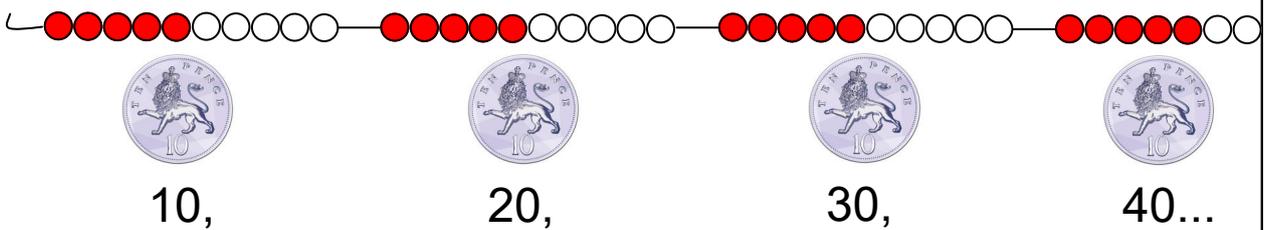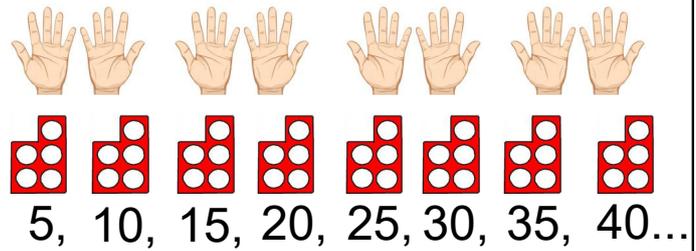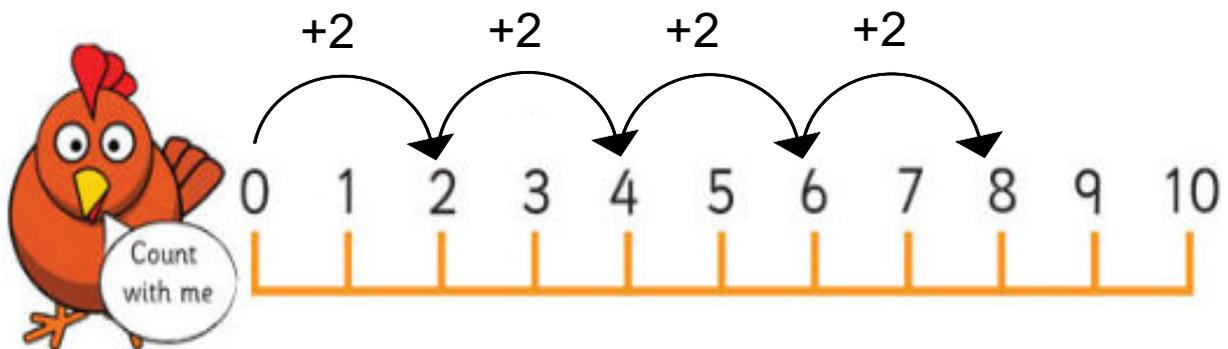# Multiplication and division

<u>**Children are expected to :**</u>

♦   **Count in multiples of twos, fives and tens.**

A child's first introduction to multiplication is through counting in steps of either 2, 5 or 10. The use of concrete objects will enable them to grasp this concept.

2,   4,   …

5, 10, 15, 20, 25, 30, 35, 40…

10,   20,   30,   40…

Number lines can also support understanding of counting in multiples. Through the use of concrete objects and a number line, the children see the relationship between multiplication and **repeated addition**.
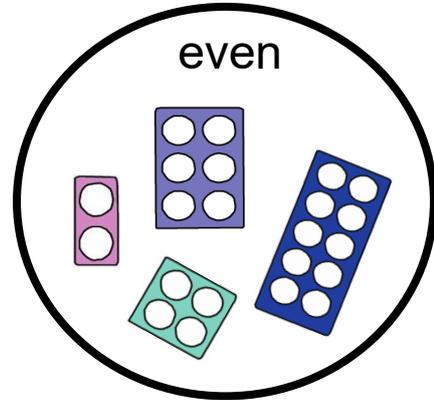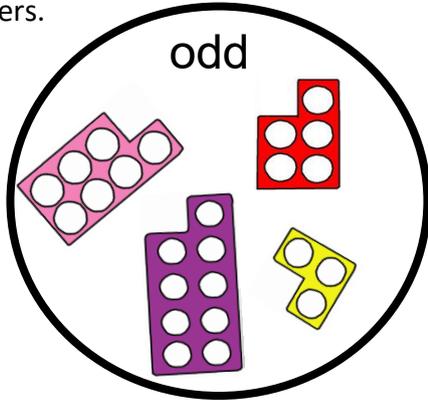
+2   +2   +2   +2

Count with me

0   1   2   3   4   5   6   7   8   9   10

Multiplication

When counting in twos, children may start to recognise the difference in structure between odd and even numbers.

odd

even

♦ **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.**

By grouping and sharing small quantities, children should begin to gain some understanding of multiplication and division.

