



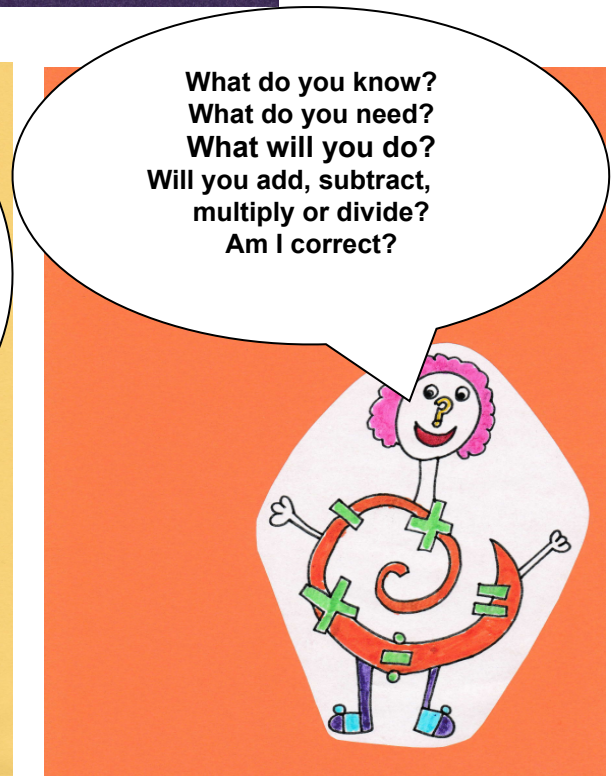
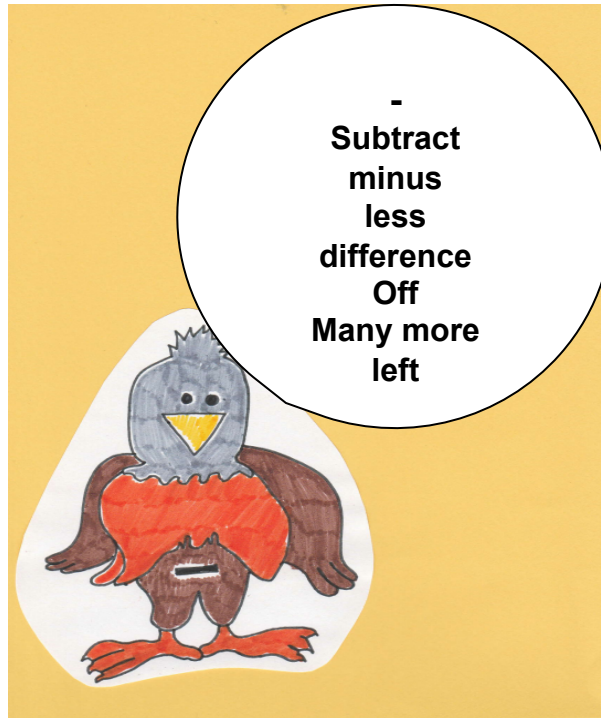
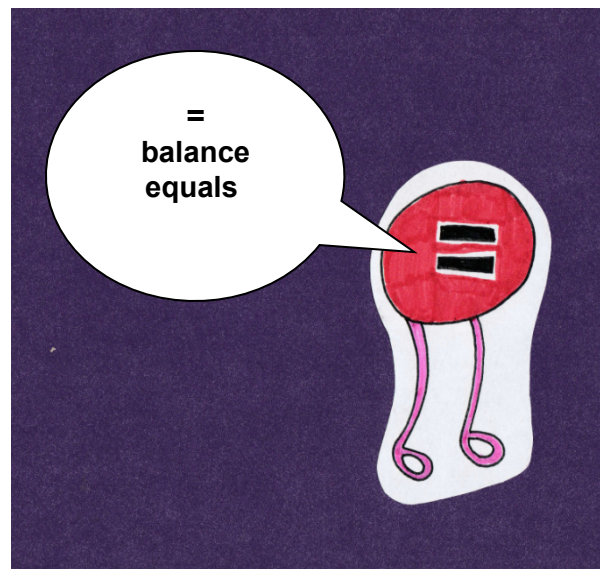
# Mathematics

# Year 2

'The national curriculum for mathematics aims to ensure that all pupils:

- become fluent.....
- reason mathematically.....
- and can solve problems.'

more  
In between  
less



÷  
divide  
share  
groups of



X  
multiply  
times  
lots of  
groups of



<  
*less than*



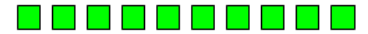
>  
*greater than*



# Place Value



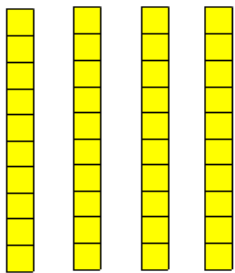
47



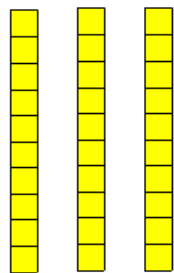
How many units?

