

# Number and Place Value

# Knowledge Organiser

## Key Vocabulary

hundreds

tens

ones

zero

place value

greater than

less than

order

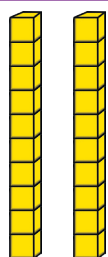
partition

digit

## 2-Digit Numbers

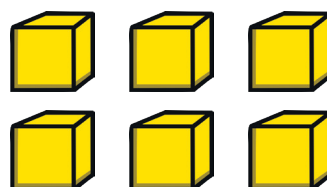
26

twenty



20

six



6

## Counting

Counting in 2s

0 2 4 6 8 10 12 14 16 18 20

Counting in 3s

0 3 6 9 12 15 18 21 24 27 30

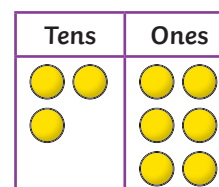
Counting in 5s

0 5 10 15 20 25 30 35 40 45 50

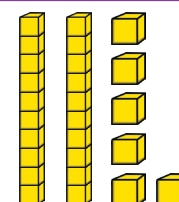
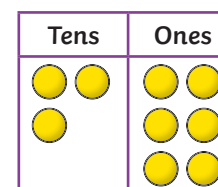
Counting in 10s

0 10 20 30 40 50 60 70 80 90 100

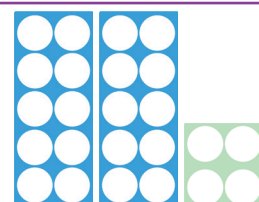
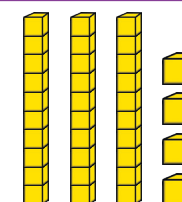
## Compare Numbers



36 = 36  
equals



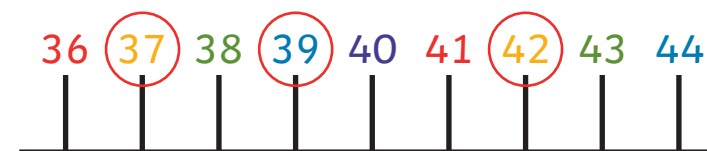
26 < 34  
less than



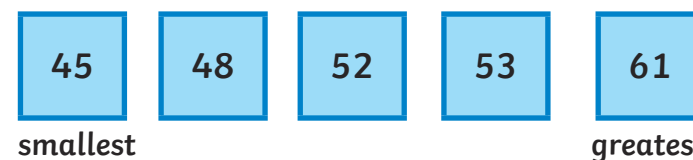
24 > 19  
greater than



## Order Numbers



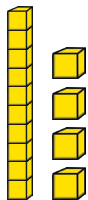
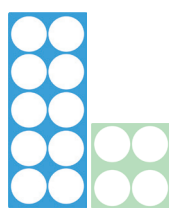
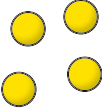
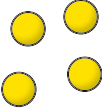
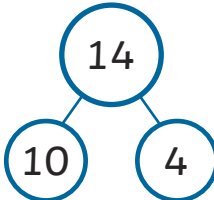
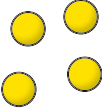
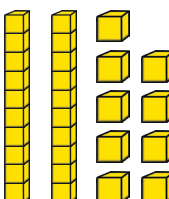
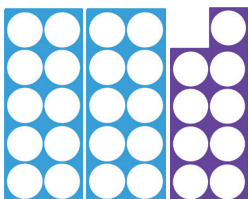
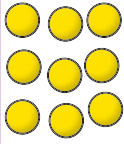
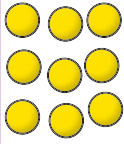
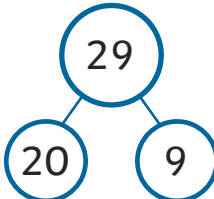
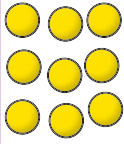
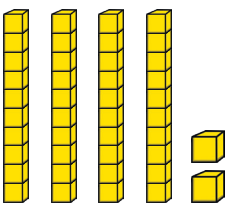
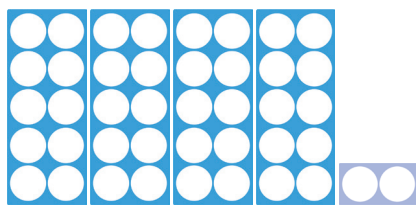
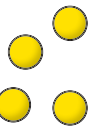
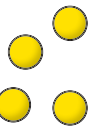
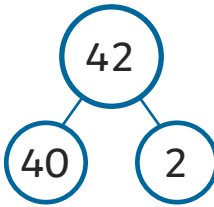
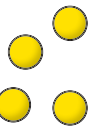
37 < 39 < 42

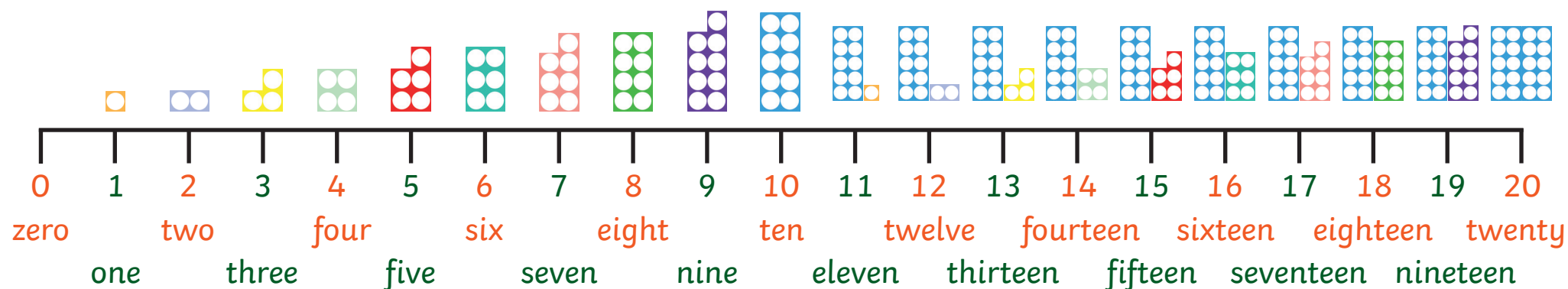


# Number and Place Value

## Knowledge Organiser

### Read, Write and Represent Numbers to 100

| 14                                                                                  | fourteen                                                                            | one ten<br>four ones  |  |  | <table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr></table> | Tens | Ones |  |  |  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Tens                                                                                | Ones                                                                                |                       |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                     |      |      |                                                                                     |                                                                                     |                                                                                     |
|  |  |                       |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                     |      |      |                                                                                     |                                                                                     |                                                                                     |
| 29                                                                                  | twenty-nine                                                                         | two tens<br>nine ones |  |  | <table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr></table> | Tens | Ones |  |  |  |
| Tens                                                                                | Ones                                                                                |                       |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                     |      |      |                                                                                     |                                                                                     |                                                                                     |
|  |  |                       |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                     |      |      |                                                                                     |                                                                                     |                                                                                     |
| 42                                                                                  | forty-two                                                                           | four tens<br>two ones |  |  | <table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr></table> | Tens | Ones |  |  |  |
| Tens                                                                                | Ones                                                                                |                       |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                     |      |      |                                                                                     |                                                                                     |                                                                                     |
|  |  |                       |                                                                                    |                                                                                     |                                                                                                                                                                                                                                                     |      |      |                                                                                     |                                                                                     |                                                                                     |



