

Mathletics

Series



Teacher



Chance and Data



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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**.

**Answers
will vary.**

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

**Answers
will vary.**

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

Answers will vary.

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.

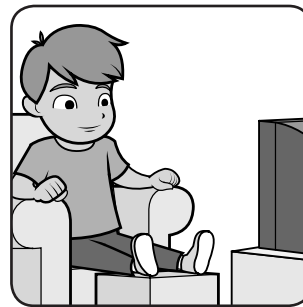
Answers will vary.

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

Answers will vary.

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

Write for certain or for uncertain underneath them.



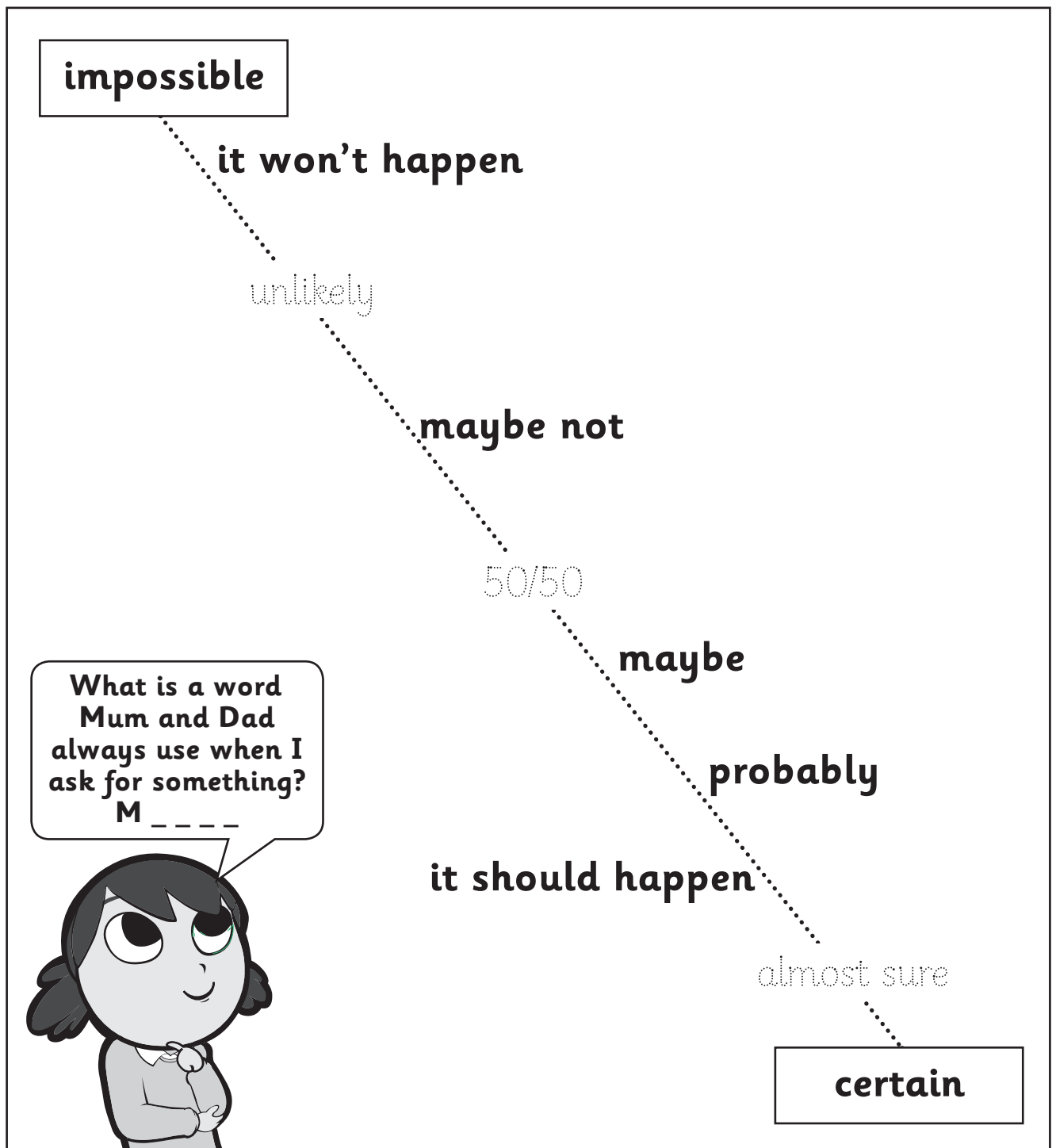
4 'Certainly not!' replies your teacher. What did you ask?

Answers will vary.

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

Teacher check.

Teacher check.



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.

Answers will vary.

-
- 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?

Answers will vary.

- b Is this game fair or unfair? Why or why not?

Fair because the chance is even for both.

- c Play again. Who won this time? If a game is fair does it mean you always take turns winning?

The game is fair but it does not mean both players will win the same amount of times.