At this stage, the will solve simple problems using **repeated addition** although the **language of multiplication will be introduced.**
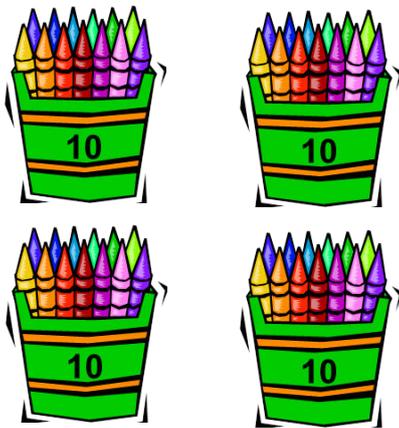
There are 10 crayons in each box. How many are there altogether?

10 + 10 + 10 + 10 = 40
There are 4 groups of 10
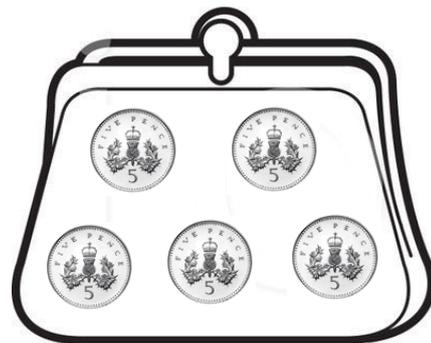**10 x 4 = 40**
10 multiplied by 4 is 40

How much money do I have?

5 + 5 + 5 + 5 + 5 = 25
There are 5 lots of 5p
5 x 5 = 25
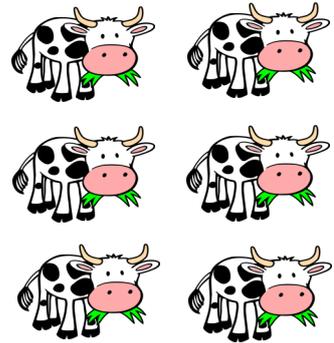**5 multiplied by 5 is 25**

Division

Children will become familiar with the concept of division through **sharing** and **grouping** objects **equally**.

Sharing:

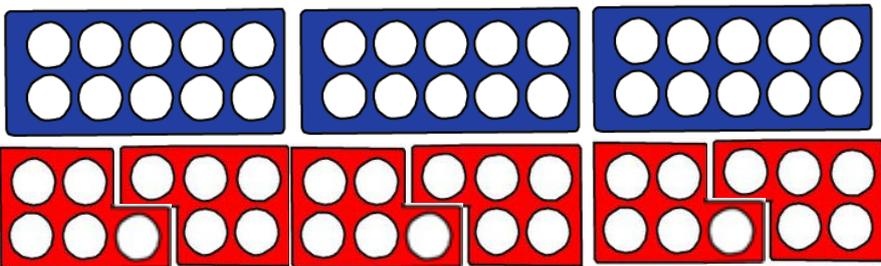Can you share the cows *equally* between the two fields?

$$6 ÷ 2 = ?$$

$$6 ÷ 2 = 3$$

When sharing, children share out objects one at a time until they run out of objects to share or are unable to share equally.

Grouping:

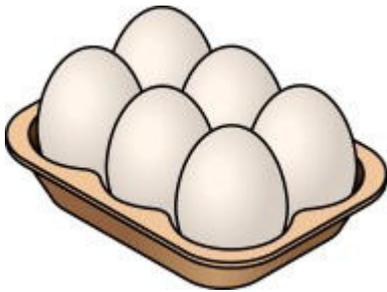Organise these children into groups of 3.

$$9 ÷ 3 = 3$$

How many 5s are there in 30?

Multiplication and division

Arrays are also used to help the children to **visualise and understand** multiplication and division.
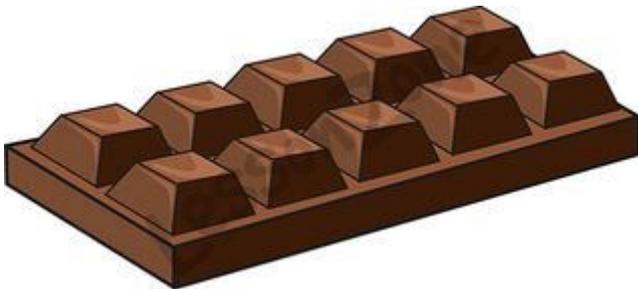
2 x 3 is the same as 3 x 2

3 x 4 is the same as 4 x 3

Arranging objects in rows and columns, highlights an important multiplication fact: that **multiplication can be done in any order** (commutative).

10 shared into 5 groups is 2
10 shared into 2 groups is 5

Likewise, arrays can support children to understand division concepts.

