 2 = 6

"How many groups of 2 can I fit in 12?"
Answer: 6

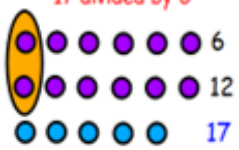
Children will begin to find remainders by identifying what is left over.

e.g. 24 divided by 6

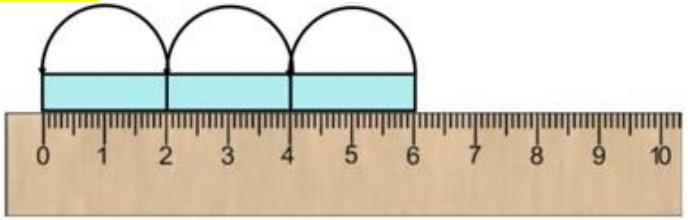
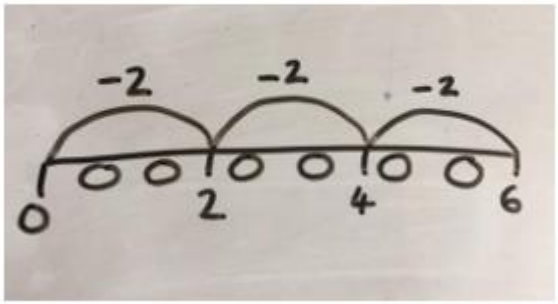
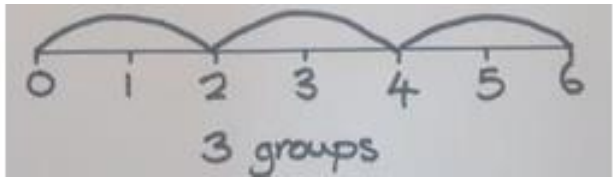
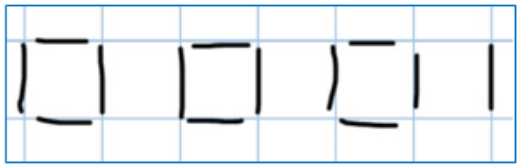


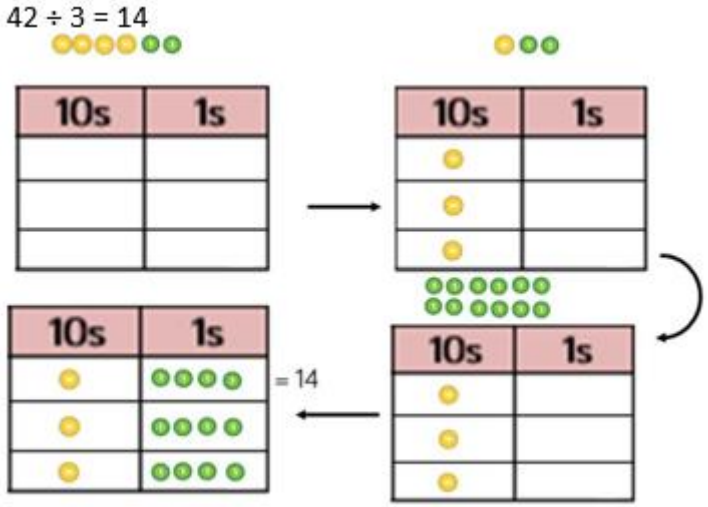
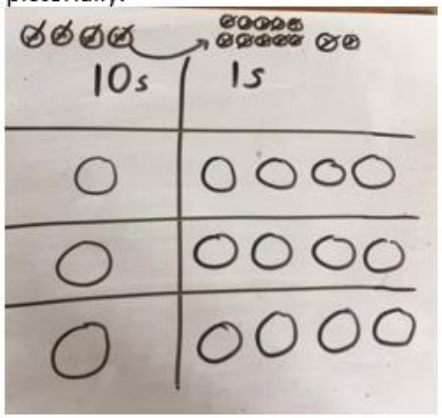
= 4

