

White Rose
MATHS

White Rose Maths Edition

**POWER
MATHS**

**Year 6
Textbook
6C**



Pearson

Series Editor: Tony Staneff



Year 6 Textbook 6C



White Rose Maths Edition



helpful



Sparks

flexible



Flo

curious



Ash

determined



Dexter

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This shows us what page to turn to.



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Are you ready
for some
more maths?



How to use this book

These pages make sure we're ready for the unit ahead. Find out what we'll be learning and brush up on your skills!



Unit 12
Statistics

In this unit we will ...

- Interpret and create line graphs and bar charts
- Read and interpret pie charts using fractions
- Read and interpret pie charts using percentages
- Learn to calculate the mean of a set of data
- Use the mean to find missing data

We will be interpreting line graphs.

Here is a line graph that shows the temperature of a hot chocolate drink that was left to cool.

What was the temperature of the hot chocolate after 10 minutes?

We will need some maths words. Which ones do you recognise?

mean average
pie chart segments line graph
bar chart percentage
fraction data

We need to know that the angles around a point add up to 360° . Calculate the missing angle.

Minutes	Temperature (°C)
0	60
5	55
10	50
15	45
20	40
25	35
30	30
35	25
40	20
45	15
50	10
55	5
60	0

Segment	Angle
Green	180°
Red	30°
Yellow	?

Discover

Lessons start with **Discover**.

Here, we explore new maths problems.

Can you work out how to find the answer?

Unit 12: Statistics, Lesson 1

Interpret line graphs

Discover

Morning temperatures in the city

Time	Temperature (°C)
5 am	-6
6 am	-2
7 am	2
8 am	4

1 a) How much did the temperature increase between 6 am and 6:30 am?
b) Estimate at what time the temperature reached 1°C .

Don't be afraid to make mistakes. Learn from them and try again!



Share

Next, we share our ideas with the class.

Did we all solve the problems the same way?
What ideas can you try?

UNIT 12: Statistics, Lesson 1

Share

This graph shows temperatures above and below 0. There are values above and below the x-axis.

a)

The temperature at 6 am was 5°C .
The temperature at 6:30 am was -2°C .
The temperature increased by 3°C .

b)

The temperature was 1°C between 7 am and 7:30 am.

It was 1°C just before 7:15 am. A reasonable estimate would be 7:10 am.

Think together

Then we have a go at some more problems together. Use what you have just learnt to help you.

We'll try a challenge too!



This tells you which page to go to in your Practice Book.

UNIT 12: Statistics, Lesson 1

Think together

1 This line graph shows the height at which a balloon floated between 13:00 and 17:00. How long did the balloon remain above 500 m?

2 Below is a line graph showing a patient's temperature. Use the line graph to complete the values in the table. Estimate the temperatures as accurately as you can.

Time	04:00 - Day 1	09:00 - Day 2	09:00 - Day 3
Temperature			

10

UNIT 12: Statistics, Lesson 1

Challenge

3 a) This line graph shows the distance Ambika walks as she goes to the shop and then back home.

How long does it take Ambika to reach the shop? How can you tell?
How long does Ambika stay in the shop?
How far is the shop from her home?

b) Andy says: 'I think the graph is incorrect. The last part of the graph should return to 0 m by the end of her journey.'
Explain Andy's mistake.

11

Practice Book 6C p11

At the end of each unit there's an **End of unit check**. This is our chance to show how much we have learnt.

UNIT 12: Statistics

End of unit check

1 What is the mean height of these towers?

15 cm 5 cm 7 cm 3 cm

2 The mean of the numbers on these cards is 10. What is the number on the final card?

55 9 11 ?

10 15 255 165

3 What fraction of children prefer fish and chips?

Favorite school dinners

fish and chips pizza roast dinner

1/4 1/4 1/2

4 Children have been voting for whether they would like to keep their school uniform or not. Which statement is accurate?

Years 1 and 2: 30 children. Don't mind: 15, Yes: 15.

Years 3, 4, 5, 6: 50 children. Don't mind: 25, Yes: 25.

The same number of children voted 'No' in both groups.
70% of all the children voted 'Don't mind'.
1/2 of children in Years 3, 4, 5 and 6 voted 'Yes'.
8 out of all the children voted 'No'.

5 How far did the motorcyclist travel between 14:45 and 15:15?

12

Practice Book 6C p12

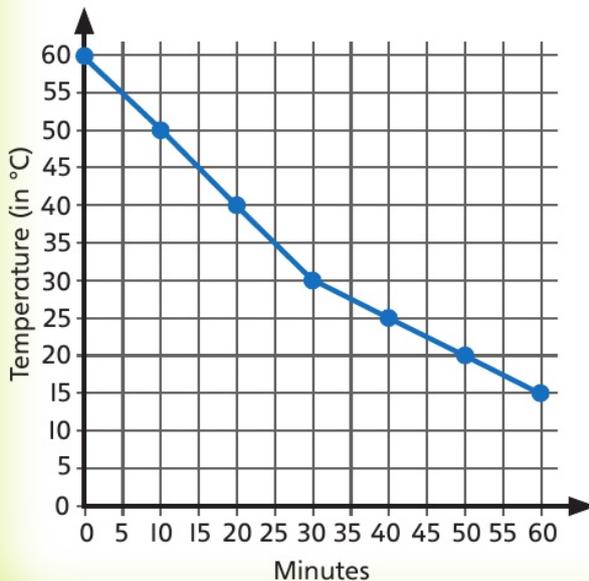
Unit 12

Statistics



In this unit we will ...

