

# Mathletics

Series

B

Student



## Chance and Data

My name



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# Series B – Chance and Data

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Series Author:

Rachel Flenley

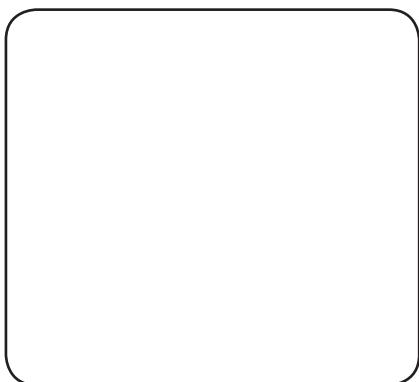


# Chance – possible and impossible

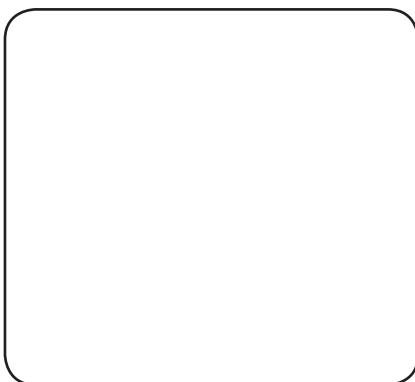
If something **could** happen, we say it is **possible**.

If something **could** not happen, we say it is **impossible**.

- 1 Draw 3 things that could happen to you today.  
These are **possible**.



- 2 Draw 3 things that could not happen to you today.  
These are **impossible**.



- 3 You tell your mum you did \_\_\_\_\_ at school today.  
She replies, ‘That’s impossible!’ What could you have said?

# Chance – certain and uncertain

If something will **definitely** happen, we say it is **certain**.

If something **might** happen, but we are not sure, we say it is **uncertain**.

1 Draw or write something you are **certain** will happen at school today.

2 Draw or write something you are **uncertain** will happen at school today.

3 Look at the pictures below. Will you do them today?

Write **c** for certain or **u** for uncertain underneath them.