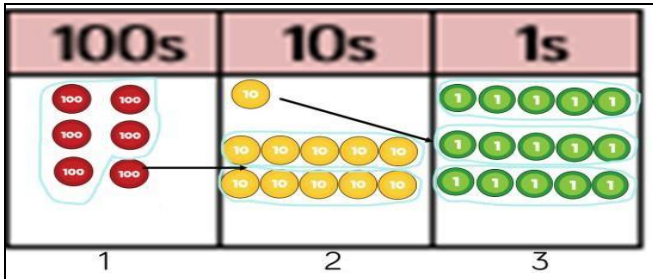
17 divided by 6



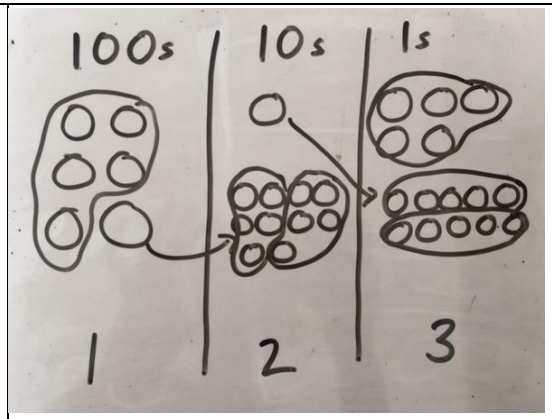
= 2 r5

Place Cuisenaire rods above a ruler or number tracks.  3 groups of 2	Children to represent repeated subtraction pictorially.  Number line to represent the equal groups we have divided.  	6÷2=3 Children will solve calculations with missing numbers and develop the link between their times tables and division facts. 6 ÷ 2 = □ □ = 6 ÷ 2 6 ÷ □ = 3 3 = 6 ÷ □ □ ÷ 2 = 3 3 = □ ÷ 2 □ ÷ ∇ = 3 3 = □ ÷ ∇
Dividing with remainders using lollipops sticks. Cuisenaire rods, above a ruler can also be used. **13÷4**	Children to represent the lollipop sticks pictorially.  There are 3 whole squares, with 1 left over.	13 ÷ 4 – 3 remainder 1

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.		
Sharing using place value counters  Short division using place value counters to group. 615 ÷ 5	Children to represent the place value counters pictorially.  Represent the place value counters pictorially.	Children to be able to make sense of the place value counters and write calculations to show the process. **42 ÷ 3** 42 = 30 + 12 30 ÷ 3 = 10 12 ÷ 3 = 4 10 + 4 = 14



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?



Children to the calculation using the short division scaffold.

$$5\overline{)615} = 123$$

Children will be able to calculate division facts for multiples of 10 by using associated facts.

30 ÷ 6 = 5

30 ÷ 5 = 6

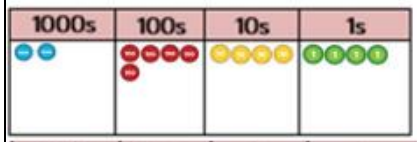
300 ÷ 6 = 50

300 ÷ 5 = 60

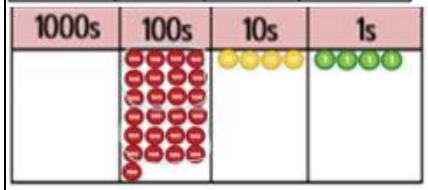
Using this knowledge they will be able to mentally chunk larger numbers once their number skills are well developed and secure.

Long division using place value counters

2544 ÷ 12



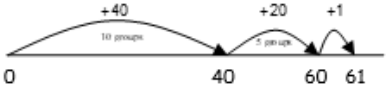
We can't group 2 thousands in groups of 12 so will exchange t



We can group 24 hundreds into groups of 12 which leave with 1 hundred.

When working with larger numbers, children will begin to 'chunk' using a number line to find whole number answers and remainders.

61 ÷ 4 = 15r1

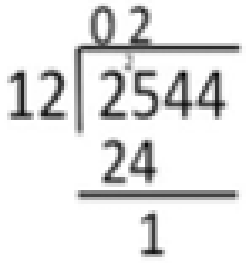


Methods will include counting up to the number to be divided and counting back. Number lines may be horizontal or vertical.

'Chunking up' on a number line

196 ÷ 6 = 32 r 4

Use language of division linked to tables.



Children will progress to formal written methods such as chunking for single digit and 2 digit numbers.

167 divided by 3

3) 167
90 - (30)
77
60 - (20)
17
15 - (5)
2

Altogether 55 groups of 3 with 2 left over = 55 r2

479 divided by 12

12) 479
240 - (20)
239
120 - (10)
119
60 - (5)
59
48 - (4)
11

Altogether 29 groups of 12 with 11 left over = 29 r11