

DEVELOPING UNDERSTANDING AND MENTAL METHODS

Throughout teaching in mathematics, division is taught wherever possible through real life problem solving situations providing opportunities for children to achieve the Early Learning Goal.

Uses developing mathematical ideas and methods to solve practical problems involving sharing and grouping in a real or role play context.

Solve problems in everyday life in the classroom, or in role play.

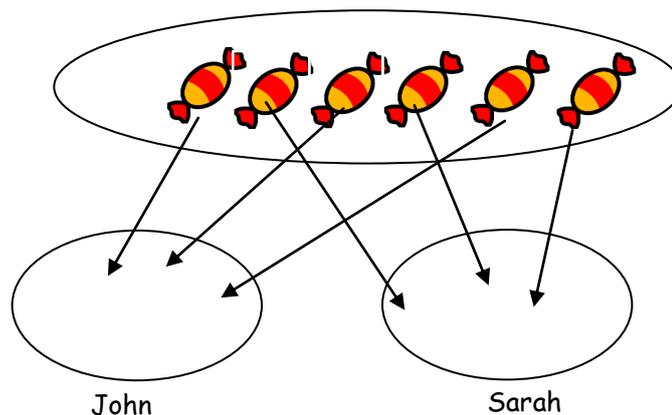
Make decisions about what to do. Explain orally and, where appropriate, record the solution in child's own way.

For example, respond in practical situations using practical equipment (counters, objects) to questions such as:

- Sharing

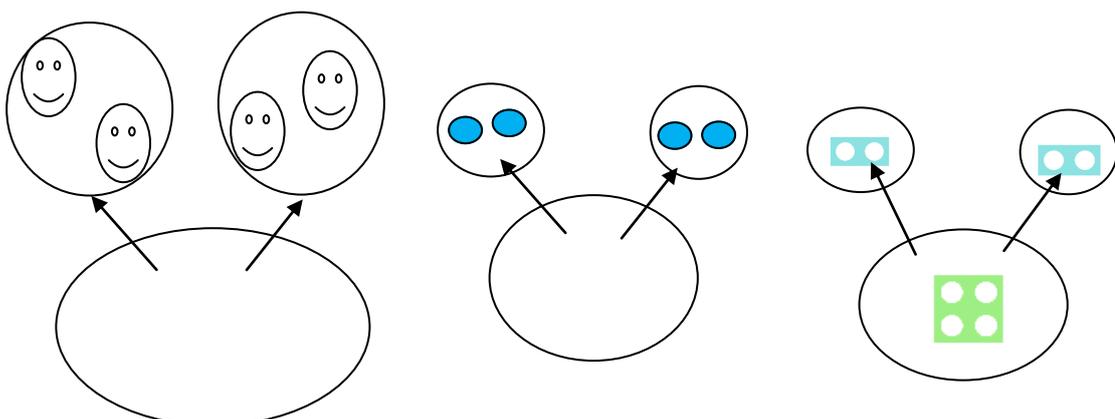
Can we share out these cakes fairly? How will we do it?

Children share items equally, 6 shared equally between two is shown as , one for you and one for me.



- Grouping

We have 4 smiley faces. How many groups of 2 can we make?



DEVELOPING UNDERSTANDING USING IMAGERY:

Uses related vocabulary and symbols to describe and record \div number sentences.
Derives division facts corresponding to the 2 and 10 times tables and begin to for the 5 times table.

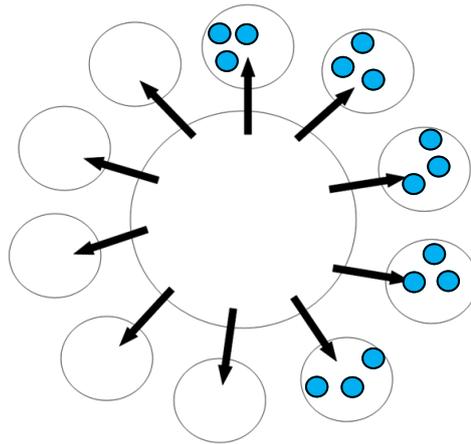
Sharing

Uses practical equipment developing the use of drawings, to share 1 and 2 digit numbers by a single digit number, answering questions such as:

15 shared between 5?

$$15 \div 5 =$$

How many do they get each?

**Repeated Subtraction (Grouping)**

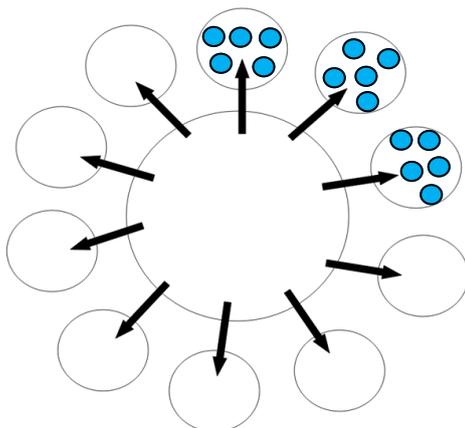
Uses drawings or the number line and practical equipment to repeatedly subtract groups of single digit numbers from 1 and 2 digit numbers, answering questions such as:

How many groups of 5 are there in 15?

$$15 \div 5 =$$

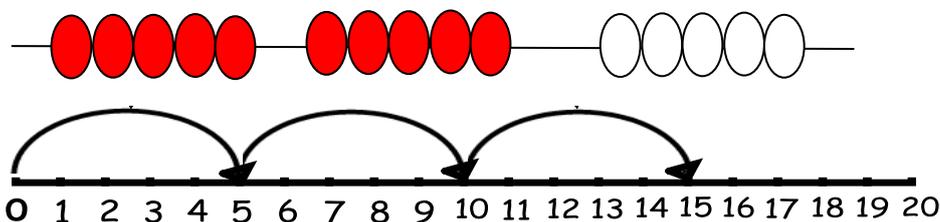
How many 5s in 15?