How many tens?

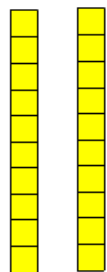




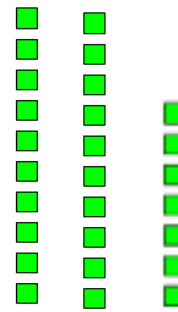
$$40 + 7$$



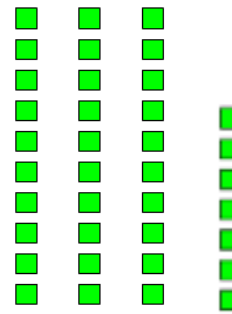
$$30 + 17$$



$$20 + 27$$



$$10 + 37$$



## Counting on/back in 10s

$$26 + 20 = 46$$

$$67 - 20 = 47$$

Can they see a pattern?

What happens to the tens column?

$$31 + 10 = 41$$

3 tens add 1 ten equals 4...

$$59 - 20 = 39$$

5 tens take away 2 tens equals 3...

### Recall of facts

If we know  $4 + 5 = 9$

We also know:

$$5 + 4 = 9$$

$$9 - 5 = 4$$

$$14 + 5 = 19$$

$$5 = 19 - 14, \text{ etc}$$

$$\square = \square + \square$$

$$\square = \square - \square$$

What numbers could go into these boxes?

We encourage the children to apply their knowledge in different ways.

**By the end of Year 1, the children were expected to recall and use facts within and to 20 for addition and subtraction.**

Then in Year 2 children we extend their knowledge further.

### Using Known Facts

If I know  $2 + 3 = 5$

I also know:

$$3 + 2 = 5$$

$$20 + 30 = 50$$

$$50 - 30 = 20$$

$$50 - 20 = 30$$



# Year 2

4

6

2

$$60 - 20 = 40$$

What do you know?

$$40 + 20 = 60$$

$$6 - 2 = 4$$

$$4 + 2 = 6$$

$$6 - 4 = 2$$

$$2 + 4 = 6$$

$$16 - 2 = 14$$

They are all even.

6 is the largest and 2 the smallest.





$$6 + 7 = 12$$

Am I correct? How do you know?

I know  $6 + 6 = 12$  so  
1 more would be 13.

$$7 + 9 + 1 = 17$$

I know  $9 + 1 = 10$

So 7 more is 17.



**Bridge through 10**

addition and subtraction

$$26 + 7 = 26 + 4 + 3$$

$$26 + 4 = 30$$

$$30 + 3 = 33$$

Year 2 How would you solve these?

$$36 + \underline{\quad} = 42$$

$$31 + \underline{\quad} + 5 = 46$$

What is the missing number? How do you know?

I know  $36 + 4 = 40$ . It is 2 more.

So  $4 + 2$  more equals 6.

Or  $42 - 36 =$

I know  $31 + 5 = 36$

The difference between  
46 and 36 is 10.



When they get into Year 2 we aim to teach the children these skills to develop their mental skills.

## Re-ordering

(Eg to find bonds to 10 or putting larger number first)

$$2 + 7 + 8 = 8 + 2 + 7$$

$$23 + 34 = 34 + 23$$



## Addition in Year 2 - Partitioning

$$23 + 34 =$$

First we would encourage the children to put the largest number first.

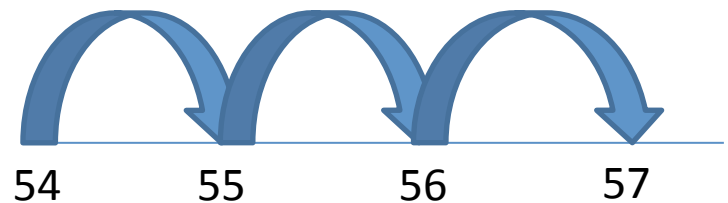
$$\begin{array}{c} 34 + 23 = \\ \swarrow \quad \searrow \\ 20 \quad 3 \end{array}$$