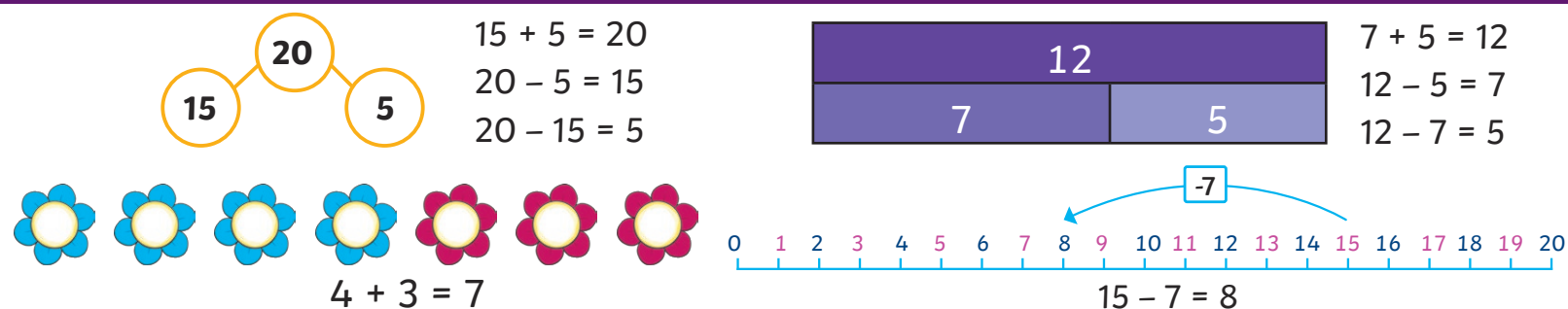
# Addition and Subtraction

## Knowledge Organiser

### Key Vocabulary

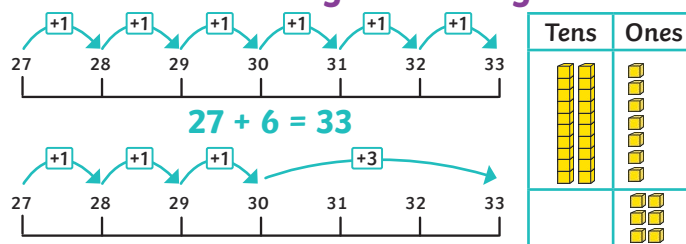
|                    |
|--------------------|
| Add                |
| Total              |
| Make               |
| Plus               |
| Sum                |
| More               |
| Altogether         |
| Difference         |
| Leave              |
| Subtract           |
| Difference between |
| Less               |
| Minus              |
| Take away          |
| Mentally, Orally   |
| Column Addition    |
| Column Subtraction |
| Estimate           |
| Inverse operation  |
| Solve problems     |
| Number facts       |
| Place Value        |

### Addition and Subtraction Bonds to 20

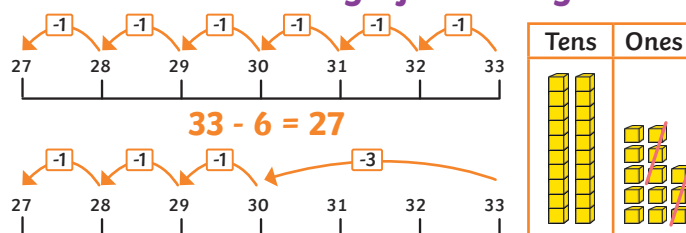


### Methods

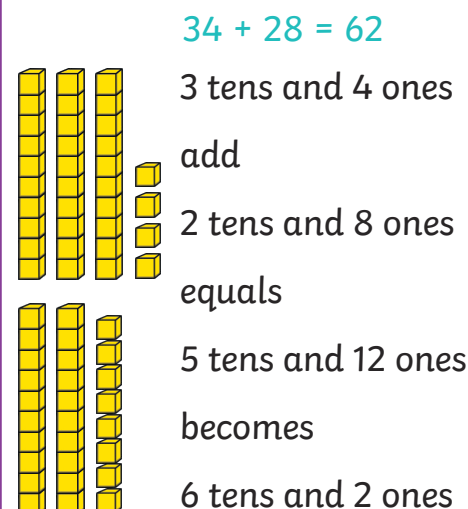
#### Add 2-digit and 1-digit



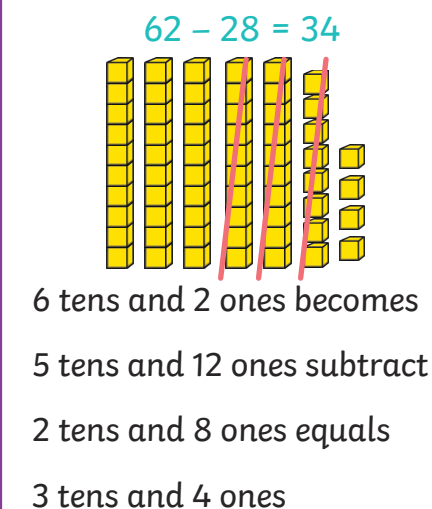
#### Subtract 1-digit from 2-digit



#### Add 2-digit numbers

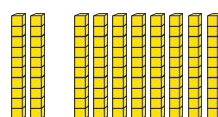


#### Subtract 2-digit numbers



### Addition and Subtraction Bonds to 100

$2 + 8 = 10$   
so  $20 + 80 = 100$



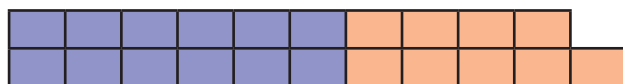
$32 + 68 = 100$   
3 tens and 2 ones + 6 tens and 8 ones  
= 9 tens and 10 ones = 10 tens = one hundred

# Addition and Subtraction

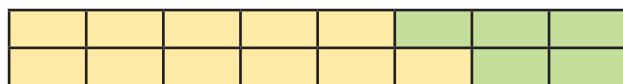
# Knowledge Organiser

## Mental Methods

### Compare Number Sentences



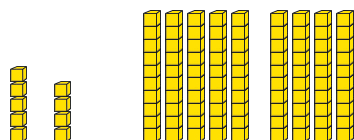
$$6 + 4 < 6 + 5$$



$$5 + 3 = 6 + 2$$

### Related facts

$$5 + 4 = 9 \text{ so } 50 + 40 = 90$$



### Add 3 1-digit numbers



$$9 + 5 + 3 = 17$$

## More or Less/ Add and Subtract 1s and 10s

### Add and subtract 1s

$$24 + 1 = 25$$

$$24 + 2 = 26$$

$$24 + 3 = 27$$



$$37 - 1 = 36$$

$$37 - 2 = 35$$

$$37 - 3 = 34$$



There are 7 flowers in a vase. One more is added.

Now there are 8 flowers.



### 10 More or Less

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 30 | 40 | 50 | 60 | 70 | 80 |
|----|----|----|----|----|----|

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 47 | 57 | 67 | 77 | 87 | 97 |
|----|----|----|----|----|----|

The ones digit stays the same.

| 10 less | Number | 10 more |
|---------|--------|---------|
|         |        |         |
| 1       | 11     | 21      |
|         |        |         |
| 34      | 44     | 54      |

Take care when crossing hundreds:

|    |    |     |     |
|----|----|-----|-----|
| 86 | 96 | 106 | 116 |
|----|----|-----|-----|

### Add and Subtract 10s

|    |    |    |    |    |
|----|----|----|----|----|
| 10 | 30 | 50 | 70 | 90 |
|----|----|----|----|----|

|   |    |    |    |
|---|----|----|----|
| 3 | 33 | 63 | 93 |
|---|----|----|----|

| Tens | Ones |
|------|------|
|      |      |
|      |      |
|      |      |
|      |      |

$$27$$

$$+ 40$$

$$67$$

| Tens | Ones |
|------|------|
|      |      |
|      |      |
|      |      |
|      |      |

$$72$$

$$- 30$$

$$42$$

Crossing hundreds:

|    |    |     |     |
|----|----|-----|-----|
| 74 | 94 | 114 | 134 |
|----|----|-----|-----|

## Check Calculations



$19 - 8 = 11$  can be checked using  $8 + 11 = 19$

$32 + 5 = 82 \times$  Spot that 5 tens have been added not 5 ones

$28 - 26 = 12 \times$  Spot that 28 and 26 are very close together, so difference won't be 12.

$37 - 4 = 41 \times$  Spot that if subtracting 4 the answer will be smaller.

$68 - 40 = 64 \times$  Spot that 4 ones have been subtracted and not 4 tens.