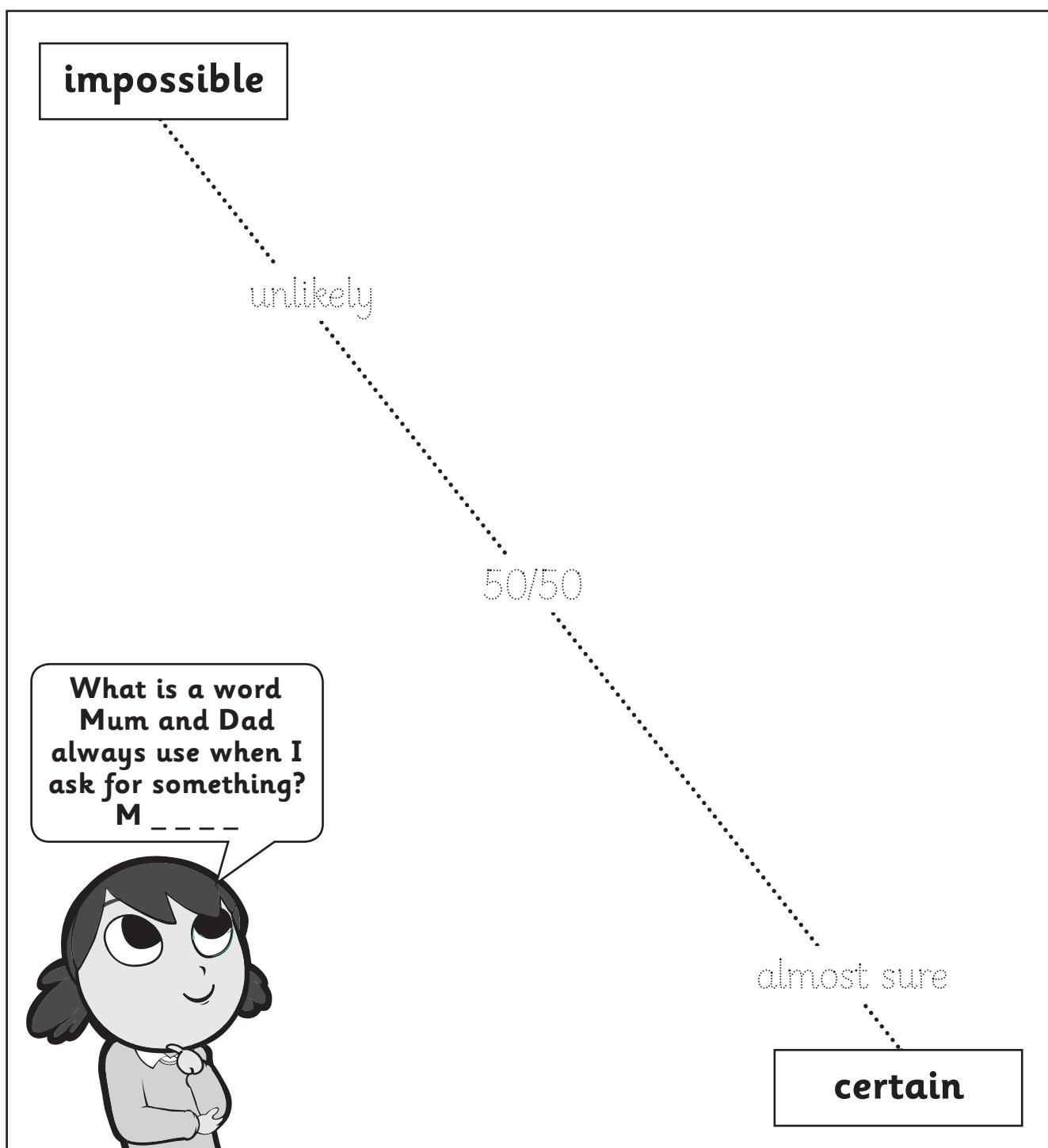


4 ‘Certainly not!’ replies your teacher. What did you ask?

# Chance – possibilities

**Certain** and **impossible** are the opposites of each other.  
There are lots of possibilities in between.

- 1 What words do we use when we are talking about chance?  
Can you add some to the list? Look at 3 friends' lists. Do they have any others? Add them.



# Chance – possibilities

Some things are **more likely** to happen than others.



- 1 Think about what usually happens at school. Cut out the pictures below and stick them where you think they might go.

less likely

more likely



# Chance – fair and unfair

We usually like things to be **fair**. Things are fair when all people have the same chance. We then say the chance is **even**.

1 ‘It’s not fair!’ Write or draw some times when you say that.

.....

- 2 You will need a coin and a partner for this activity.  
One of you is Heads, the other is Tails.
- a Toss the coin 10 times and score a point every time you win. Who won the most points?
  - b Is this game fair or unfair? Why or why not?
  - c Play again. Who won this time? If a game is fair does it mean you always take turns winning?

# Chance – fair and unfair

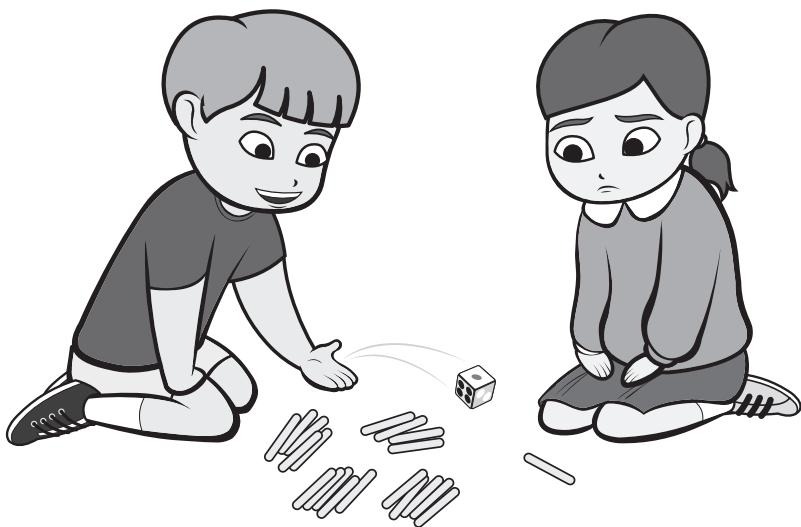
You will need:

-  a partner
-  1 die
-  dot stickers in 2 colours
-  10 popsticks each

## What to do:

Cover each side of the die with stickers. Make 4 sides 1 colour and 2 sides the other colour. Show your teacher and ask who gets to be which colour and who goes first.