Chance – fair and unfair

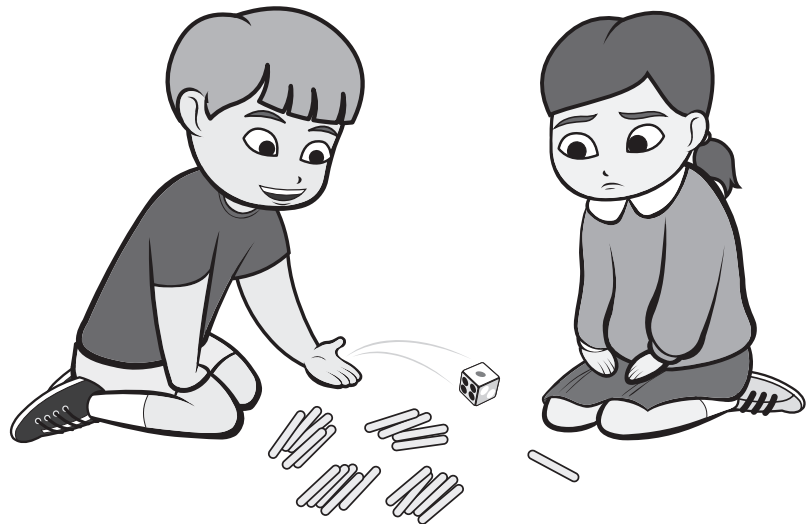
You will need:  a partner  1 die  dot stickers in 2 colours
 10 popsticks each

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?

Game is unfair as the chances are uneven.



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.

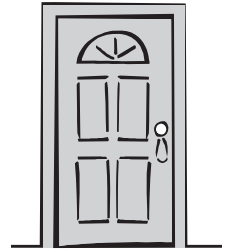
Answers will vary.

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

their birthday

if they have any pets


their favourite colour

etc.

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.

	Teacher check.	
--	-----------------------	--

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.

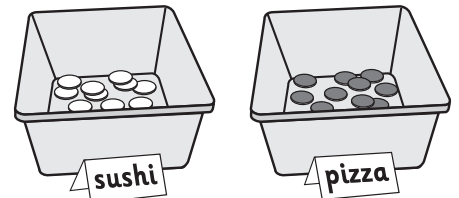
Would you rather have pizza or sushi for lunch?

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: Answers will vary.

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?



Teacher check.

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.

Answers will vary.





people

Answers will vary.

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:

How did you get to school this morning?

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.

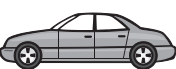
What to do next:

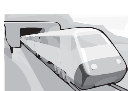
Write the total number of blocks in each tower on the labels. How many people in your group came to school:

by  ?

Answers will vary.

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.

				Teacher check.							

-
- 2 Answer these questions.

a Whose name has the most letters?

**Answers
will vary.**

b Whose name has the least letters?

c Whose names have the same amount of letters?

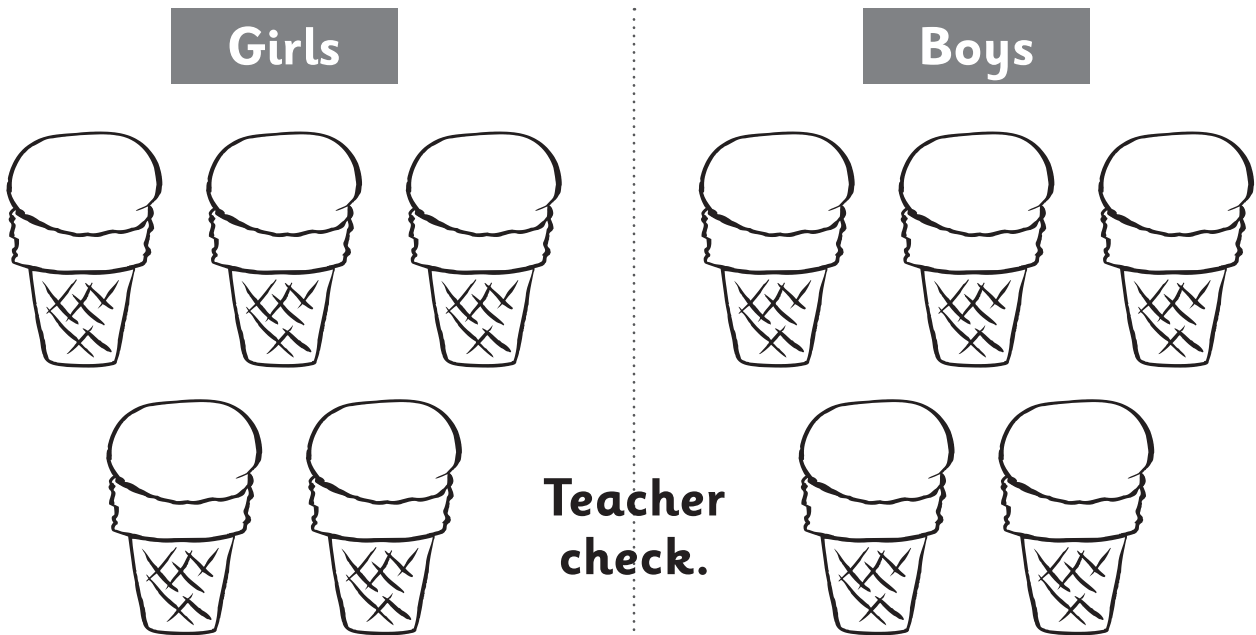
-
- 3 Was it easy to work out the answers using a grid? Why or why not?

Yes because the letters are lined up so it's easier to count.

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.



- 2 Which flavour or flavours are most popular:

a with the girls?

b with the boys?

**Answers
will vary.**




c with both the girls and boys?