## Key Vocabulary

two-dimensional (2D)

three-dimensional (3D)

flat

solid

corner

apex

vertex

vertices

side

edge

face

curved

straight

round

line of symmetry

vertical

pattern

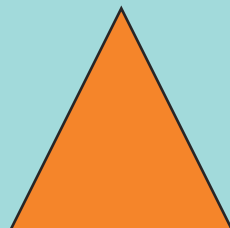
## Recognise and Describe 2D Shapes



side

corner or vertex

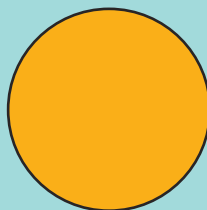
square



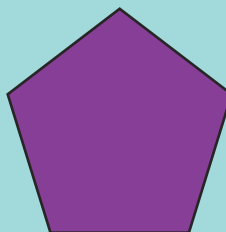
triangle



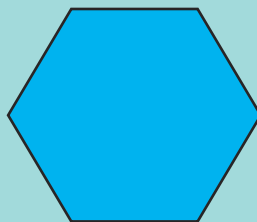
rectangle



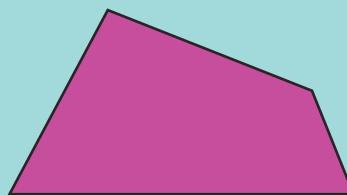
circle



pentagon

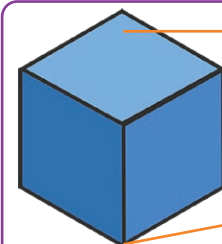


hexagon



quadrilateral

## Recognise and Describe 3D Shapes



face

edge

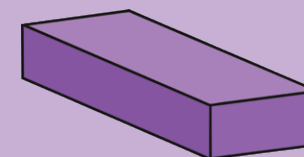
vertices

cube

apex or vertex

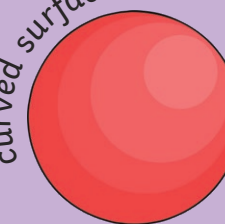


cone

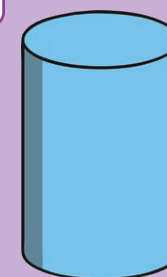


cuboid

curved surface



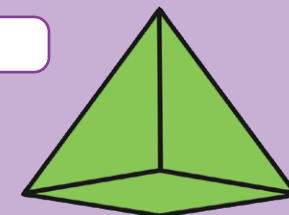
sphere



cylinder



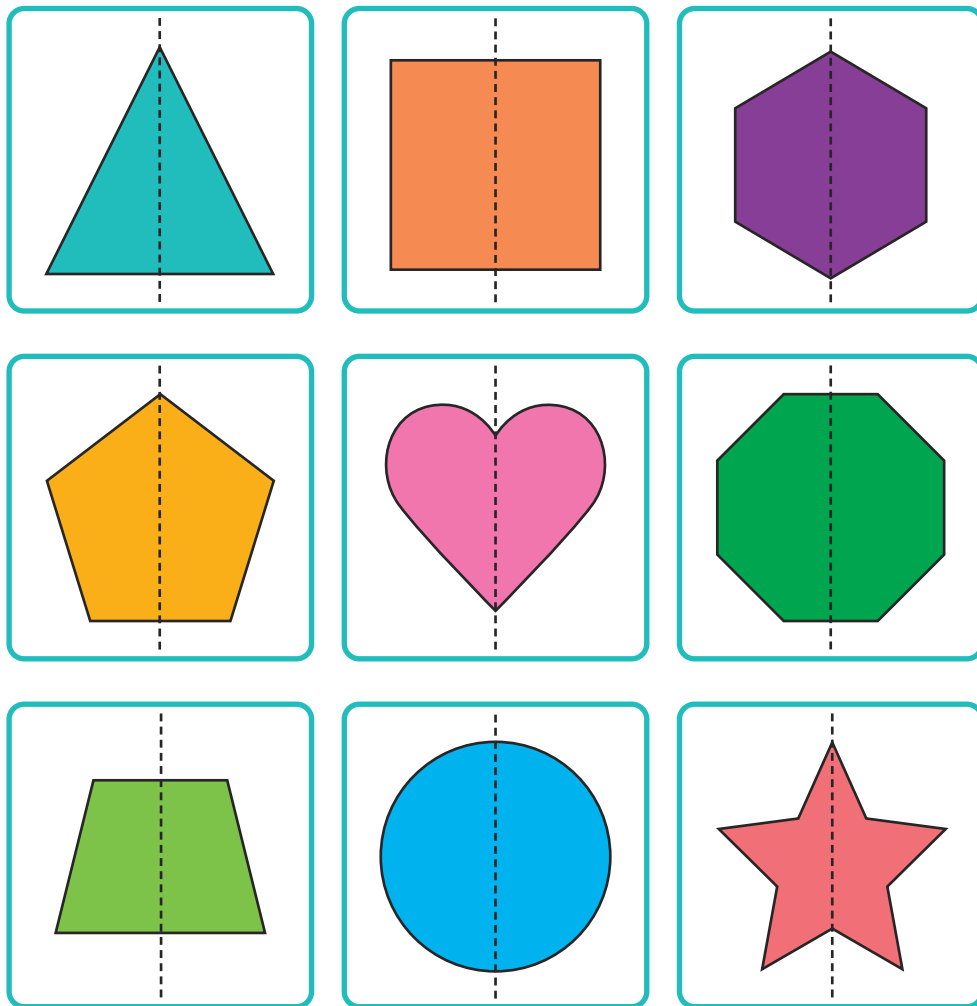
triangular prism



square-based pyramid

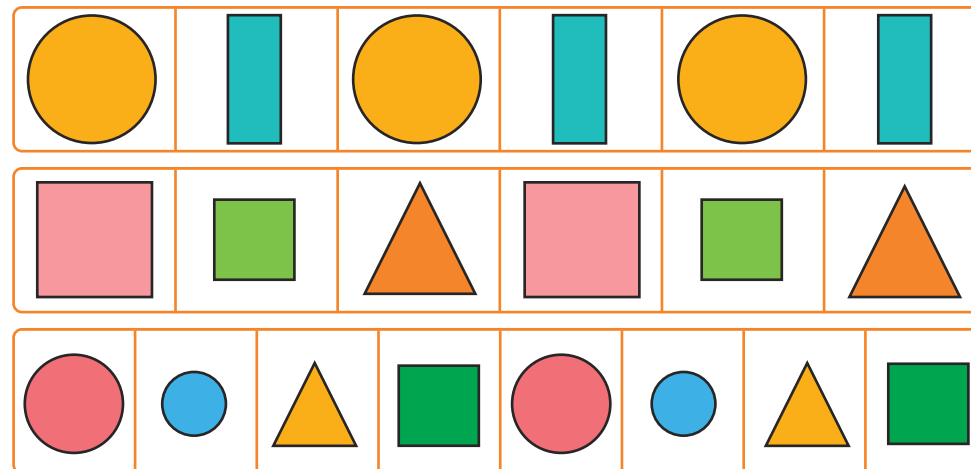
## Lines of Symmetry

These 2D shapes have a vertical line of symmetry.