What is 15 grouped into 5s?



There are 3 groups of 5 in 15.

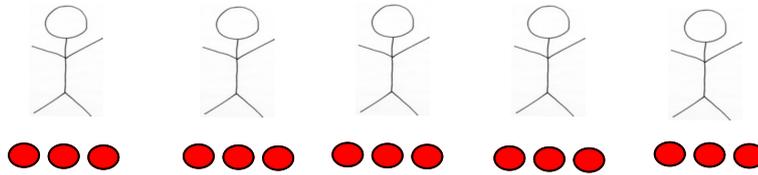
Repeated subtraction from the set with groups being collected and counted up on the number line.



Begin to interpret situations as division calculations and explain reasoning, for example, answer questions such as:

15 sweets are divided equally between 5 people.

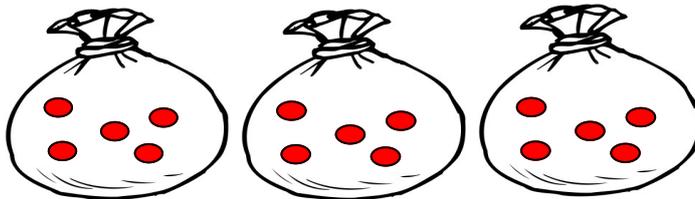
How many sweets does each one get? (**sharing**)



Sharing 15 between 5
= 3 each

$$15 \div 5 = 3$$

There are 15 apples in a box. How many bags of 5 apples can be filled? (**grouping**)

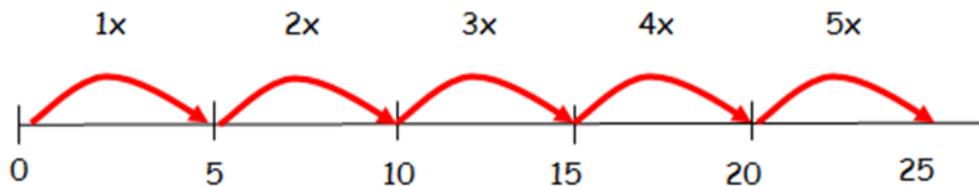


Grouping 15 into 5s
= 3 groups

$$15 \div 5 = 3$$

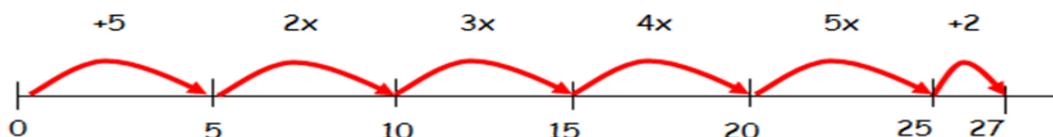
With developing recall of multiplication facts, steps in mental division can be recorded by jumping on a number line forwards.

$$25 \div 5 =$$



Progressing to examples which give rise to remainders 'collecting up' on the number line:

$$27 \div 5 = 5 \text{ r } 2$$



Notes

Progression for Mental Division

Children should begin to solve a wider range of real life problems and attach understanding to what the remainder means in the context. e.g.
 26 friends want to play five a side football. How many teams of 5 can be made? How many will be left over?

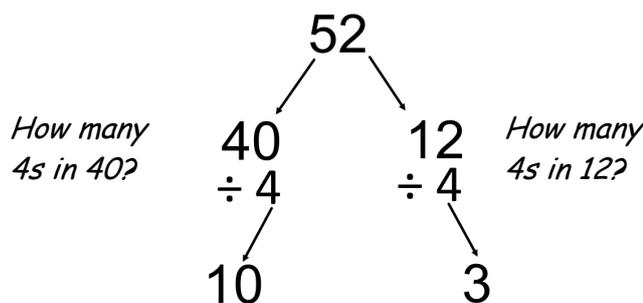
PARTITIONING IN DIFFERENT WAYS

- As you will see on the following pages, encouraging children to practise the skill of partitioning numbers in different ways will support their understanding as they progress with their division methods. E.g.
 $47 = 40 + 7$
 $30 + 17$
 $20 + 27$

Developing Partitioning as a Mental Method

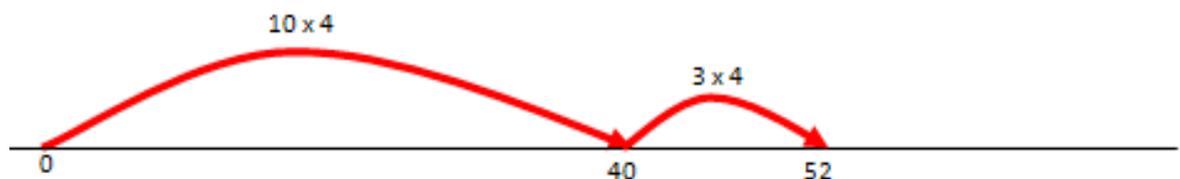
Some children will be able to subtract multiples of the divisor - for instance subtracting ten lots of five at a time when dividing by five. This should be modelled on the empty number line .
 When numbers are beyond x10 of the divisor use jottings or the number line as a mental calculating tool.

Jotting



$52 \div 4 = 13$

$(40 \div 4) + (12 \div 4) = 13$



NOTE:

Throughout KS2 encourage children to ask themselves 'Can I do this mentally?'.

E.g.

$84 \div 4 = 21$

$217 \div 7 = 31$

$$92 \div 4 = 23$$