Roll the die. If it lands on your colour you get to take 1 popstick from your partner. Swap. Roll the die 5 times each. Who wins? Is this game fair? Why or why not?



## What to do next:

Change the stickers on the die so that the game is fair for both players. Play again. How is the game different? Tell someone your thoughts and what you did to make the game fairer.

# Data – what is it?

Data is information.

We collect data to help us find out about the world. We organise and record the data so that we can look at it easily and learn more.

- 1 Imagine there is a person behind this door.  
What information could we find out about them?  
Work with a partner and add to the list below.



We could find out ...

their eye colour  
the number of people in their family  
if they have ever broken their arm

# Data – what is it?

- 1 Here are some words we use when we talk about data.



information

graph

how many

show

more

less

most

least

like

favourite

people

prefer

It helps to know these words. Practise reading them with a partner. Or cut them out and play Snap or Memory.

- 2 Can you think of any more words? Write them.

# Data – collecting and representing data

We find data by asking questions. We have to decide what questions to ask and how we will collect and show the answers. There are lots of ways to do this.

**You will need:**  your classmates  counters



2 containers with labels

## What we want to find out:

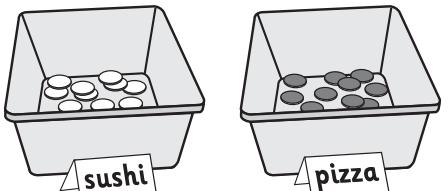
Let's imagine we are organising a class lunch and want to find out who would like **pizza** and who would like **sushi**.

What question would we ask? Write it here.

## What to do:

Now we need to collect the answers.

Draw or write **pizza** next to one container.



Draw or write **sushi** next to the other container. Give one counter to each person and ask them the question. Ask them to put the counter in the container of their choice.

## What to do next:

Count the counters in each container and write the results.

Now we know that:

people

want pizza

people

want sushi

This means we can buy the right amounts.

# Data – collecting and representing data

You will need:



a partner



counters



2 containers with labels



people to ask

## What to do:

Work with your partner to design a question to ask people about what they prefer. Give people **2 choices**. Plan your question here.

Would you  
prefer to go to  
the zoo or to  
the beach?



What will the answers be? Write or draw them next to the containers.

## What to do next:

Give one counter to each person and ask them the question. They put the counter in their chosen container.

Count the counters in each container and record the results.

people

people

# Data – collecting and representing data

We can use block towers to collect and show data.

**You will need:**  a partner  blocks  labels  
 people to ask

## What to do:

Work with your partner to find out how people came to school this morning.

Was it on , by , in a  or by  or  ?

Plan your question here:

Write or draw the choices on some labels. Give one block to each person and ask them the question. Ask them to add their block to the right tower.

## What to do next:

Write the total number of blocks in each tower on the labels.

How many people in your group came to school:

by  ?

by  ?

by  ?

by  or  ?

# Data – collecting and representing data

Grids are useful for collecting and showing data.

- 1 Write your first name in the grid below, with 1 letter per box. Write the names of 5 friends or family members in as well.


- 2 Answer these questions.

- a Whose name has the most letters?
  - b Whose name has the least letters?
  - c Whose names have the same amount of letters?
- 3 Was it easy to work out the answers using a grid? Why or why not?

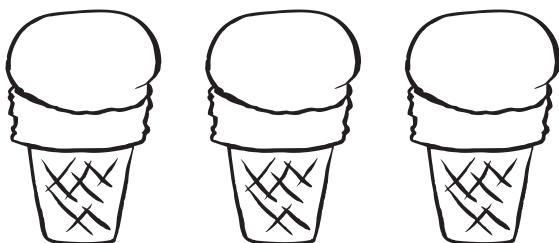
# Data – collecting and representing data

We can use pictures to help us collect and show data.

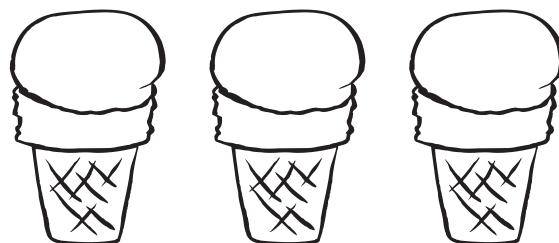
- 1 Ask 5 girls and 5 boys which of these ice cream flavours they like best: strawberry, chocolate or banana.