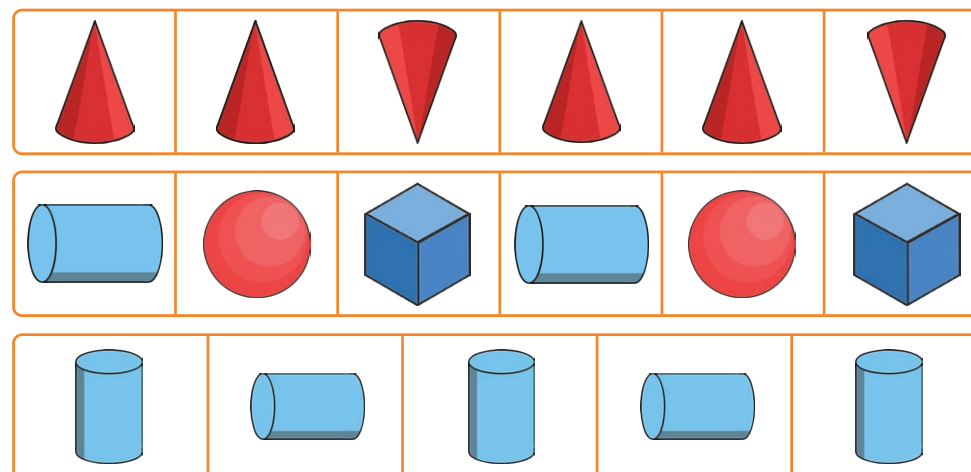


## Repeating Shape Patterns

### 2D Patterns



### 3D Patterns



## Key Vocabulary

pence

pound

coin

note

total

amount

change

difference

price

cost

pay

owe

## Pence



**1p**

1 penny



**2p**

2 pence



**5p**

5 pence



**10p**

10 pence



**20p**

20 pence



**50p**

50 pence

## Pounds



**£1**

1 pound



**£2**

2 pounds



**£5**

5 pounds



**£10**

10 pounds



**£20**

20 pounds



**£50**

50 pounds

## Pounds and Pence

**£2 and 20p**



## Equal Amounts



**20p = 20p = 20p**



**£1 = £1 = £1**

## Compare Amounts



**75p > 74p**



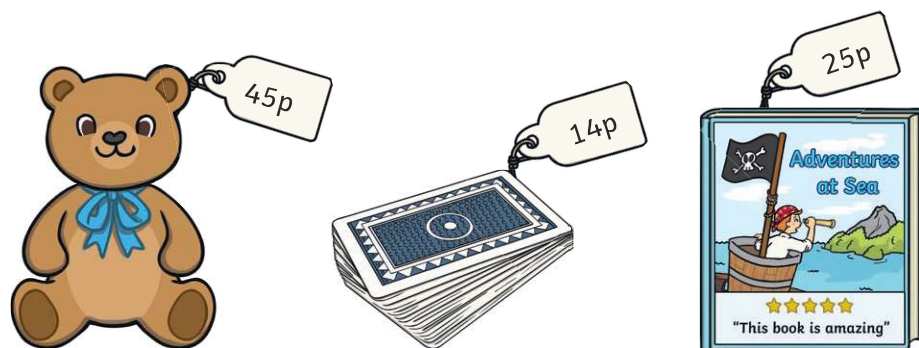
**<**



**£9 and 50p < £10**



### Find the Total



Lucy bought a teddy bear and some playing cards.



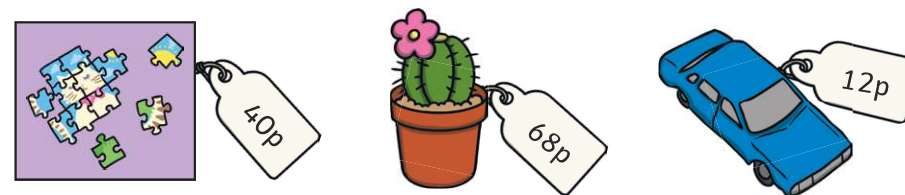
$$45p + 14p = 59p$$

Timek bought two books.

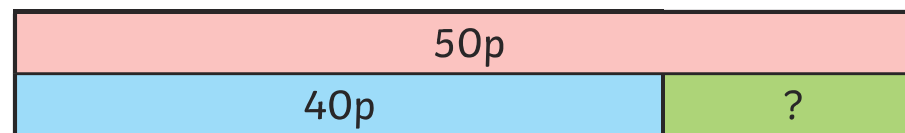


$$25p + 25p = 50p$$

### Find the Change



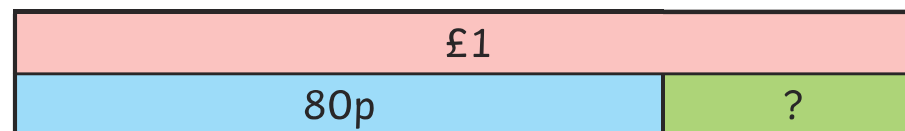
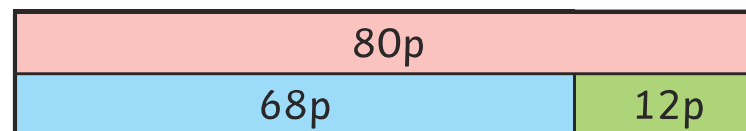
Lucy bought a jigsaw with a 50p coin. How much change did she get?



$$50p - 40p = 10p$$



Timek bought a plant and a toy car. He paid with a £1 coin. How much change did he get?



$$£1 - 80p = 20p$$





# Multiplication and Division

# Knowledge Organiser

## Key Vocabulary

## Recognise Equal Groups

## Make Equal Groups

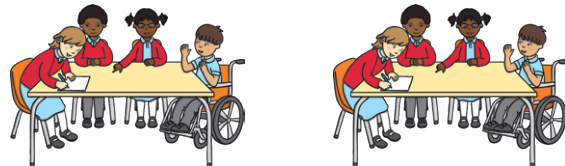
groups



5 equal groups with 3 in each group

equal groups

lots of



arrays

2 equal groups with 4 in each group

repeated addition



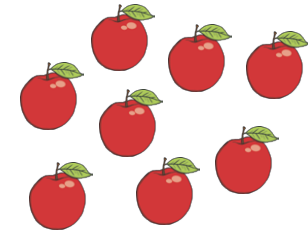
4 equal groups of 10

multiplication

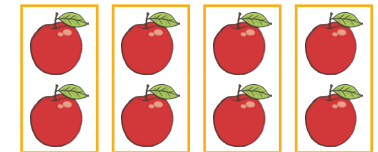
times tables



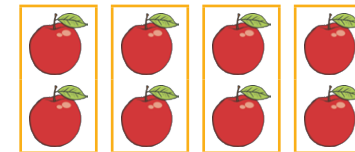
6 equal amounts of 5 pence



Make 4 equal groups.

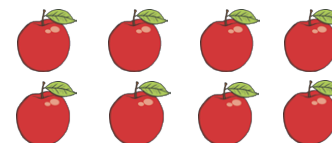


## Add Equal Groups



$2 + 2 + 2 + 2 = 8$  apples

## The Multiplication Symbol



$4 \times 2 = 8$

$2 \times 4 = 8$

8 apples

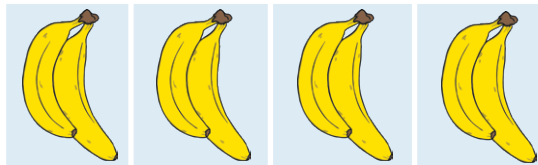


$2 \times 5 = 10$

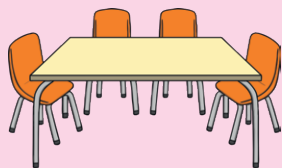
$5 \times 2 = 10$

10 cookies

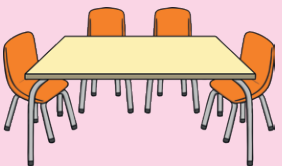
## Multiplication from Pictures



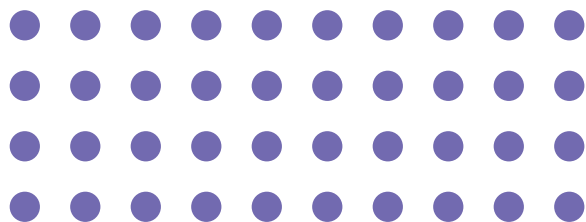
$$4 \text{ lots of } 2 = 8$$



$$2 \text{ lots of } 4 = 8$$



## Use Arrays



$$4 \text{ rows of } 10 = 40$$

$$10 \text{ columns of } 4 = 40$$

## The 2 Times Table



$$6 \text{ lots of } 2 = 12$$

|   |   |   |   |    |    |    |    |    |    |    |    |
|---|---|---|---|----|----|----|----|----|----|----|----|
| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
|---|---|---|---|----|----|----|----|----|----|----|----|

## The 5 Times Table



$$9 \text{ lots of } 5 = 45$$

|   |    |    |    |    |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|----|----|----|----|
| 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
|---|----|----|----|----|----|----|----|----|----|----|----|

## The 10 Times Table



$$7 \text{ lots of } 10p = 70p$$

|    |    |    |    |    |    |    |    |    |     |     |     |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|
| 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|

## Key Vocabulary

length

long

short

height

tall

measure

ruler

tape measure

metre stick

centimetre (cm)

metre (m)

compare

order

## Measuring in Centimetres

Measure from zero.



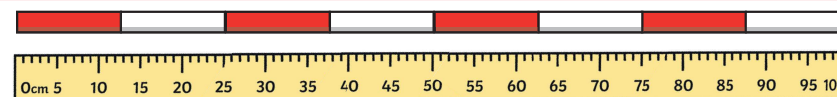
This ruler measures in **centimetres (cm)**. The paintbrush is 8cm long.

This ruler is to scale.