Alongside solving multiplication and division problems using concrete objects, the children are encouraged to use the correct vocabulary and record their working out using a the multiplication and division symbols in a number sentence. This is modelled by the teacher at all times and children are encouraged to make the connection between the concrete objects and the abstract calculation.
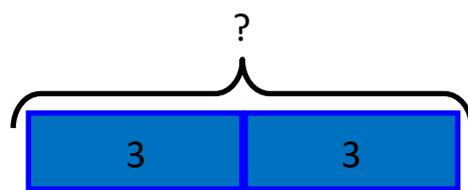
Multiplication and division

Bar models can support the children to understand that multiplication is commutative and the relationship between multiplication and division.
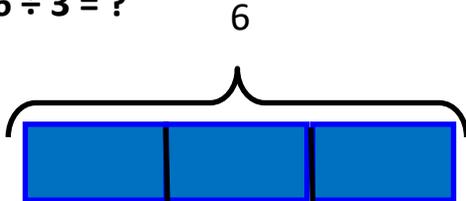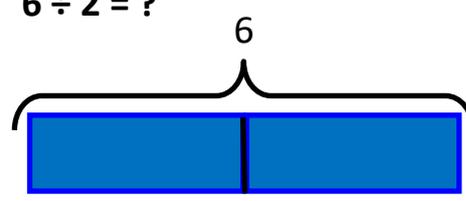
2 x 3 = ?

?

| 2 | 2 | 2 |

3 x 2 = ?

?

| 3 | 3 |

6 ÷ 3 = ?

6

6 ÷ 2 = ?

6
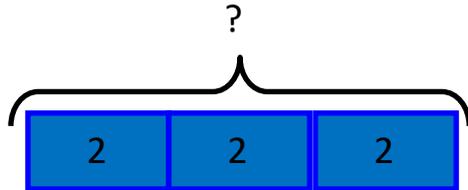
Children could use concrete resources or bar models to solve simple real life multiplication and division problems such as:

In the classroom there are 5 tables, 2 children sit at each table. How many children are there?

There are 10 children in the classroom. There are 5 tables. How many children can sit at each table?
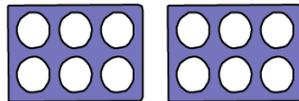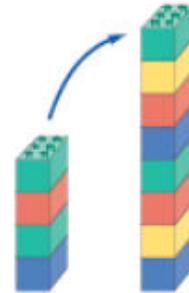
Multiplication and division

♦ **Recognise, find and name a half as one of two equal pars of an object, shape or quantity.**
Children should begin to explore finding simple fractions of quantities, such as 1/2 and 1/4. In particular, they are expected to have some understanding of doubling and halving.

3 + 3 = 6
3 x 2 = 6
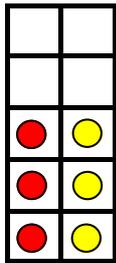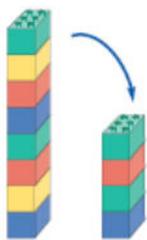
6 + 6 = 12
6 x 2 = 12

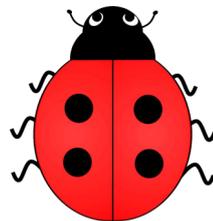4 + 4 = 8
4 x 2 = 8

Children are shown that doubling is the same as multiplying by 2.

half of 8 is 4.
8 ÷ 2 = 4
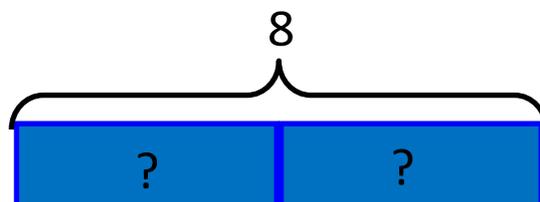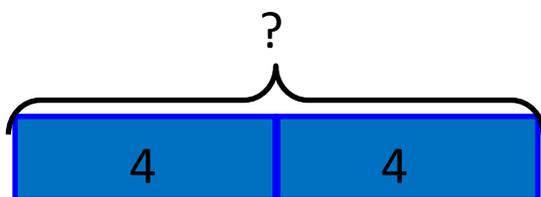
half of 4 is 2.
8 ÷ 2 = 4

Children are shown that halving is the same as dividing by 2.

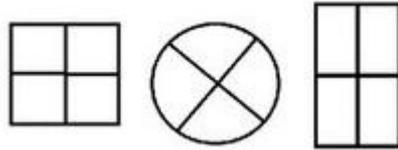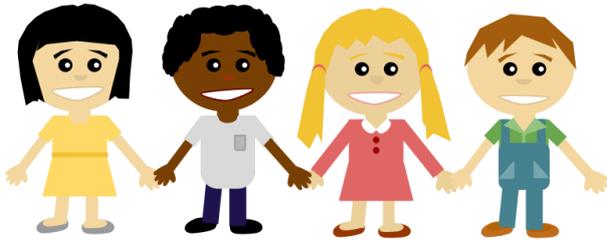Doubling and halving can also be represented as bar models.

?

| 4 | 4 |

8

| ? | ? |

Multiplication and division

♦ **Recognise, find and name a quarter as one of four equal pars of an object, shape or quantity.**

Can you shade in one quarter of these shapes?

Four children share 12 toy cards equally. How many do they get each?

Children are taught to recognise one quarter as four **equal** parts. They can use their understanding of sharing and grouping to find one quarter of a quantity.

Key vocabulary and symbols

calculation, calculate, odd, even, multiply, multiplication, times, product, repeated addition, array, divide, division, groups, groups of, lots, lots of, share, sharing.