Colour the ice creams to show what they like. Colour pink for strawberry, brown for chocolate and yellow for banana.

Girls



Boys



- 2 Which flavour or flavours are most popular:

a with the girls?

b with the boys?

c with both the girls and boys?

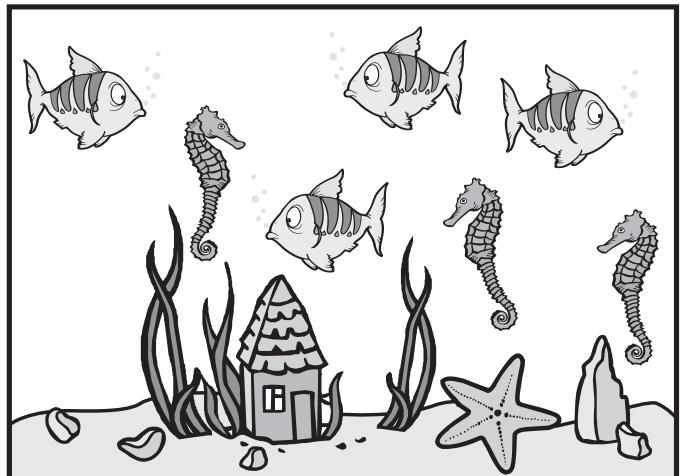
# Data – collecting and representing data

When we show our data as pictures we call it a **pictograph**. We draw our pictures in squares to make them easier to count and compare.

1 Look at this aquarium.

a How many?

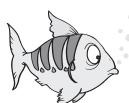
	4



b Now draw the animals on the pictograph, by putting one in a square.

Creatures in our aquarium

5		
4		
3		
2		
1		



# Data – collecting and representing data

You will need:  pencils or markers  people to ask

## What to do:

How do you and your classmates feel at the moment? Do you feel:



happy



sad



cross

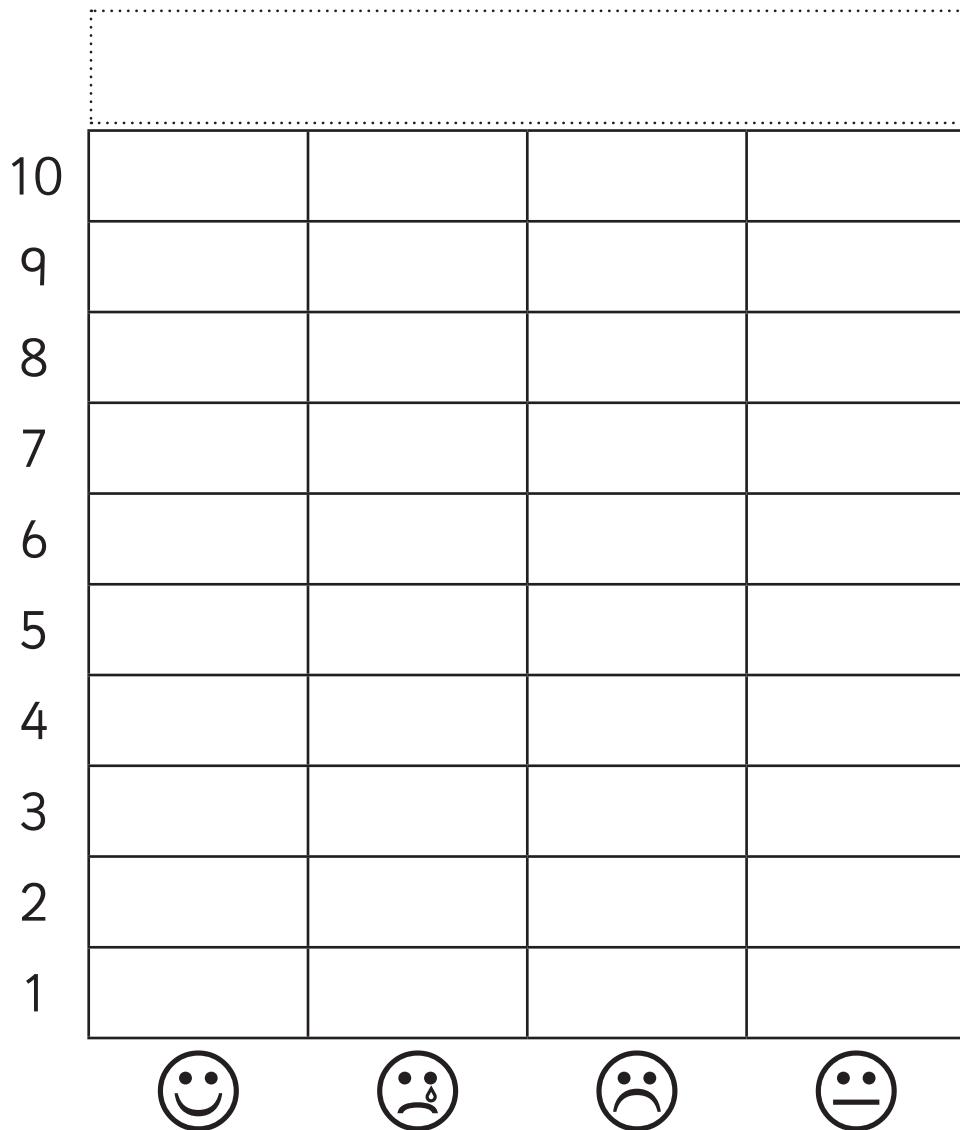


OK

Draw how you feel in the correct column on the pictograph.

Ask up to 10 other people to draw how they feel on your graph as well.

Add a title to your graph.



Continued on page 16.

# Data – collecting and representing data

Continued from page 15.

## What to do next:

What information does your feelings graph tell you?

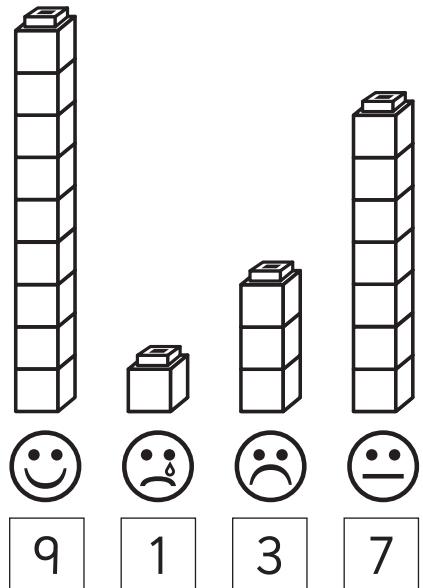
Write 3 things you now know.

## What to do now:

Use cubes to show the data on your graph as block towers. Make a tower for each feeling and make sure you have the right number of blocks in each. Label each tower.

Show your towers to a classmate or your teacher.

Does this graph show us the same data as the pictograph?



# Data – collecting and representing data

You will need:  your class and teacher  a big piece of paper

 pencils or markers  small squares of paper each

## What to do:

How many pockets do you have in your clothes today? We are going to collect and record this data for the whole class. Your teacher will have drawn up a graph like this.

Count how many pockets you have. Draw a picture of yourself on your square and stick it on the graph to match your number of pockets.