## Measuring in Metres



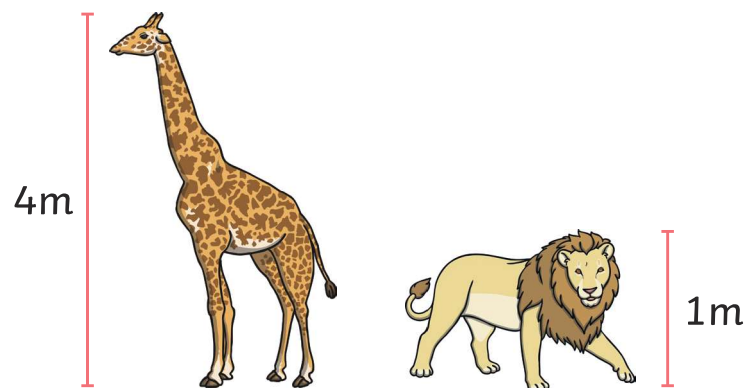
We can measure the length or height of larger objects in **metres (m)**.  
The girl is 1m and 20cm tall.



We can use metre sticks, trundle wheels or tape measures.  
**1 metre = 100 centimetres**

## Comparing Height

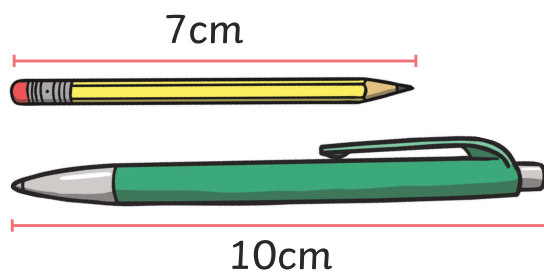
The giraffe is **taller** than the lion.  
The lion is **shorter** than the giraffe.



$$4\text{m} > 1\text{m}$$

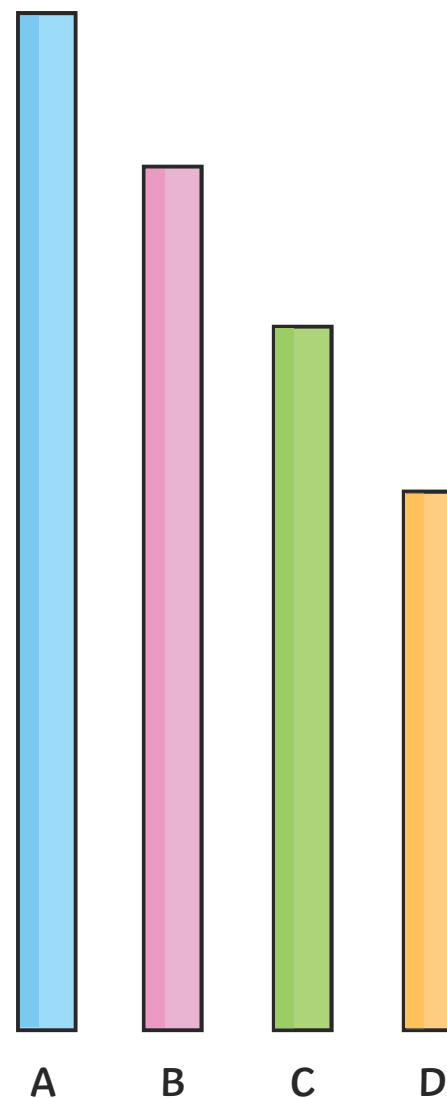
## Comparing Length

The pencil is **shorter** than the pen.  
The pen is **longer** than the pencil.



$$7\text{cm} < 10\text{cm}$$

## Ordering Length



The straws are in order from **longest** to **shortest**.

A is the **longest**.  
D is the **shortest**.  
B is **longer** than C.  
C is **shorter** than A.

# Mass, Capacity and Temperature

## Knowledge Organiser

### Key Vocabulary

mass

gram

kilogram

lighter

heavier

capacity

volume

millilitre

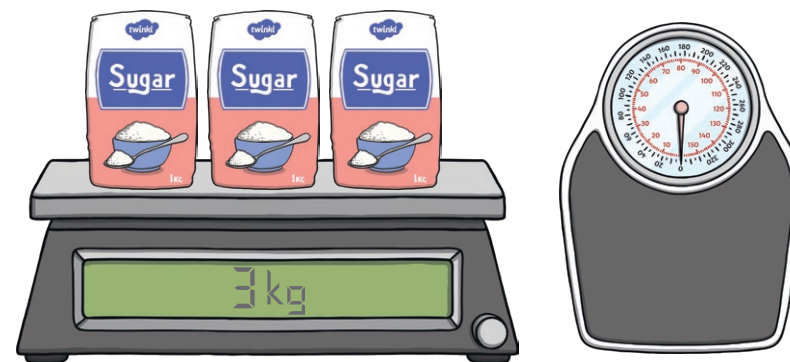
litre

temperature

Celsius

degrees

### Mass



We use scales to measure **grams**.

A gram is a small unit of measurement that we use to measure how heavy or light something is.

We can write gram as **g**.

We measure the following using grams:



$15\text{g} > 10\text{g}$

We also use scales to measure **kilograms**.

A kilogram is a larger unit of measurement that we use to measure how light or heavy something is.

We can write kilogram as **kg**.

We measure the following using kilograms:



$1\text{kg} < 3\text{kg}$

# Mass, Capacity and Temperature

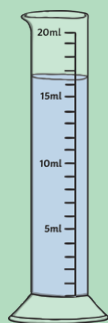
## Knowledge Organiser

### Capacity

**Capacity** is the amount of liquid a container can hold.

**Volume** is how much liquid is in the container.

#### Millilitres



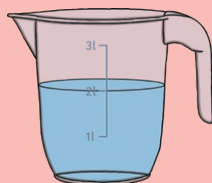
We can use a measuring cylinder to measure very small volumes.

We measure these in millilitres.  
We write this as ml.

$$1000\text{ml} = 1\text{l}$$



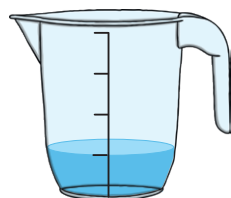
#### Litres



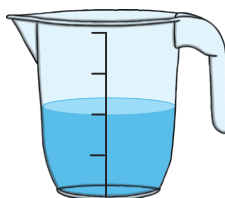
We can use a jug to measure larger volumes.

We measure these in litres.  
We write this as l.

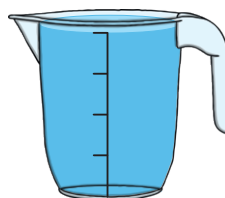
$$1000\text{ml} = 1\text{l}$$



quarter full



half full



full

$$25\text{ml} < 250\text{ml} \quad 10\text{l} > 2\text{l}$$

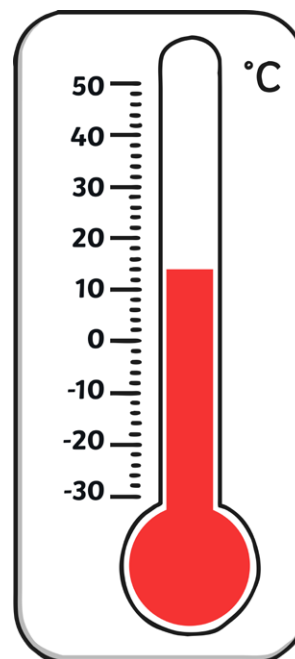
### Temperature

Temperature is a measure of heat.

**Thermometers** are used to measure temperature.

We usually measure temperature in **degrees Celsius ( $^{\circ}\text{C}$ )** but some parts of the world use degrees Fahrenheit ( $^{\circ}\text{F}$ ).

We can measure the temperature of air, liquids or objects using a thermometer.



Most thermometers have small tubes and a bulb of liquid at the bottom. The hotter the temperature, the higher the liquid from the bulb rises in the tube. There are markings along the side of the glass tube that show the temperature.





