

# YR2 MULTIPLICATION AND DIVISION KNOWLEDGE ORGANISER

## Key Concepts

- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables.
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs.
- Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.
- Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

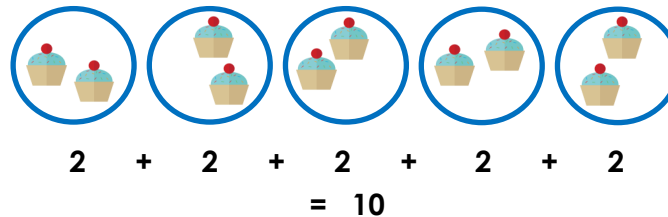
## Key Vocabulary

- Equal groups
- Grouping
- Sharing
- Count in (2s, 5s, 10s)
- Repeated addition
- Lots of
- Groups of
- Array
- Divide
- Divided by
- Multiply
- Multiple



## Repeated Addition

Following from practical multiplication in YR1 by making equal groups, addition symbols are used to show how multiple equal groups are added together. This is combined with the same language used in Year 1, describing the how many groups there are and how many are in each group.



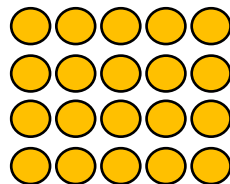
5 groups of 2 = 10

5 twos = 10

Once this is understood, the multiplication symbol is introduced:

$5 \times 2 = 10$

Arrays can also be used and described like so...



$5 + 5 + 5 + 5 = 20$

4 fives = 20

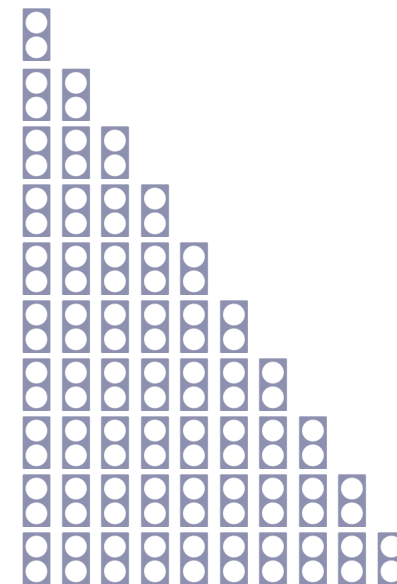
$4 \times 5 = 20$

## Times Tables

It is important to understand the 2, 5 and 10 times tables to be able to multiply with ease.

Representing the tables visually is important for understanding.

For example:



$1 \times 2 = 2$

$2 \times 2 = 4$

$3 \times 2 = 6$

$4 \times 2 = 8$

$5 \times 2 = 10$

$6 \times 2 = 12$

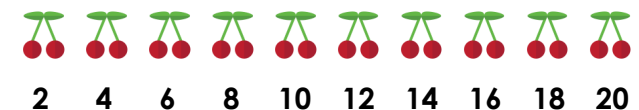
$7 \times 2 = 14$

$8 \times 2 = 16$

$9 \times 2 = 18$

$10 \times 2 = 20$

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20



# YR2 MULTIPLICATION AND DIVISION KNOWLEDGE ORGANISER

## Any Order

One way to show this is using objects. For example,  $5 \times 3$  can be shown...



5 groups of 3

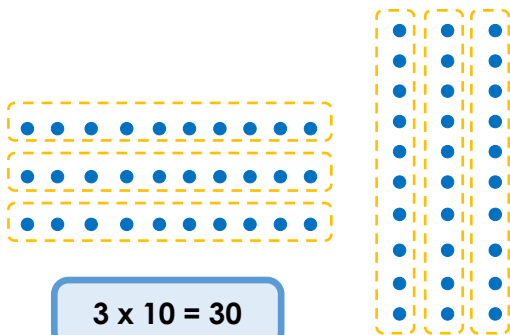
or

3 groups of 5

$$5 \times 3 = 15$$

$$3 \times 5 = 15$$

Arrays are a helpful way of showing that multiplication can be done in any order.



$$3 \times 10 = 30$$

$$10 \times 3 = 30$$

Therefore...

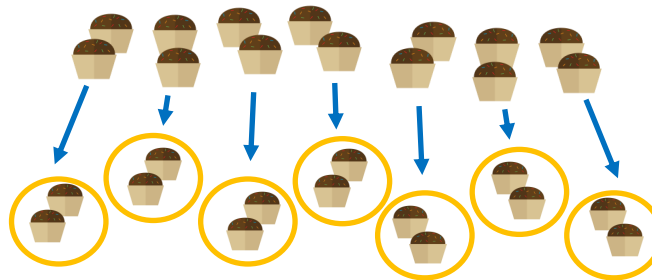
$$3 \times 10 \text{ is equal to } 10 \times 3$$

## Grouping and the Division Symbol

Again, following on from practical learning in YR1, grouping an amount of objects supports understanding of division. This continues with physical movement of objects into a specific group size.

E.g. There are 14 cakes. Put 2 on each plate.

In other words, divide 14 by 2 to find the number of groups.



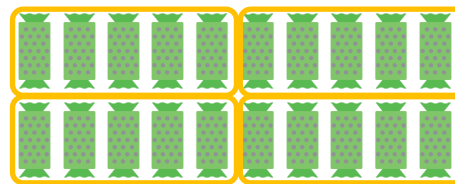
There are 7 groups of 2. 14 divided by 2 is 7.

Now the division equation is introduced.

$$14 \div 2 = 7$$

This can then be shown by drawing:

$$20 \div 5 = 4$$

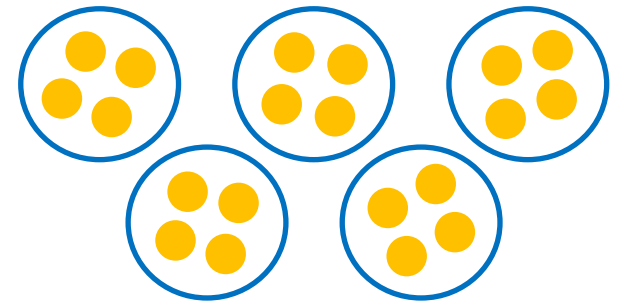


Circle to show groups of fives.

## Mental Methods

Mental methods include informal ways of showing the way of working out. For example drawings when sharing:

There are 20 sweets. They are shared between 5 children, how many sweets will each child get?



$$20 \div 5 = 4$$

## Multiplication and Division Facts

A secure knowledge of multiplication facts allows problems to be solved efficiently.

For example, Marlon has 10 sweets and he wants to share them equally with Caleb.



It could be drawn out and shared between 2 people but...

If I know  $5 \times 2 = 10$ ,  
I know  $10 \div 2 = 5$   
so they will both get 5.