3						
2						
1						
0						

## What to do next:

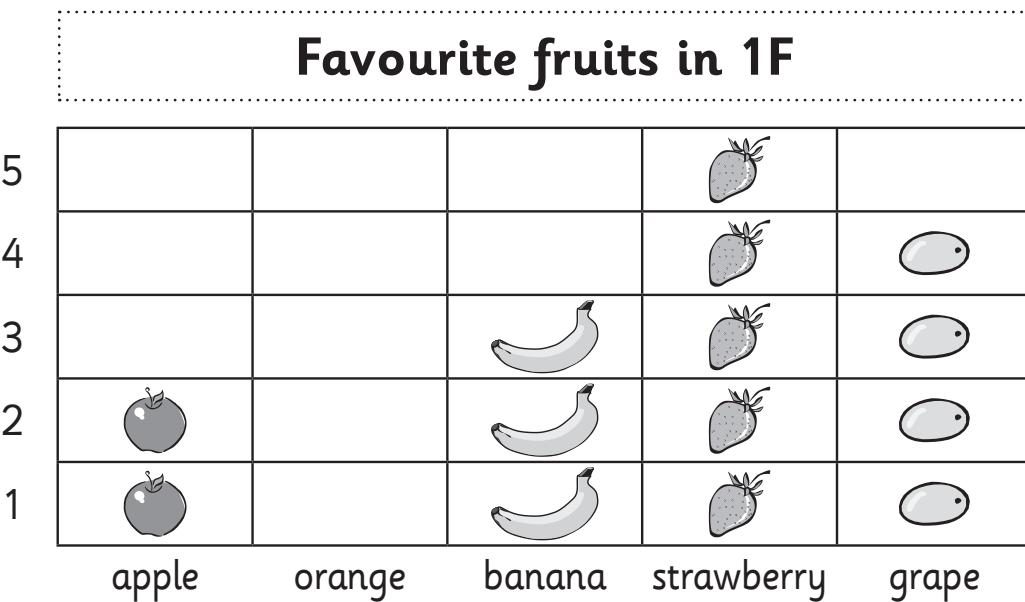
Use the graph to answer.

- a Who has **the most** pockets today?
  
  
  
  
  
- b Who has **the fewest** pockets today?
  
  
  
  
  
- c Does anyone have **no pockets** today?

# Data – analysing data

Once we have collected and recorded our data, we can look at it more closely and learn from it.

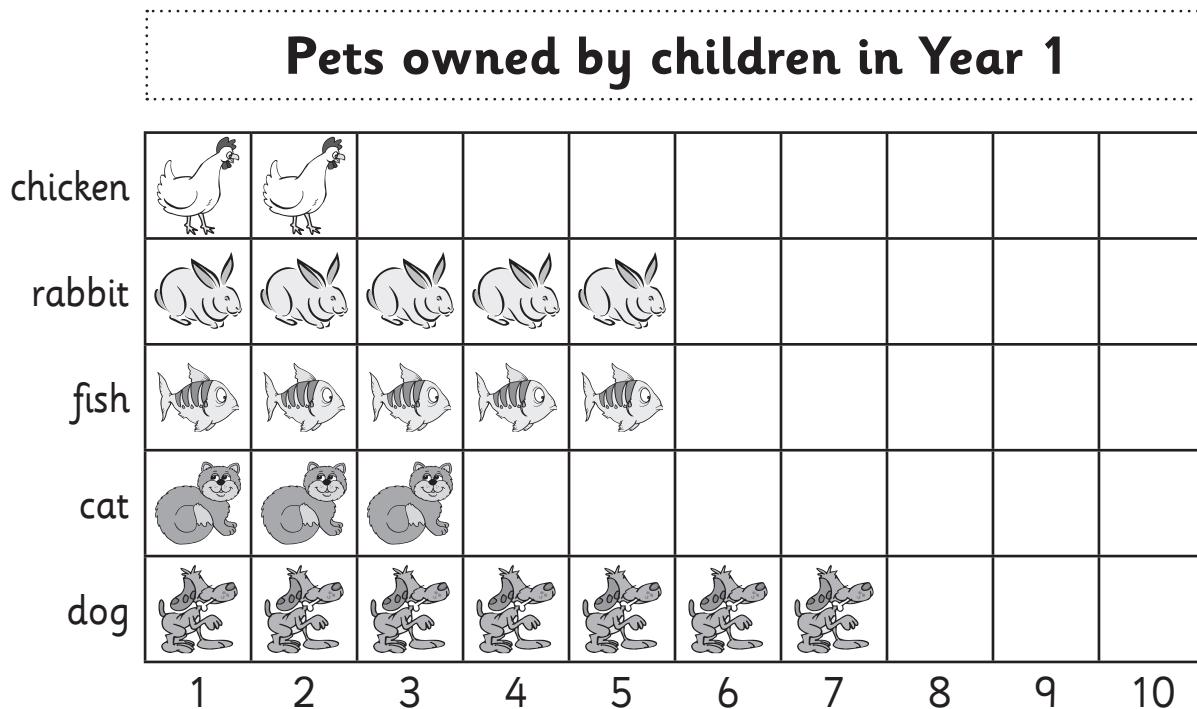
- 1 Use the pictograph to answer these questions.



