



Calculation Policy adapted from White Rose Maths Hub Progression in Calculations – supported with a rich use of vocabulary and discussion throughout using 'stem sentences'

## Calculation policy: Division

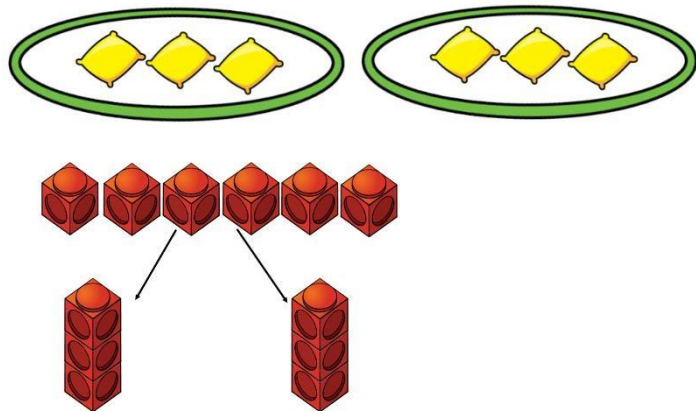
Key language: share, group, divide, divided by, half.

Concrete / build it

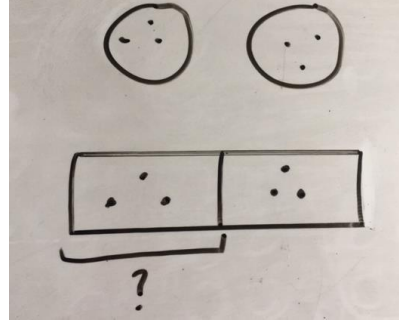
Pictorial/ draw it

Abstract/ write it/  
say it

Sharing using a range of objects.  $6 \div 2$



Represent the sharing pictorially.



$$6 \div 2 = 3$$

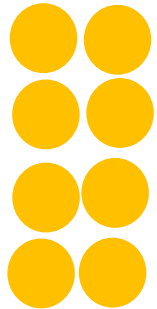
3	3
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Children should also be encouraged to use their 2 times tables facts.

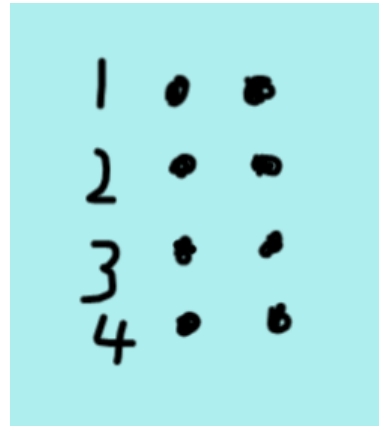
**Stem Sentence:**

**When we make equal groups, each group must have the same amount.**

Grouping using a group of counters or objects in rows.  
 $8 \div 2$



Represent the grouping in rows called arrays pictorially.  
Then count how many rows there are.



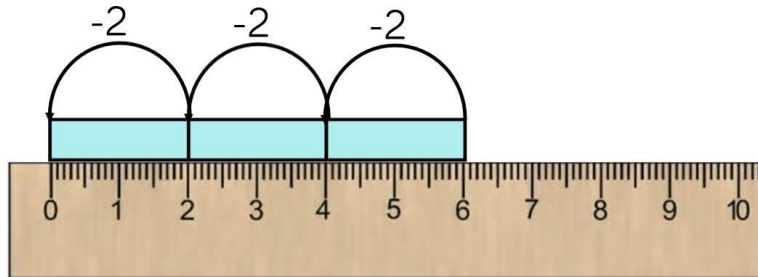
$$8 \div 2 = 4$$

Children should also be encouraged to use their 2 times tables facts.

**Stem Sentence:**

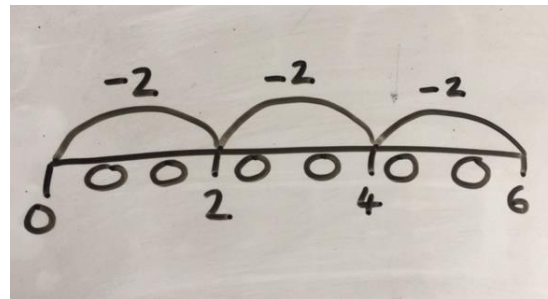
**When we divide, we can group equally.**

Repeated subtraction using Cuisenaire rods above a ruler.  $6 \div 2$

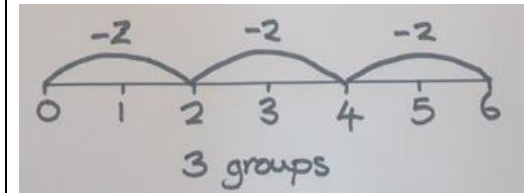


3 groups of 2

Children to represent repeated subtraction pictorially.