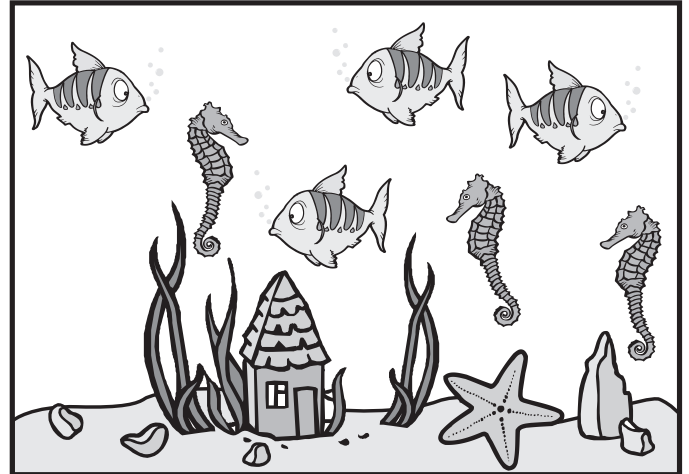
Data – collecting and representing data

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
	3
	1





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

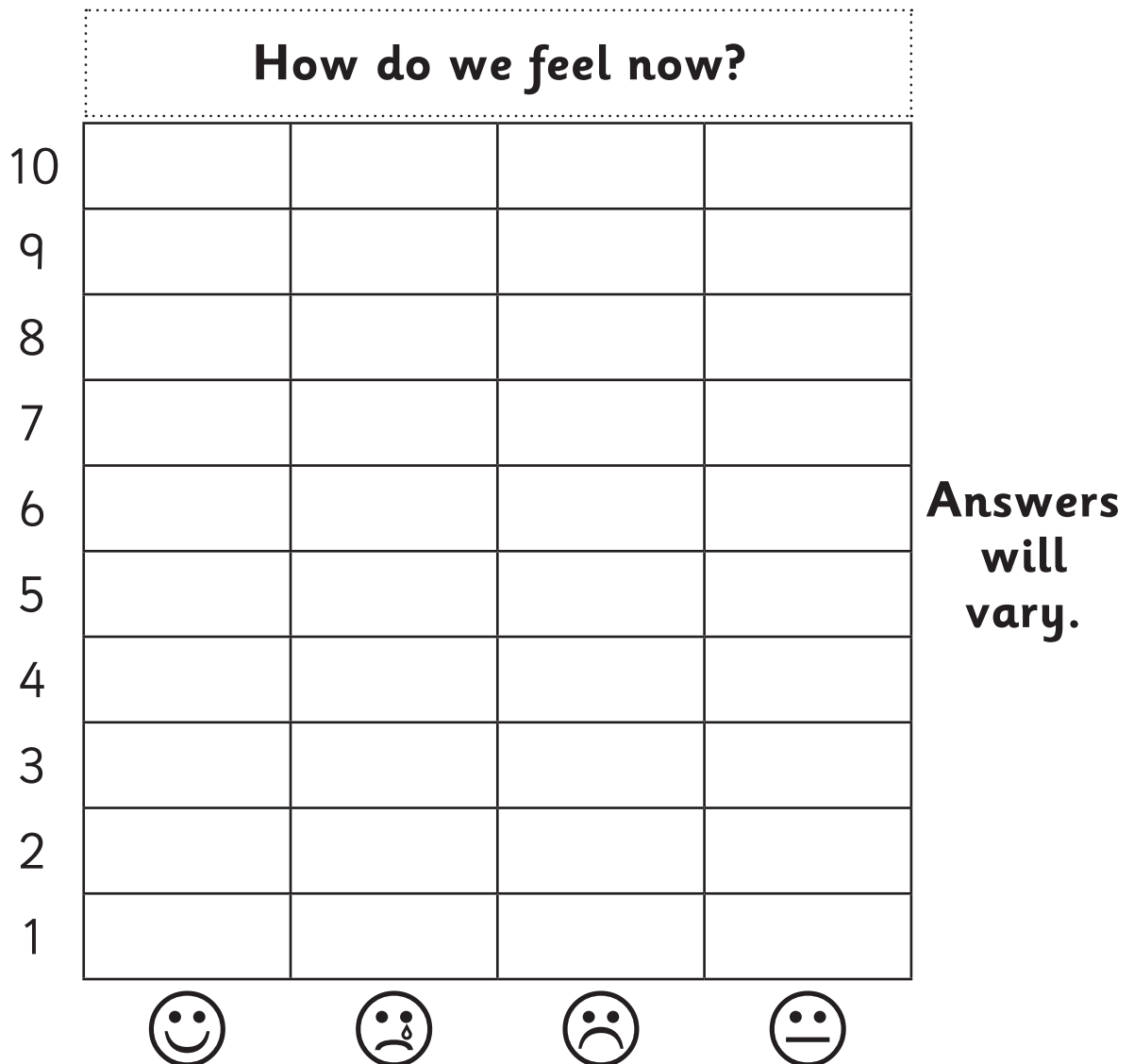
What to do:

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.

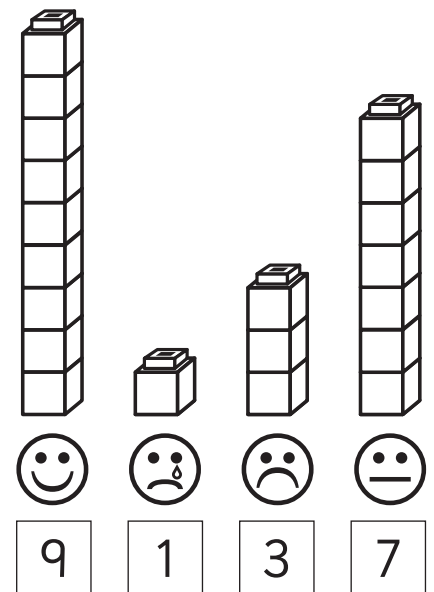
Teacher check.