Then we would add on the tens

$$\begin{array}{r} 34 + 20 = 54 \\ \times \quad \times \quad \times \end{array}$$

Then we would add the units

$$54 + 3 = 57$$





## Activity –

**11 + 18 =** How would you solve this for your child?

First we would encourage the children to put the largest number first.

$$\begin{array}{r} 18 + 11 = \\ \swarrow \quad \searrow \\ 10 \quad 1 \end{array}$$

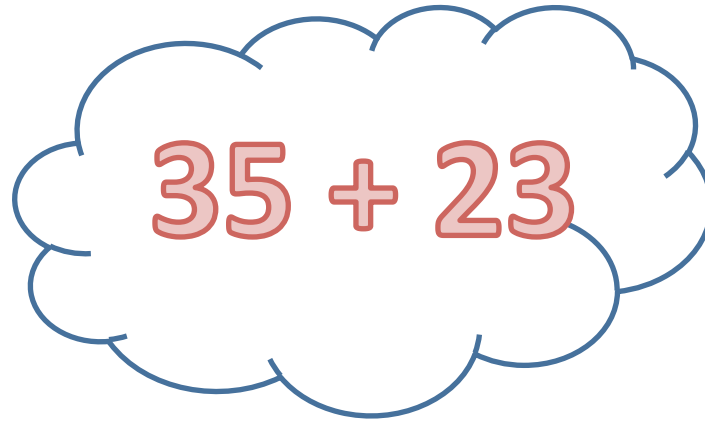
Then we would add on the tens

$$\begin{array}{r} 18 + 10 = 28 \\ \times \quad \times \quad \times \end{array}$$

Then we add the units

$$28 + 1 = 29$$




$$35 + 23$$


$$58$$


$$68$$

3 tens add 2 tens is 5 tens so the answer must be 58.

# Aggregation

Combining two sets of objects  
(counting all method!)



"If I have 4 blue footballs and 2 red footballs in my bag, how many footballs do I have all together?" "6"

# Augmentation

Adding to a set  
(counting on method!)



"If I had 4 footballs and then found 2 more, how many footballs would I have in total?" "6"