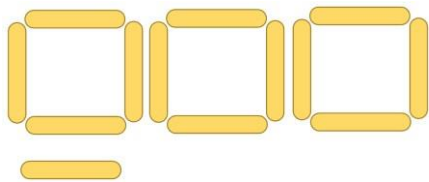
Abstract number line to represent the equal groups that have been subtracted.



Say it: 6 shared into 3 groups is 3 groups of 2

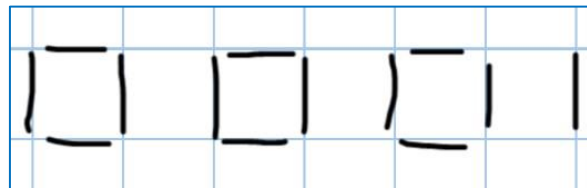
$2d \div 1d$  with remainders using lollipop sticks. Cuisenaire rods, above a ruler can also be used.  
 $13 \div 4$

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.

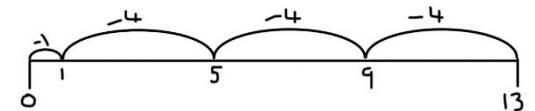
Children to represent the lollipop sticks pictorially.



There are 3 whole squares, with 1 left over.

$13 \div 4 = 3$  remainder 1

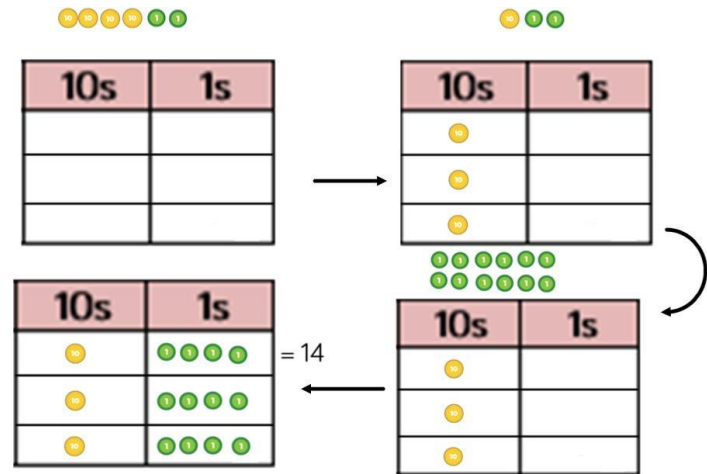
Children should be encouraged to use their times table facts; they could also represent repeated addition on a number line.



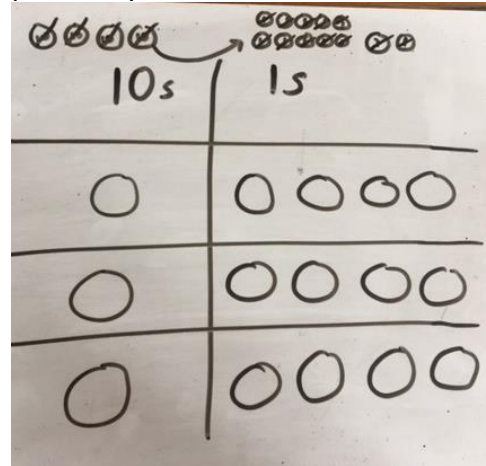
Say it: 3 groups of 4, with 1 left over

Sharing using place value counters.

$$42 \div 3 = 14$$



Children to 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.