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?



Answers will vary. Do students recognise data is the same but represented in a different medium?


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.

3					
2					
1					
0					

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.

What to do next:

Use the graph to answer.

a Who has **the most** pockets today?

b Who has **the fewest** pockets today?

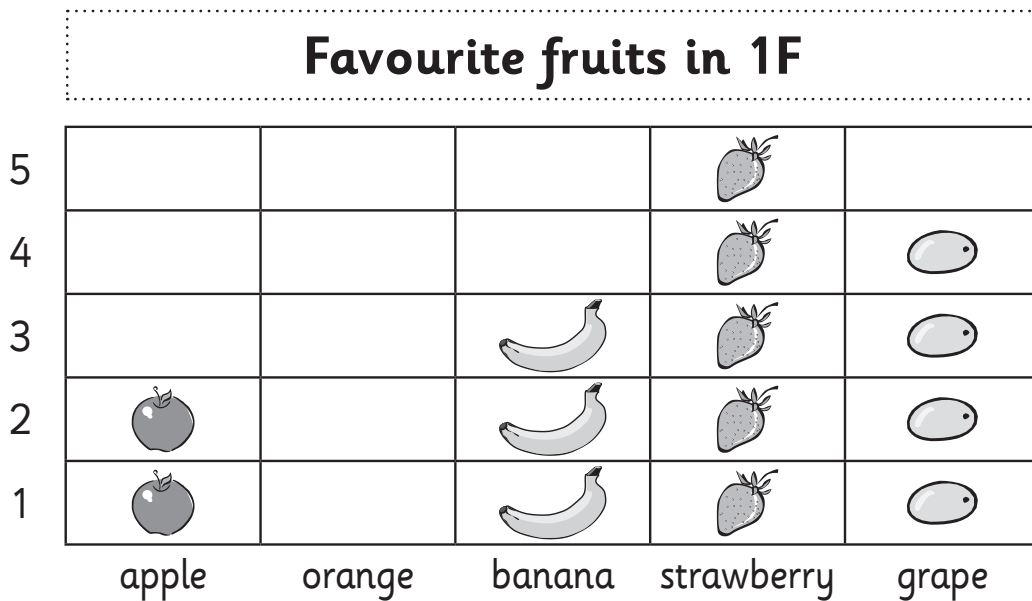
Teacher check.

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?

2

b How many children like  the best?

4

c Which is the **most** popular fruit? Draw it.



d How many children are in 1F?

14

e Tell someone how you worked this out.

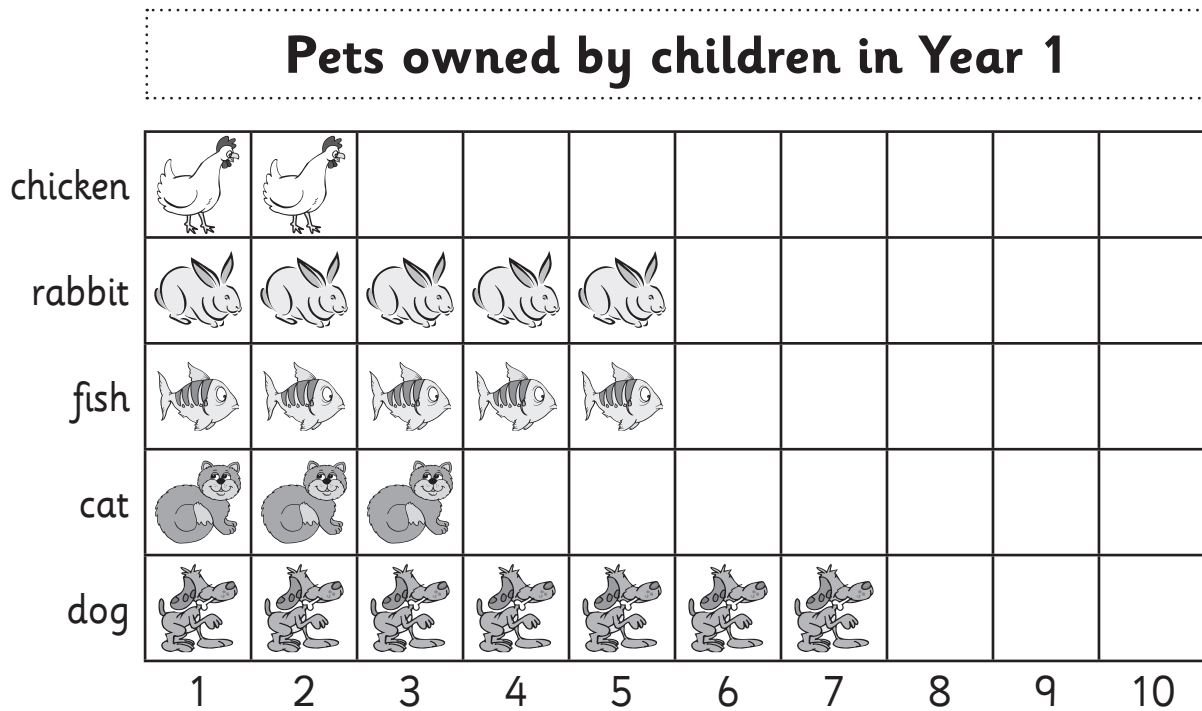
I counted each fruit picture.

f If you ran the school canteen which fruit would you stock the least of? Why?