## Subtraction in Year 2

$$37 - 16 =$$

$$37 - 16 =$$

$$\begin{array}{r} \diagup \quad \diagdown \\ 10 \quad 6 \end{array}$$

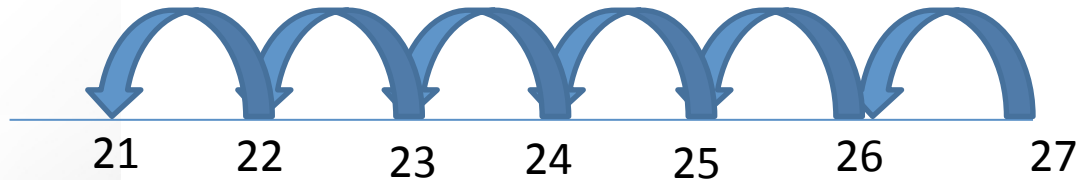
Then we would subtract the tens

$$37 - 10 = 27$$

x    x    x

Then we subtract the units

$$27 - 6 = 21$$





## Subtraction in Year 2

$$46 - 25 =$$

$$46 - 25 =$$

$$\begin{array}{r} \diagup \quad \diagdown \\ 20 \quad 5 \end{array}$$

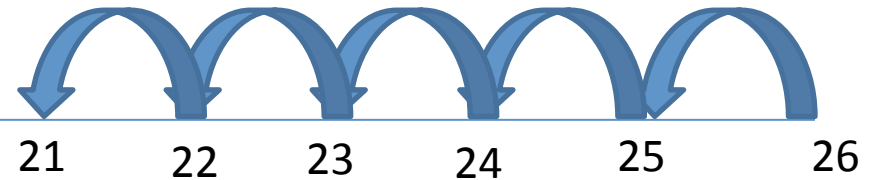
Then we would subtract the tens

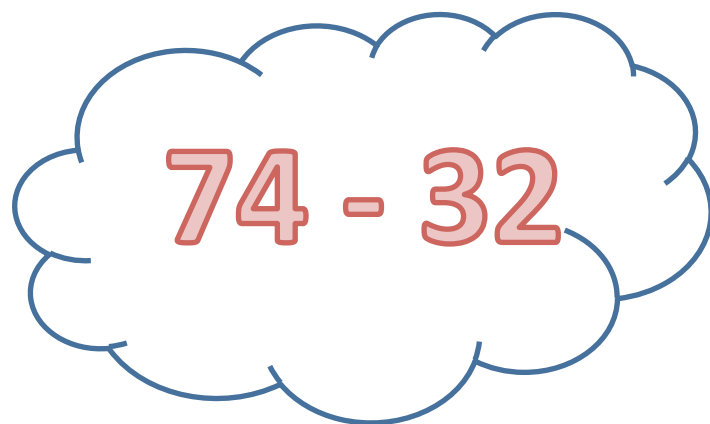
$$46 - 20 = 26$$

$$\begin{array}{r} \times \quad \times \quad \times \\ \hline \end{array}$$

Then we subtract the units

$$26 - 5 = 21$$




$$74 - 32$$


$$43$$


$$42$$

The tens are the same so I will look at the units.  $4 - 2$  is 2 so it must be 42.

## Removing Items

### Take Away



"If I had 8 footballs and kicked 3 over the fence, how many did I have left?" "5"

### Reduction

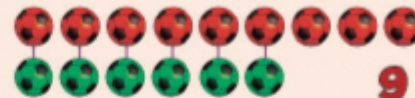
$$8 - 3 = 5$$



"The football cost £8 but I got £3 off in the sales. How much did I pay?" "£5"

## Comparing Sets

### Comparison



$$9 - 6 = 3$$

"If I had 9 footballs and you had 6, how many more balls have I got than you?" "3"

### Inverse of Addition

"The football costs £9 but I've only got £6. How much more do I need?" "£3"



$$£6 + ? = £9$$

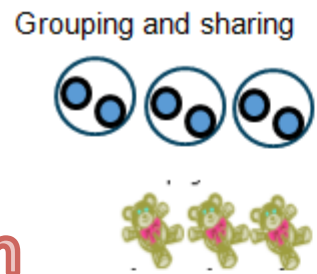
## Whole / Part / Part



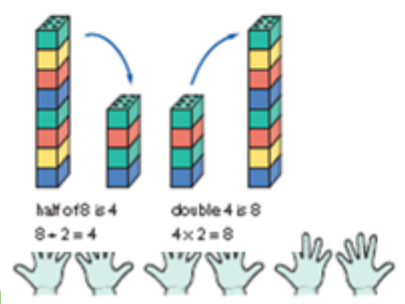
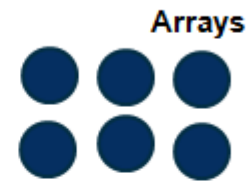
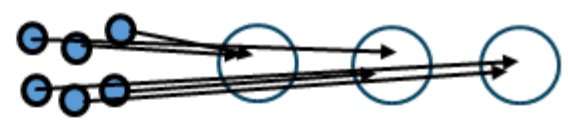
"There are 10 footballs in my bag. 6 are red, how many are yellow?" "4"

$$10 - 6 = 4$$

We spend a lot of time exploring problems when solving multiplication and division. We try and use word problems before we introduce the Symbols  $\times$  or  $\div$ .



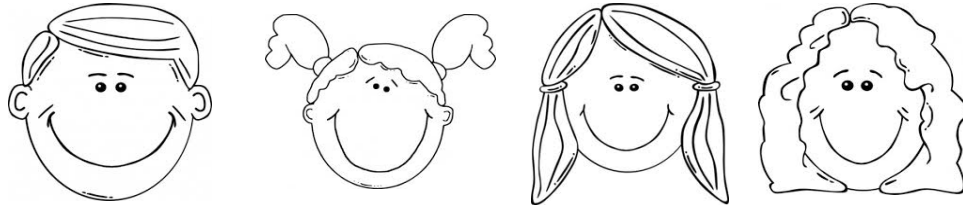
How many legs will 3 teddies have?



Multiplication and Division in Year 1



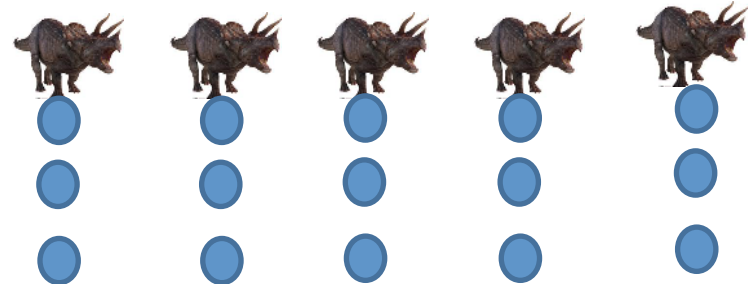




They have 2 sweets each.

