

# Methods Guidance - Division

## Concrete



### Numicon & Counting resources

Numicon - first create the dividend (amount to be divided), then using pieces to represent the divisor, place multiple pieces over the top of the dividend. They continue to place Numicon pieces until they reach the amount being divided (dividend). The number of pieces placed is the quotient.  
Counting resources can be used by creating the amount to be divided and then sharing them into equal groups indicated by the divisor.

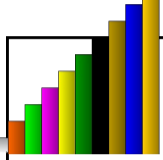
### Aims:

To be used alongside the calculation policy and support the progression you are working on.

We teach the division skill using the manipulatives indicated here to develop conceptual and procedural understanding.

Talk is embedded at every stage.

### Cuisenaire



This method allows us to find out how many times the divisor fits into the dividend—hence making a very strong link to multiplication.

On a number track, identify where we need to get to (dividend) and place the Cuisenaire rod appropriate for the divisor onto the track until we reach the dividend mark. The number of rods placed is then the quotient.

Commutativity is really important here!

Children start by creating the total (dividend) with objects. They start by creating one row the size of the divisor. After, they continue to share the rest into groups underneath the original row until there are no objects left.

You can also complete this without objects by drawing the array onto squared paper.

### Arrays



H	T	1s



The amount to be divided (dividend) is created onto the place value grid. Starting with the highest place value, identify how many groups can be made of the divisor.

Exchanging needs to happen at each stage.

Children continue to divide through the place value mat until they reach the 1s. Anything that can't be divided is identified as the remainder.

This mirrors the bus stop method and can be used in conjunction.

The answer is generated by counting the groups created.

## Contextual application

We continue to use the manipulatives in context or move onto making sense of the problem by drawing a mathematical story.

**X** measures  
data  
patterns  
fractions  
Commutativity

### Looking for patterns

Sally's book is 92 pages long.  
If she reads seven pages each day, how long will she take to finish her book?  
Make up a problem for  $13 \times 4$  and solve it.  
Write a story for  $18 \div 3$ .

If you counted back from 50 in tens, would you say 0?

Can you explain?

### Exploring relationships

How else could 20 sweets be put into bags so that every bag had the same number of sweets?

How many bags would be packed each time?

Make connections within Multiplicative reasoning by linking division skills and other objectives together. We can give everyday meaning to division by responding to data and solving problems with everyday appeal.

### Conjecturing

The following problems can be solved by using the calculation  $8 \div 2$ . True or false?  

- There are 2 bags of bread rolls that have 8 rolls in each bag. How many rolls are there altogether?
- A boat holds 2 people. How many boats are needed for 8 people?
- I have 8 pencils and give 2 pencils to each person. How many people receive pencils?
- I have 8 pencils and give 2 away. How many do I have left?

Lollies cost 5p each.  
A pack of 3 lollies costs 13p.  
How much money do you save when you buy a pack of 3 lollies instead of 3 single lollies?

A builder needs 7600 bricks to build a wall.  
There are 500 bricks in a load.



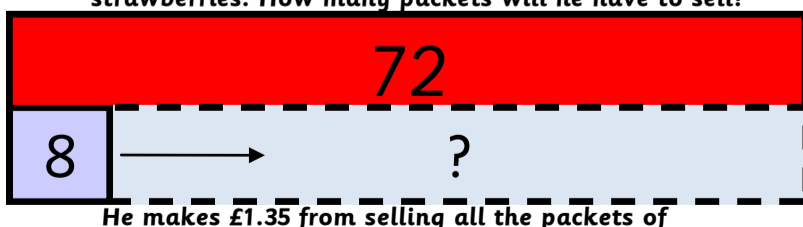
How many loads must the builder buy?

The price of one load of 500 bricks is £230.  
What is the cost in pence of one brick?

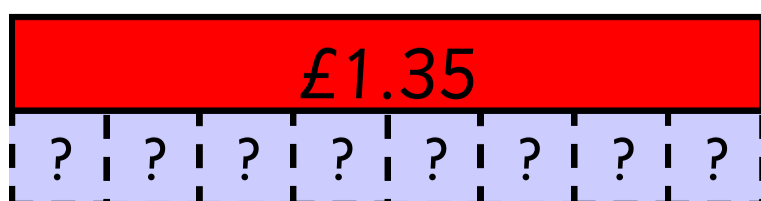
## Abstract

Children have a good conceptual and procedural understanding of division. They can now apply this understanding in an abstract form.

Greg picks 72 strawberries. He wants to sell them in packets of 8 strawberries. How many packets will he have to sell?

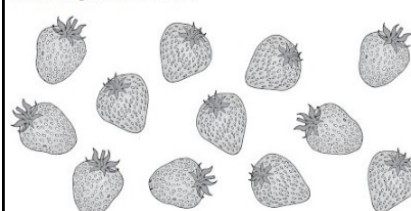


He makes £1.35 from selling all the packets of



Abstract application may also be simply using the correct formal written method and/or progression from the calculation policy.

Some children share 12 strawberries.  
Each child gets 3 strawberries.



How many children are there?

The 'Bar Model' is a great way for children to organise their thinking and is a way of recording the problem but is not a method to solve a problem. Mental skills or the current progression need to be used alongside.

8 metres of rope is cut into 4 equal lengths to make skipping ropes.  
How long is each skipping rope?