Key Vocabulary

Recognising Unit Fractions

fraction

part

whole

equal

share

half

quarter

third

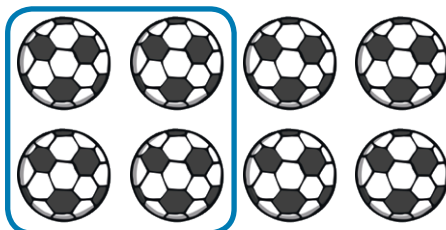
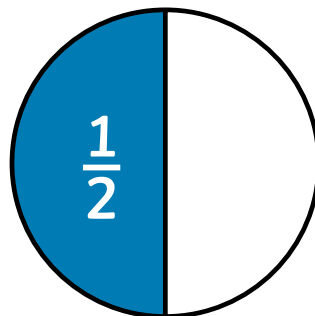
equivalent

numerator

denominator

Half

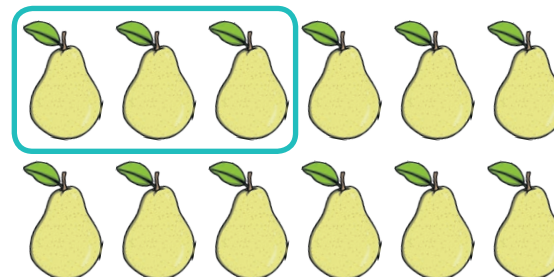
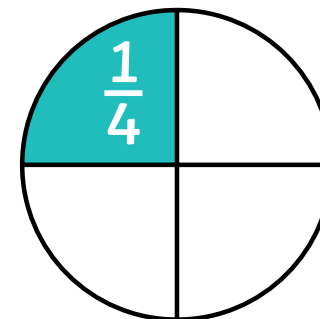
A whole split into two equal parts.



$$\frac{1}{2} \text{ of } 8 = 4$$

Quarter

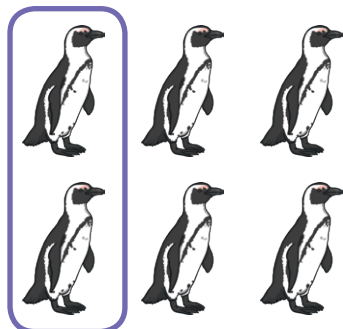
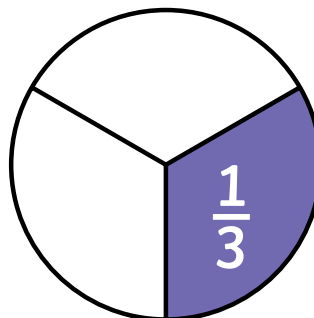
A whole split into four equal parts.



$$\frac{1}{4} \text{ of } 12 = 3$$

Third

A whole split into three equal parts.



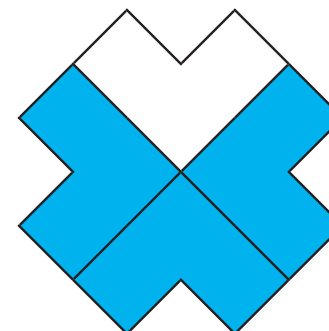
$$\frac{1}{3} \text{ of } 6 = 2$$

Non-unit Fractions

$$\frac{2}{3}$$

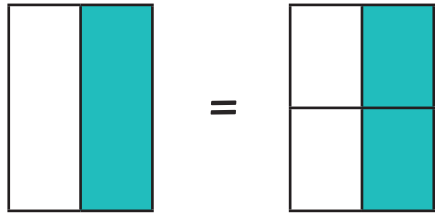


$$\frac{3}{4}$$

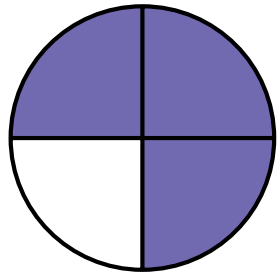


Equivalent Fractions

$$\frac{1}{2} = \frac{2}{4}$$



Numerator and Denominator



$\frac{3}{4}$

**Numerator**

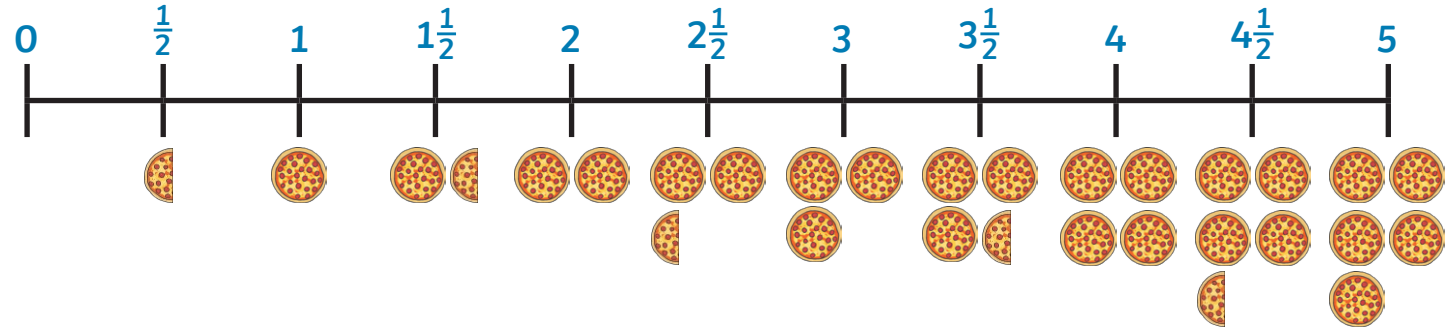
How many equal parts of the whole are needed?

**Denominator**

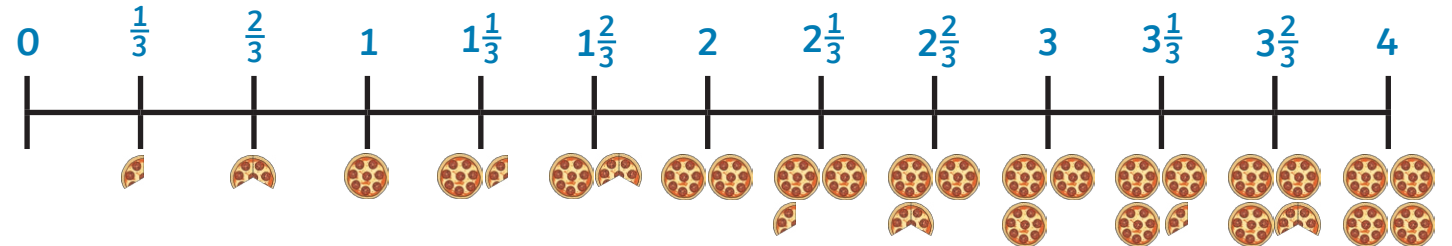
How many equal parts are in the whole?

Counting in Fractions

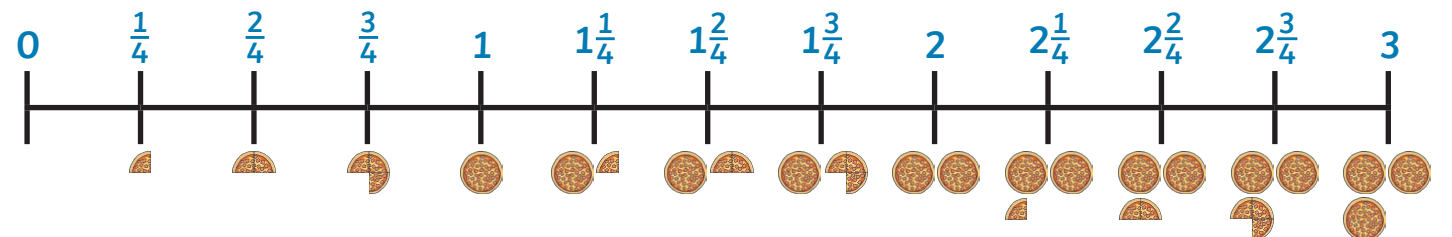
Halves



Thirds



Quarters



# Time

## Knowledge Organiser

### Key Vocabulary

### O'Clock and Half Past

**time**

half past twelve

one o'clock

half past one

two o'clock

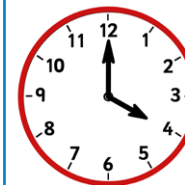
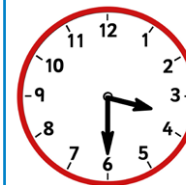
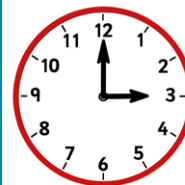
half past two