Oranges because no one in 1F likes them.

Data – analysing data

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



a How many  ?

7

b How many  ?

3

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



d How many **more**  than  ?

2

e Tell someone how you worked this out.

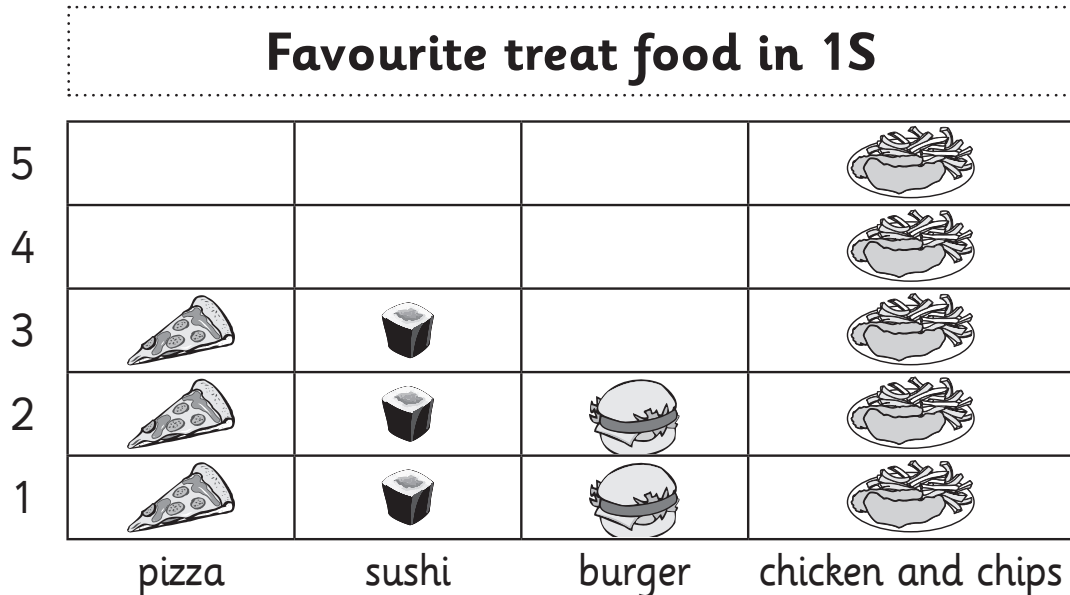
Counted on from 5 to 7.

- 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.

Answers will vary.

Data – analysing data

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



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

a What the favourite treat foods in 1S are?

Y

b What the favourite pizza toppings in 1S are?

N

c What the favourite treat foods in 1B are?

N

d That 3 people in 1S like  the best?

Y

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

N

2 What is something else this graph tells us?

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

Teacher check.

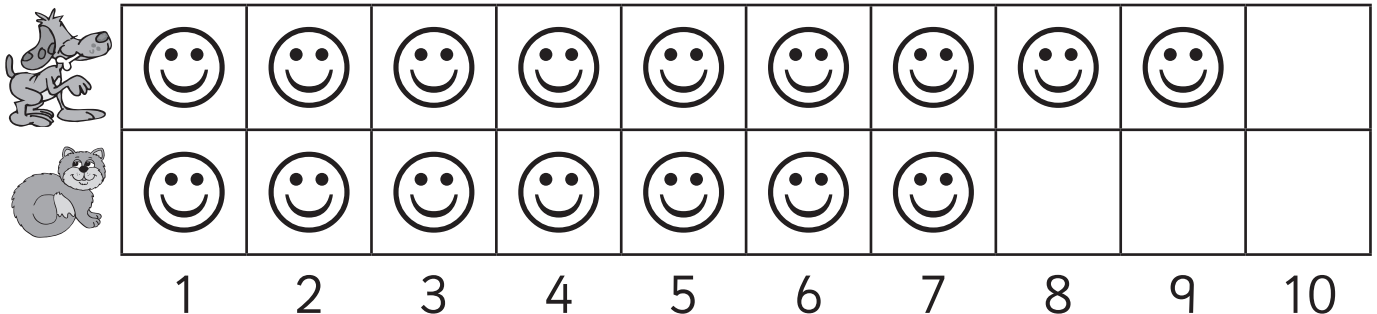
Data – analysing data

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.

Teacher check.



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.

Answers will vary.

1 Draw or write something that you think:

could happen today

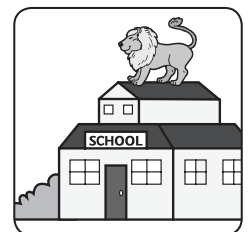
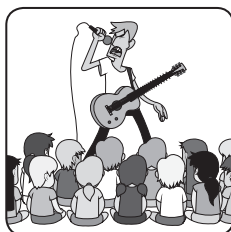
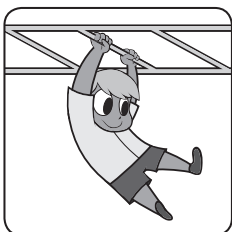
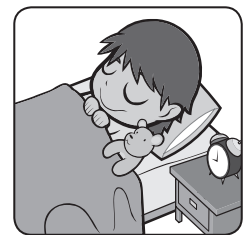
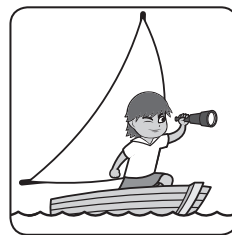
possible