$$42 \div 3$$

$$42 = 30 + 12$$

$$30 \div 3 = 10$$

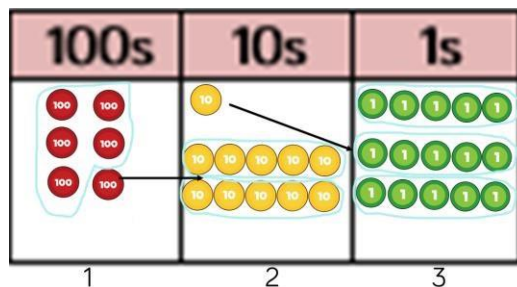
$$12 \div 3 = 4$$

$$10 + 4 = 14$$

Say it: 42 is the whole, 30 is a part, 12 is a part. 30 shared into 3 groups is 10, 12 shared into 3 groups is 4. 42 shared into 3 groups is 14

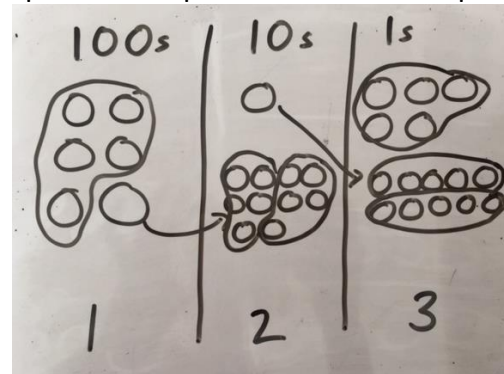
Short division using place value counters to group.

$$615 \div 5$$



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.



Children to the calculation using the short division scaffold.

$$\begin{array}{r} 123 \\ 5 \overline{) 615} \\ \underline{5 \phantom{00}} \\ 11 \phantom{0} \\ \underline{10 \phantom{0}} \\ 15 \\ \underline{15} \\ 0 \end{array}$$

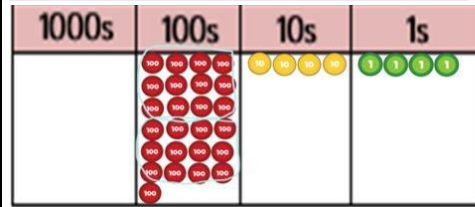
Say it: 6 hundreds into groups of 5 is 1 hundred, with 1 hundred left over. 1 hundred and 1 ten grouped into 5 is 20, with 1 ten left over. 1 ten and 5 ones grouped into 5 is 3.

Long division using place value counters

2544 ÷ 12

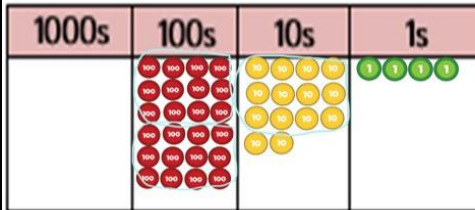


We can't group 2 thousands into groups of 12 so will exchange them.



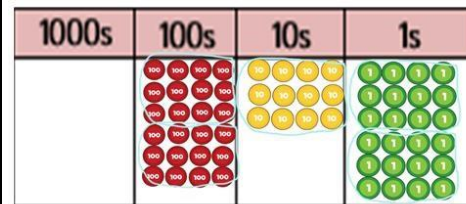
We can group 24 hundreds into groups of 12 which leaves with 1 hundred.

$$\begin{array}{r} 02 \\ 12 \overline{) 2544} \\ \underline{24} \\ 1 \end{array}$$



After exchanging the hundred, we have 14 tens. We can group 12 tens into a group of 12, which leaves 2 tens.

$$\begin{array}{r} 021 \\ 12 \overline{) 2544} \\ \underline{24} \\ 14 \end{array}$$

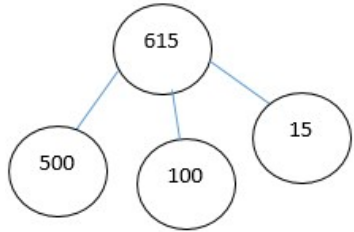


After exchanging the 2 tens, we have 24 ones. We can group 24 ones into 2 groups of 12, which leaves no remainder.

$$\begin{array}{r} 0212 \\ 12 \overline{) 2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

Conceptual variation; different ways to ask children to solve  $615 \div 5$

Using the part whole model below, how can you divide 615 by 5 without using short division?



I have £615 and share it equally between 5 bank accounts. How much will be in each account?

615 pupils need to be put into 5 groups. How many will be in each group?

$$5 \overline{)615}$$

$$615 \div 5 =$$

$$\square = 615 \div 5$$

What is the calculation?  
What is the answer?

100s	10s	1s