three o'clock

half past three

four o'clock

**clock**



**hours**

**minutes**

**hand**

**o'clock**

**half past**

**quarter past**

**quarter to**

**five minutes**

half past four

five o'clock

half past five

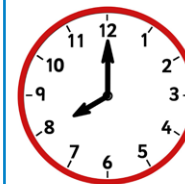
six o'clock

half past six

seven o'clock

half past seven

eight o'clock



half past eight

nine o'clock

half past nine

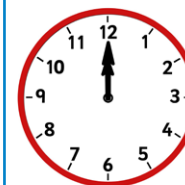
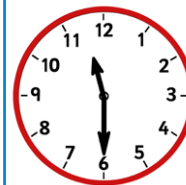
ten o'clock

half past ten

eleven o'clock

half past eleven

twelve o'clock



**duration**

### Past and To

**shorter**

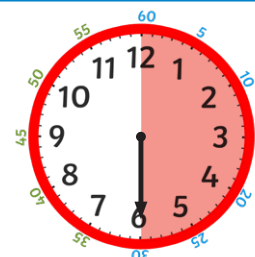
**longer**



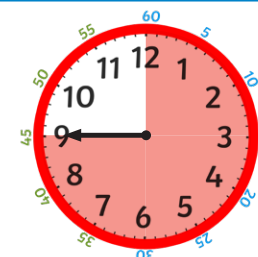
**o'clock**



**quarter past**



**half past**

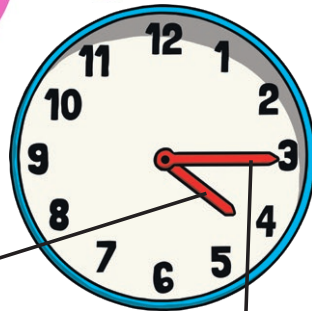
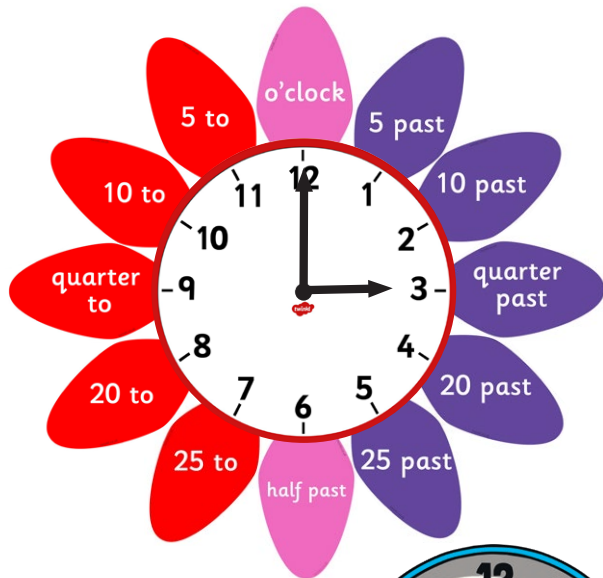


**quarter to**

# Time

## Knowledge Organiser

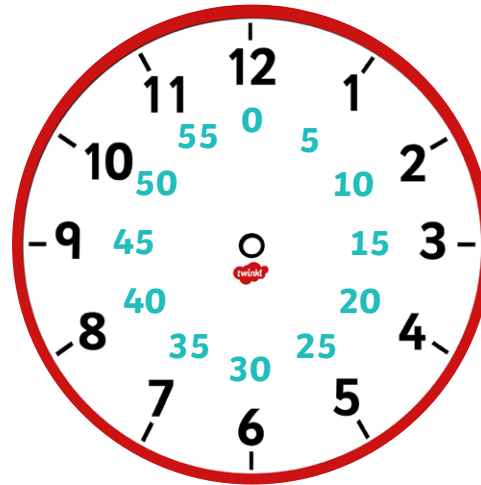
### Telling Time to 5 Minutes



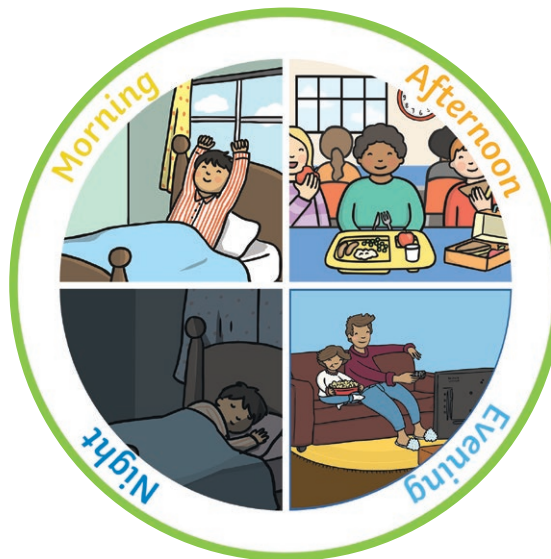
**Hour Hand**  
The short hand points to the hour.  
If this hand is pointing between hours, it is either past the earlier hour or to the later hour.

**Minute Hand**  
The long hand points to the minutes past or to the hour.

### O'Clock and Half Past

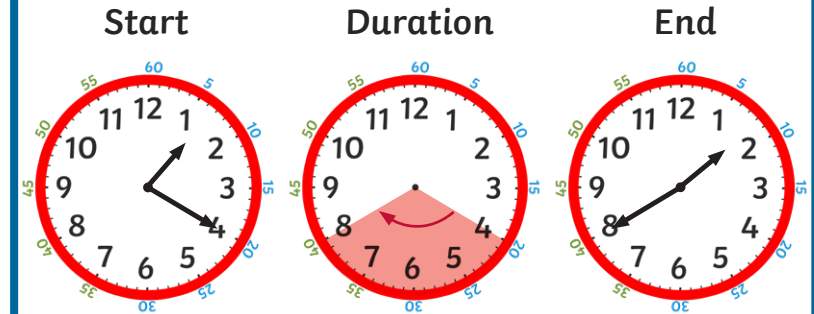


There are **60 minutes** in an hour.



There are **24 hours** in a day.

### Find Durations of Time



**20 minutes** has passed.

### Compare Durations of Time

|                                         |            |                              |            |
|-----------------------------------------|------------|------------------------------|------------|
| <br>A swimming lesson                   | 30 minutes | <br>A visit to the cinema    | 2 hours    |
| <br>The time it takes to do 1 star jump | 1 second   | <br>A favourite TV programme | 20 minutes |
| <br>A nice long walk                    | 3 hours    | <br>A week at school         | 5 days     |

Compare the time using the vocabulary 'longer' and 'shorter'.

## Key Vocabulary

## Tally Charts

## Block Diagram

data

interpret

key

tally chart

pictogram

block diagram

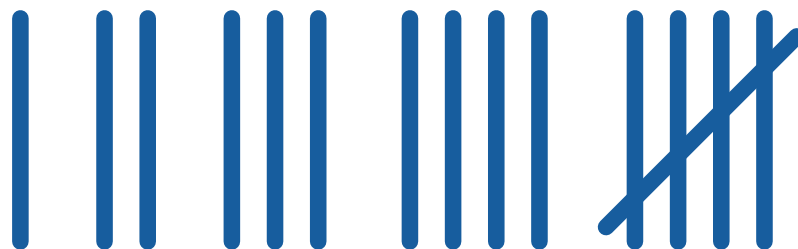
table

total

compare

symbol

Tally marks look like this:

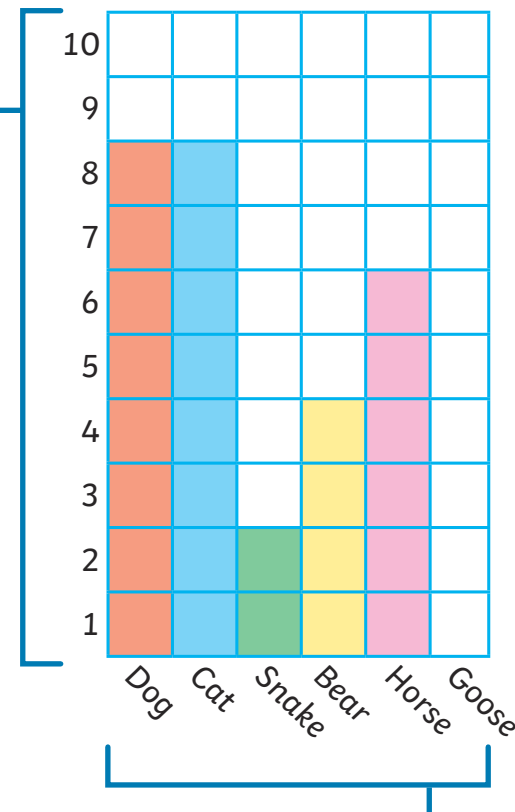


The fifth mark goes across diagonally, like a gate.