could not happen today

impossible

2 Your mum answers, 'Maybe.' What could you have asked?

3 Look at the picture pairs. Loop the one that you think is **more likely** to happen.



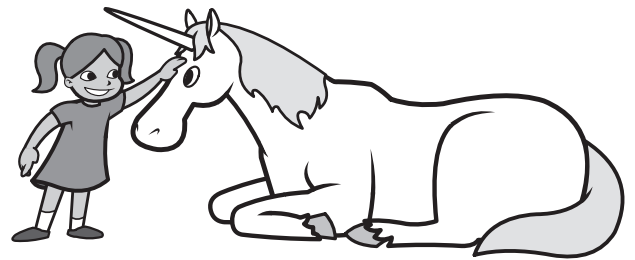
4 Look at the picture. Colour the word that best matches the chance of it happening today.

likely

unlikely

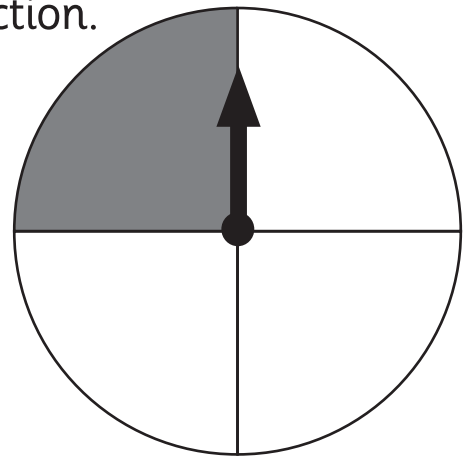
certain

impossible

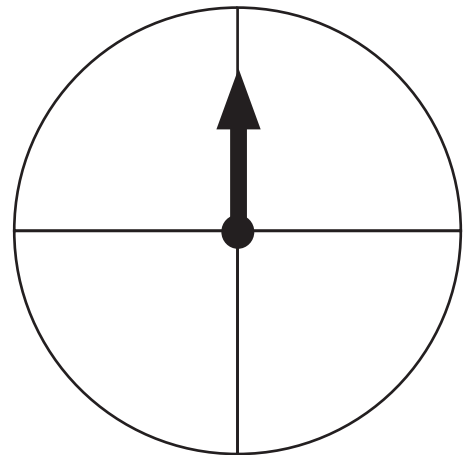


5 You win if this spinner lands on a grey section.

a Is the game **fair** or **unfair**?



b Colour the sections on this spinner with a grey pencil to make the game fair.



Skills and understandings	Not yet	Kind of	Got it
• Distinguishes between possible and impossible events			
• Compares familiar events and describes each as more or less likely to happen			
• Identifies situations as fair or unfair			

1 Draw or write something that you think:

could happen today

Answers will vary.

possible

could not happen today

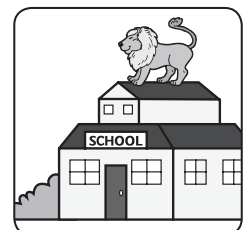
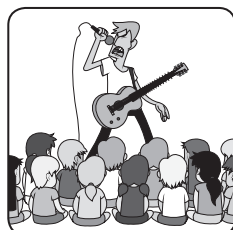
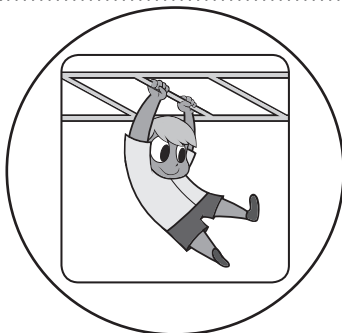
Answers will vary.

impossible

2 Your mum answers, 'Maybe.' What could you have asked?

Answers will vary.

3 Look at the picture pairs. Loop the one that you think is **more likely** to happen.



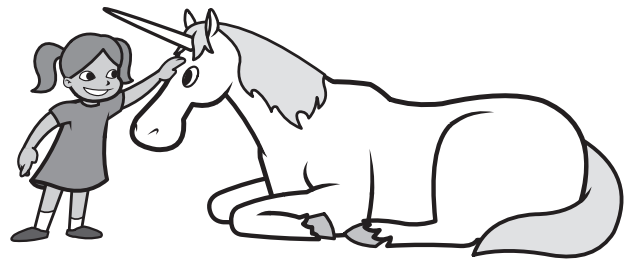
4 Look at the picture. Colour the word that best matches the chance of it happening today.

likely

unlikely

certain

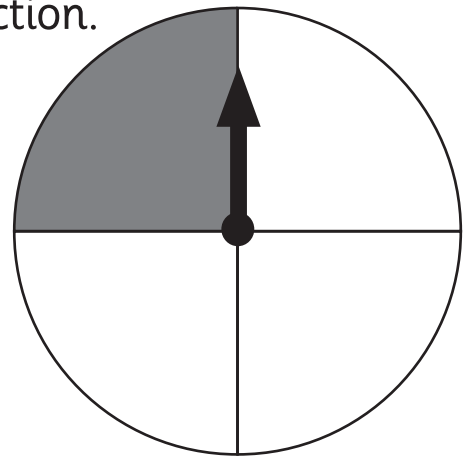
impossible



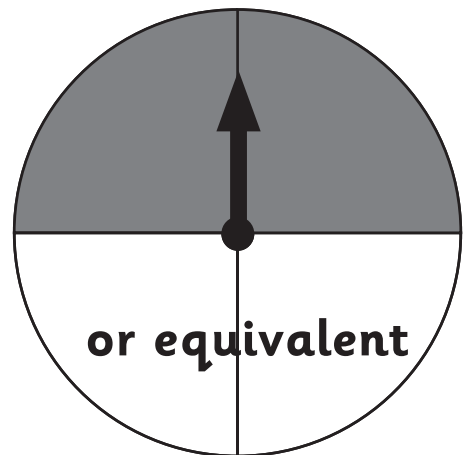
5 You win if this spinner lands on a grey section.