- a How many children like  the best?
- b How many children like  the best?
- c Which is the **most** popular fruit? Draw it.
- d How many children are in 1F?
- e Tell someone how you worked this out.
- f If you ran the school canteen which fruit would you stock the least of? Why?

# Data – analysing data

- 1 Use the pictograph to answer these questions about the pets owned by children in Year 1.



a How many ?

b How many ?

c Which is the **least** common pet? Draw it.

d How many **more** than ?

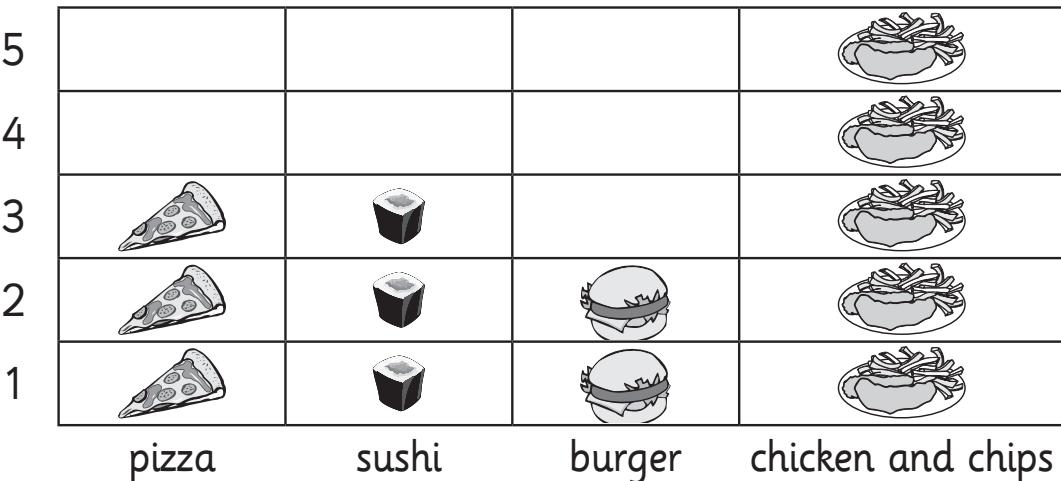
e Tell someone how you worked this out.

- 2 Do you have any of these pets? If you do, draw them on the graph. If you don't, draw the ones you would like to have.

# Data – analysing data

When we look at data we have to think carefully about what information it actually tells us.

Favourite treat food in 1S



1 Answer yes (Y) or no (N) in the boxes. Does this graph tell us:

a What the favourite treat foods in 1S are?

b What the favourite pizza toppings in 1S are?

c What the favourite treat foods in 1B are?

d That 3 people in 1S like the best?

e That lots of people went to the beach last week?

2 What is something else this graph tells us?

What is something else this graph doesn't tell us?

# Data – analysing data

You will need:



a partner

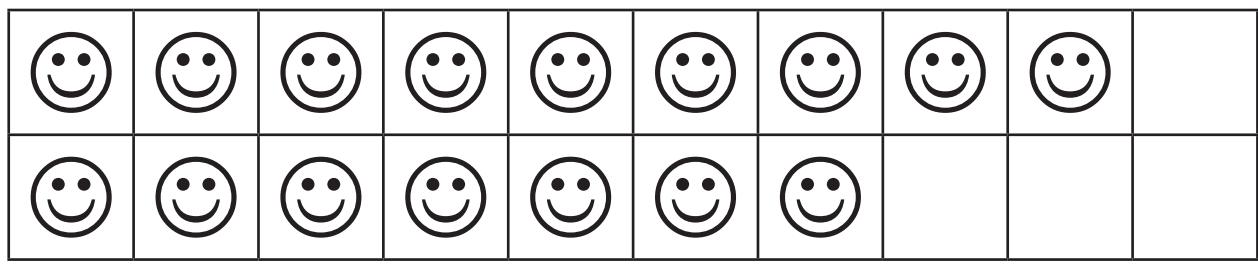


pencils

## What to do:

Look at this graph. What could it be about? Work with your partner to create a title that could make sense.

--	--	--	--	--	--	--	--	--	--



1      2      3      4      5      6      7      8      9      10

## What to do next:

Write 2 questions about your graph for another pair to answer. Show your questions to your teacher then swap pages with another group and answer each others' questions.