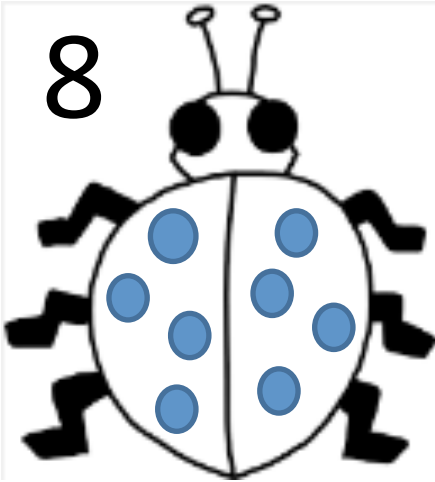
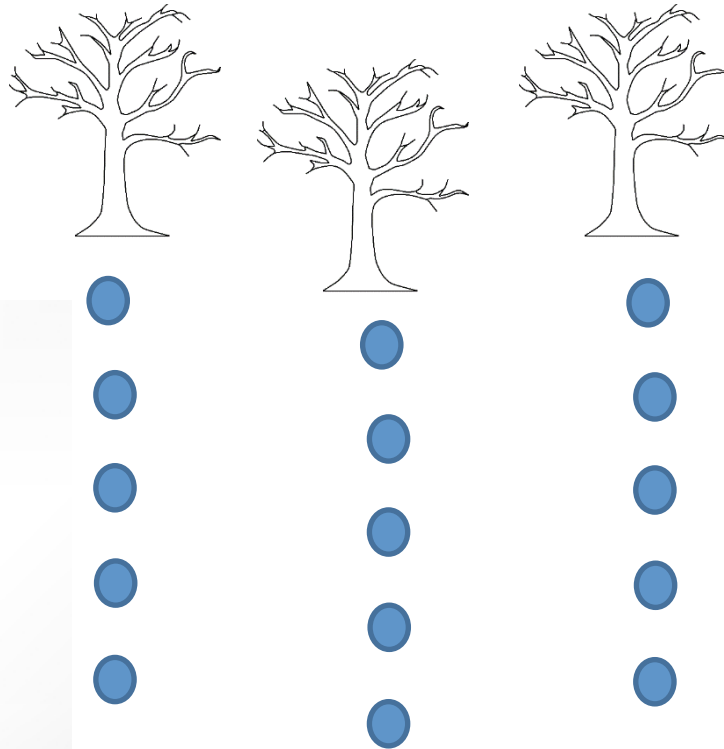
Multiplication

There are 5 Triceratops. They have 3 biscuits each. How many biscuits do they have altogether?



# Division

I picked up 15 apples from under 3 trees. How many fell off each tree?



## Socks and shoes

How many pairs of socks do these aliens need?



I have 6 legs.



I have 12 legs.



I have 22 legs.



I have 8 legs.



I have 19 legs.

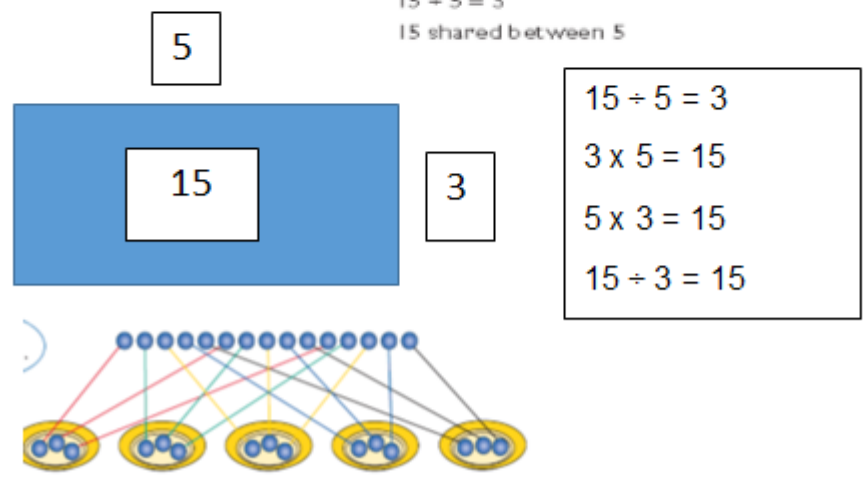
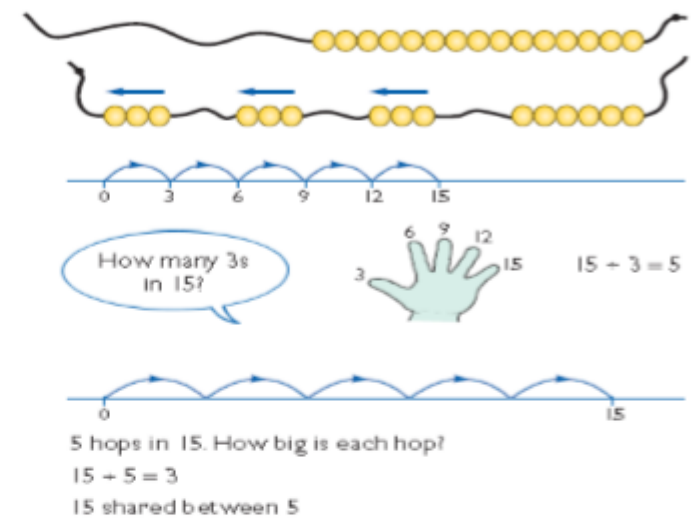
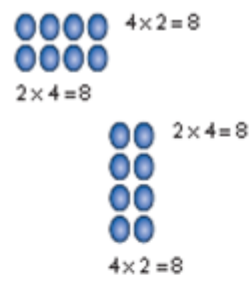