a Is the game **fair** or **unfair**?

unfair



b Colour the sections on this spinner with a grey pencil to make the game fair.



Skills and understandings	Not yet	Kind of	Got it
• Distinguishes between possible and impossible events			
• Compares familiar events and describes each as more or less likely to happen			
• Identifies situations as fair or unfair			

1 Your class can have **either** ice cream  **or** popcorn  on movie day.

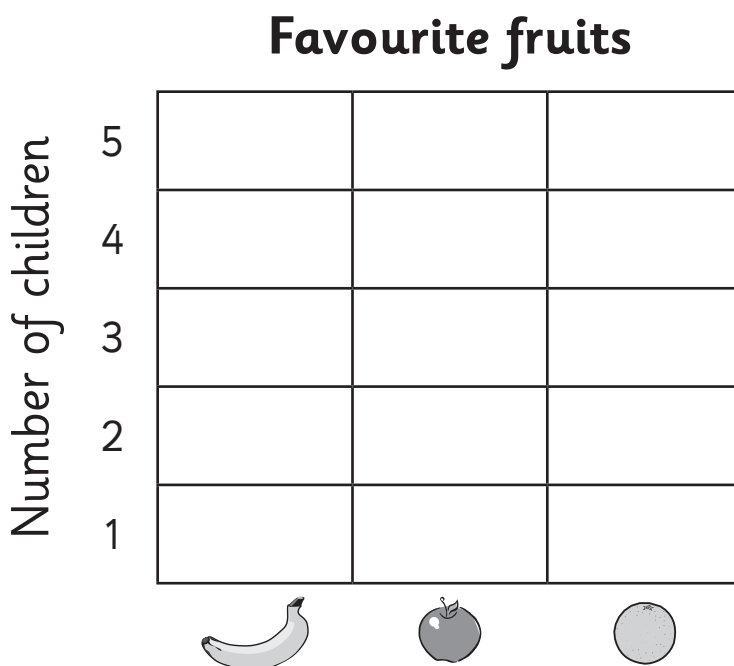
It is your job to find out who wants what.
What question will you ask? Write it.

2 5 kids like bananas  best.

4 kids like apples  best.

2 kids like oranges  best.

a Show this on the graph.

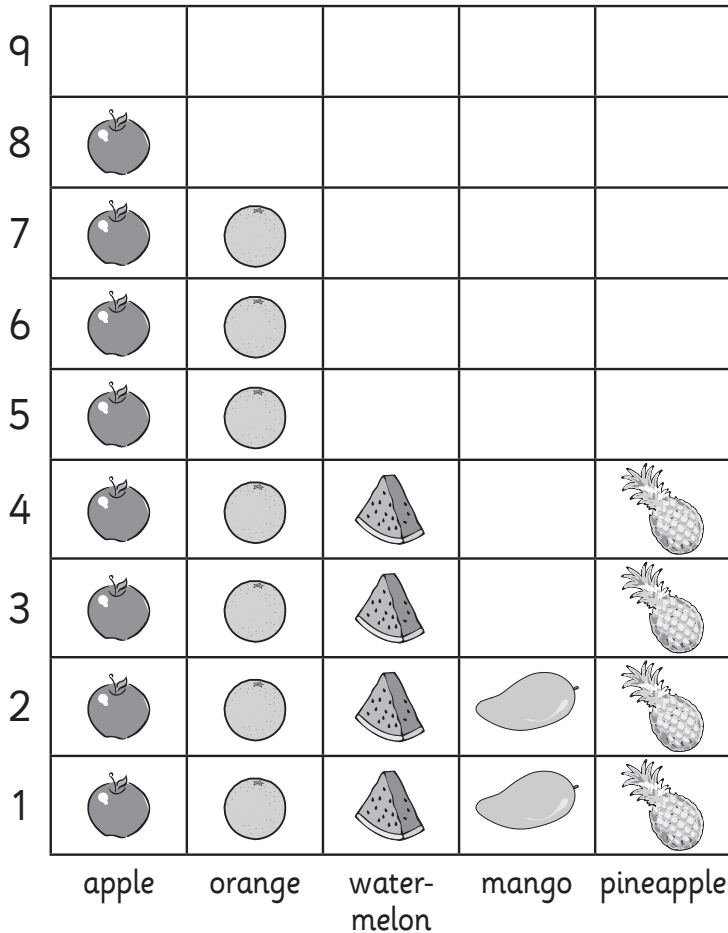


b Which fruit is **most** popular?

c Which fruit is **least** popular?

3 This graph shows the juices sold in the school canteen in a day. Answer the following questions.

Juices sold in canteen



a Which is the best selling juice?

b How many watermelon juices were sold?

c How many juices were sold altogether?

d If the canteen decided to stop selling a flavour, which one should it be and why?