A tally chart is one way of collecting data using tally marks.

| Eye Colour | Tally | Total |
|------------|-------|-------|
| brown      |       | 6     |
| blue       |       | 8     |
| green      |       | 3     |
| grey       |       | 4     |
| hazel      |       | 5     |

A block diagram represents data using blocks. One block represents one item.

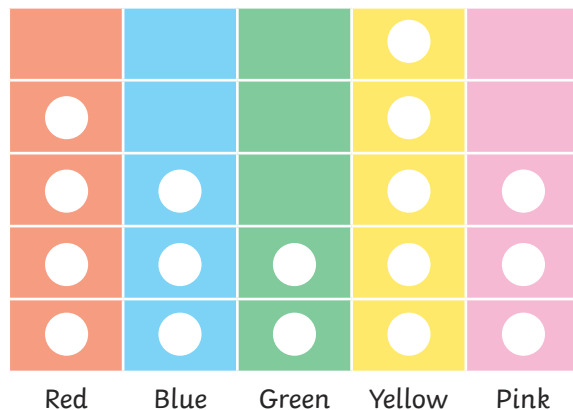
In this block diagram, the **y-axis**, which is vertical, shows the number of items.In this block diagram, the **x-axis**, which is horizontal, shows the types of items.

The blocks can go vertically or horizontally.

## Pictograms

Pictograms use pictures or symbols to represent data. Each picture or symbol can represent one item or more than one. The key shows what each symbol represents.

### Favourite Colour

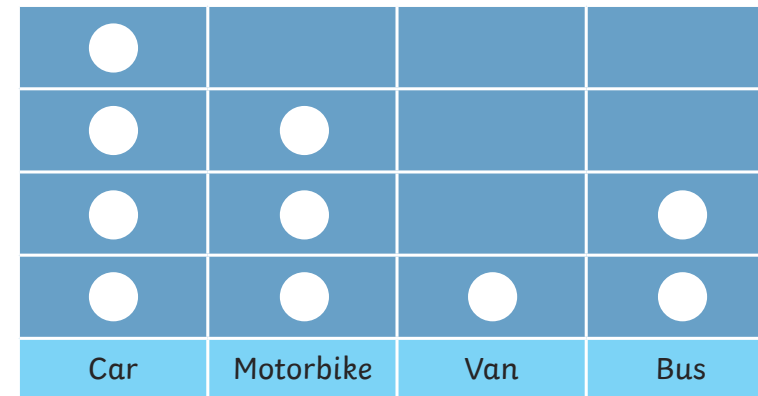


#### Key

● = 1 child

Here is an example of a pictogram with a different scale.

### Traffic Survey

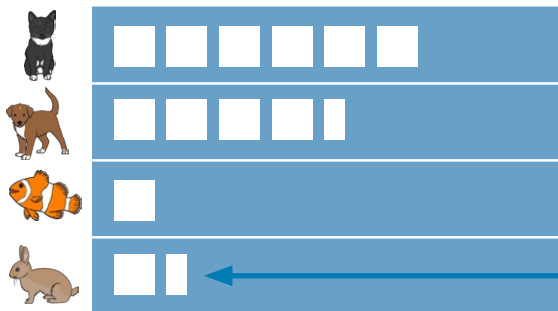


#### Key

● = 5 vehicles

This pictogram uses one symbol to represent 2 pets.

### Class 1's Pets



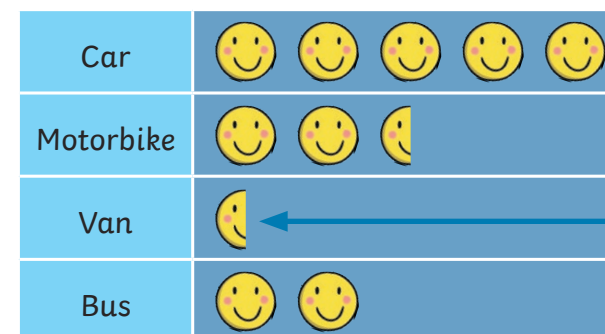
#### Key

□ = 2 pets

To represent 1 pet, a picture of half a square is used.

This pictogram has one symbol to represent 10 children.

### Ways of Travelling to School



#### Key

😊 = 10 children

To represent 5 children, a picture of half a face is used.



## Key Vocabulary

forwards

backwards

left

right

north

south

east

west

quarter turn

half turn

three-quarter turn

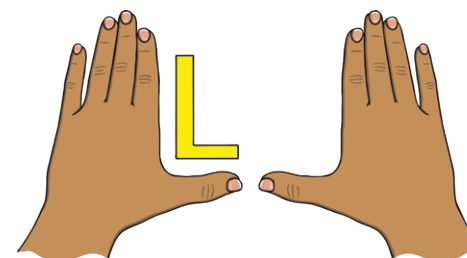
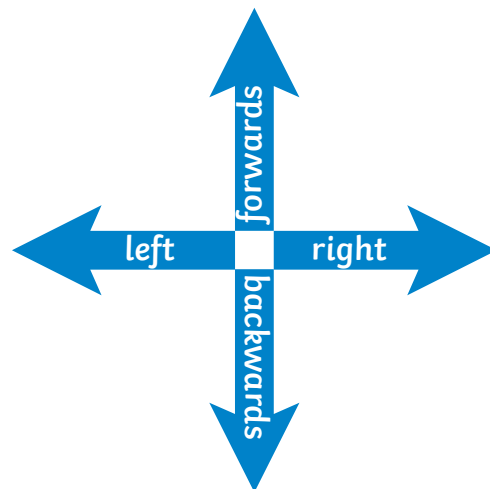
clockwise

anticlockwise

pattern

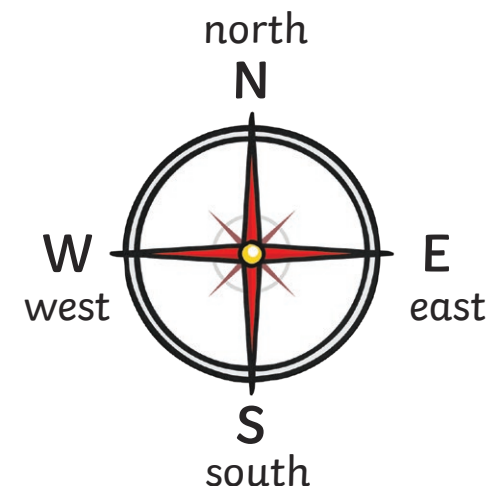
sequence

## Describing Straight-Line Movement

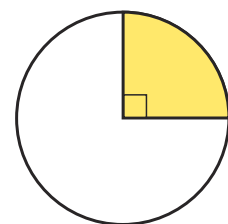


### Left and Right

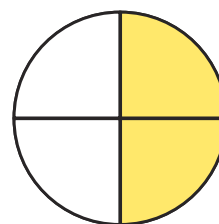
The hand that makes an **L** shape is the **left hand**.



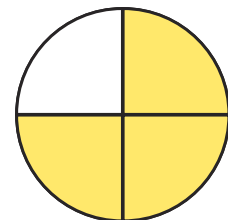
## Describing Turns



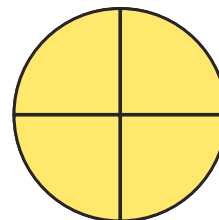
quarter turn



half turn

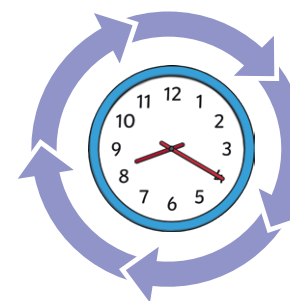


three-quarter turn



full turn

### clockwise



If the turn is in the same direction as the hands of a clock, it is **clockwise**.

### anticlockwise



If the turn is in the opposite direction to the hands of a clock, it is **anticlockwise**.