I have 15 legs.



# Multiplication and Division in Year 2

We introduce arrays and the symbols in Year 2.



They must know their 2x, 5x and 10x off by heart by January!

# Partitioning when multiplying


$$12 \times 5 = 60$$

$$10 \times 5 = 50$$

$$2 \times 5 = 10$$

I know 50 add 10 is 60 because

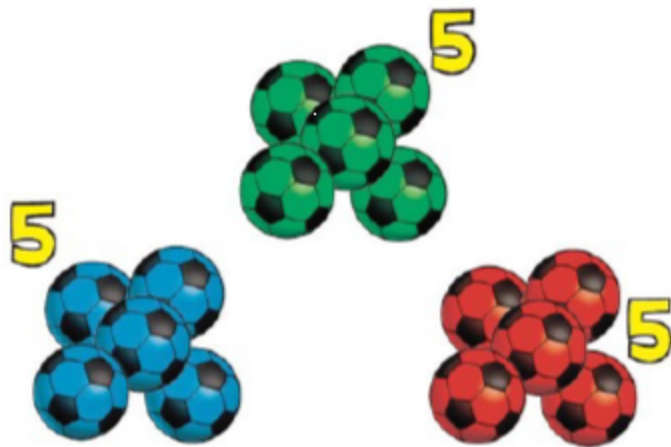
5 + 1 is 6.

$$7 \times 5 = \quad 34 \quad 35 \quad 36$$

When I multiply by 5 it always has a 5 or a zero in the units so the answer must be 35.

# Multiplication

## Repeated Addition



$$5 + 5 + 5 = 15$$

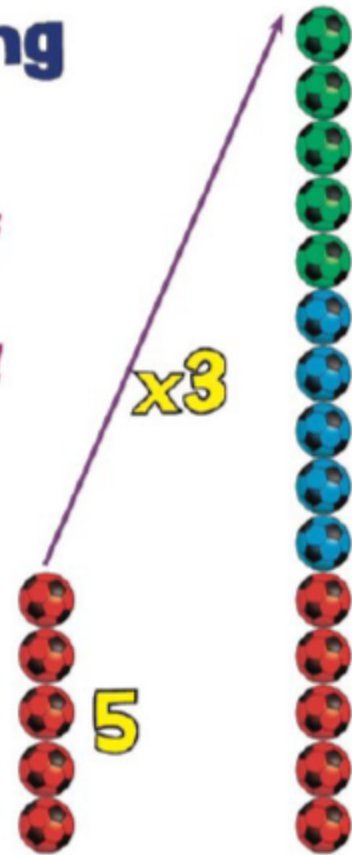
"I can fit 5 footballs in a bag and I've brought 3 full bags. How many footballs do I have with me? "15"

## Scaling

"My tower of football stickers was 5 high, but now it's 3 times as big! How many stickers in my tower?"

"15"

$$5 \times 3 = 15$$





# Division

## Sharing



$$15 \div 3 = 5$$

"If I shared my 15 footballs fairly into 3 bags, how many balls would be in each bag?" "5"

## Grouping



$$15 \div 3 = 5$$

"If I can put my 15 footballs into groups of 3, how many groups would I create?" "5"

How many ways can you  
make 40p using silver  
coins?



You can use each coin  
more than once!