Skills and understandings	Not yet	Kind of	Got it
• Poses questions to collect specific data			
• Displays data through pictorial representation or symbols, using 1–1 correspondence			
• Interprets and analyses information presented in simple graphs			

1 Your class can have **either** ice cream  **or** popcorn  on movie day.

It is your job to find out who wants what.
What question will you ask? Write it.

Sample answer:

Would you like an ice cream or popcorn on movie day?

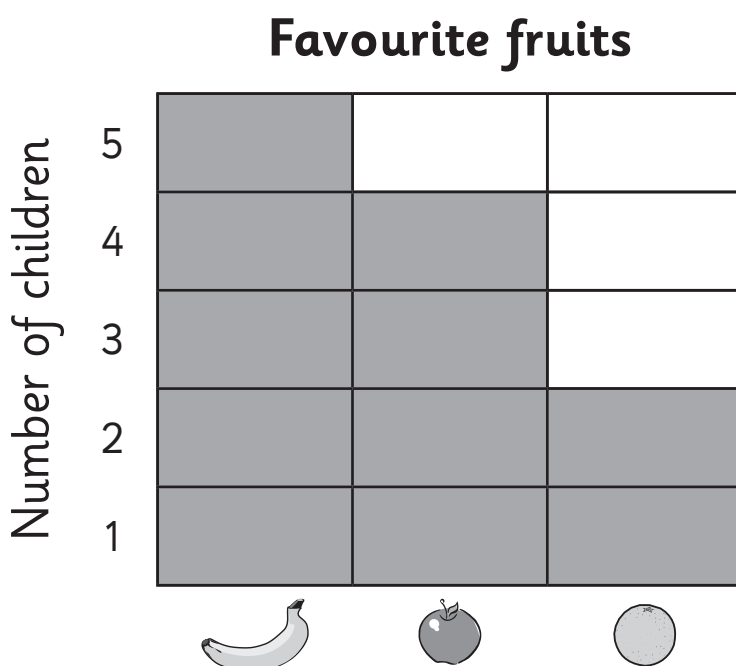
2 5 kids like bananas  best.

4 kids like apples  best.

2 kids like oranges  best.

a Show this on the graph.

Students may colour the cells or draw pictures to represent their answers.



b Which fruit is **most** popular?

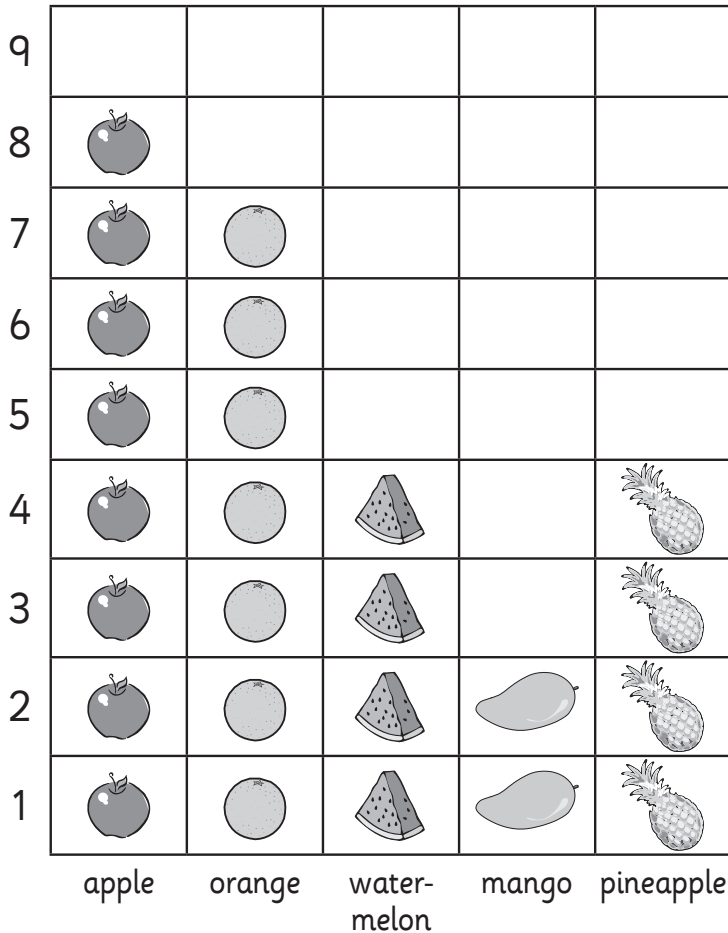
bananas

c Which fruit is **least** popular?

oranges

3 This graph shows the juices sold in the school canteen in a day. Answer the following questions.

Juices sold in canteen



a Which is the best selling juice?

apple

b How many watermelon juices were sold?

4

c How many juices were sold altogether?

25

d If the canteen decided to stop selling a flavour, which one should it be and why?

Mango because it is the least popular.

Skills and understandings	Not yet	Kind of	Got it
• Poses questions to collect specific data			
• Displays data through pictorial representation or symbols, using 1–1 correspondence			
• Interprets and analyses information presented in simple graphs			

Series B – Chance and Data

Curriculum	Outcomes
S1-1	Conduct investigations using the statistical enquiry cycle.
S1-2	Interpret statements made by others from statistical investigations and probability activities.
S1-3	Investigate situations that involve elements of chance, acknowledging and anticipating possible outcomes.