- ⚡ Interpret and create line graphs and bar charts
- ⚡ Read and interpret pie charts using fractions
- ⚡ Read and interpret pie charts using percentages
- ⚡ Learn to calculate the mean of a set of data
- ⚡ Use the mean to find missing data



We will be interpreting line graphs.

Here is a line graph that shows the temperature of a hot chocolate drink that was left to cool.

What was the temperature of the hot chocolate after 10 minutes?





We will need some maths words.
Which ones do you recognise?

mean

average

pie chart

segments

line graph

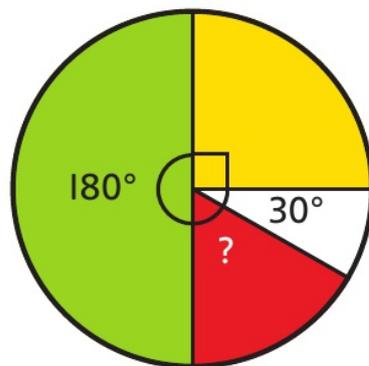
bar chart

percentage

fraction

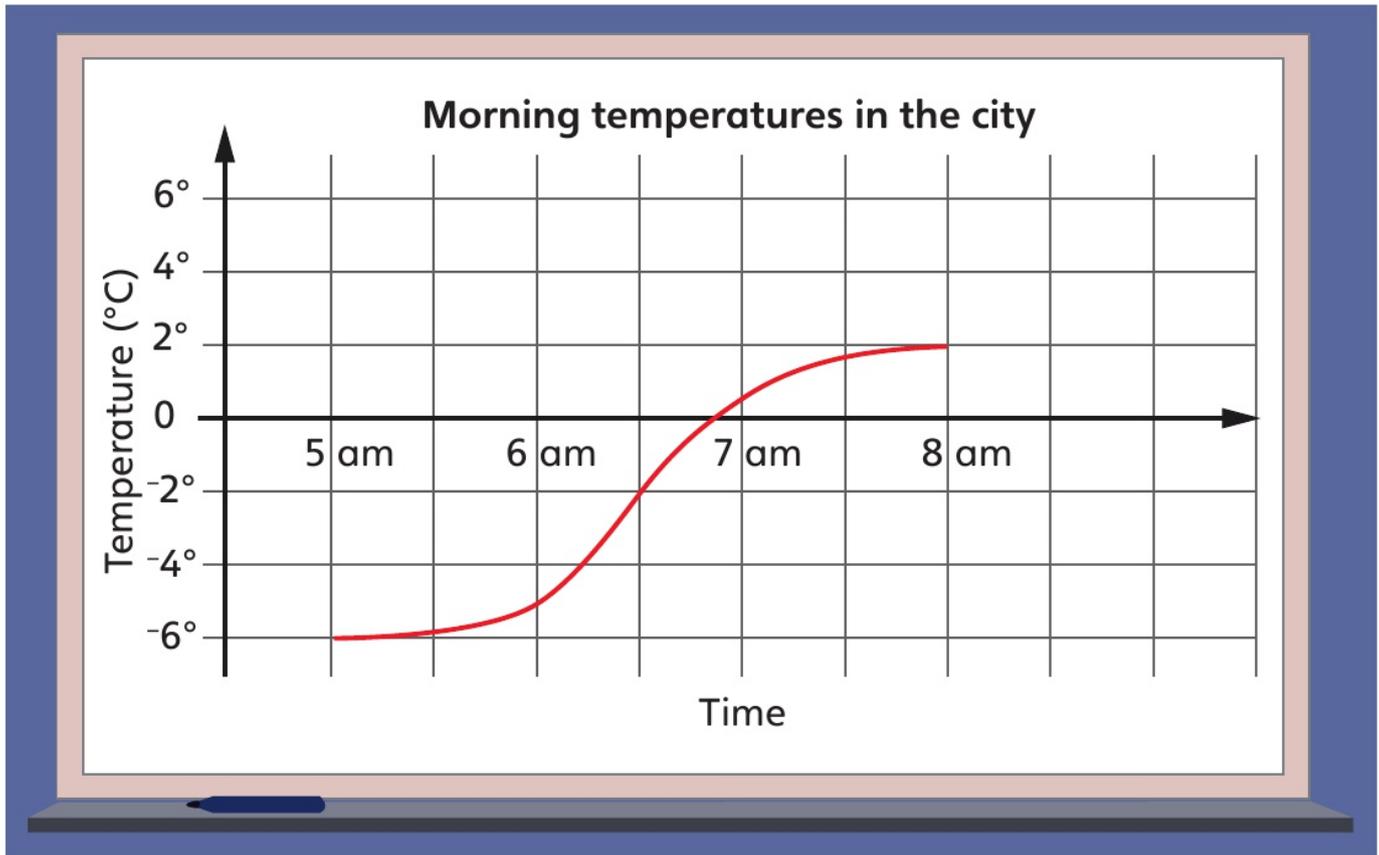
data

We need to know that the angles
around a point add up to 360° .
Calculate the missing angle.



Interpret line graphs

Discover

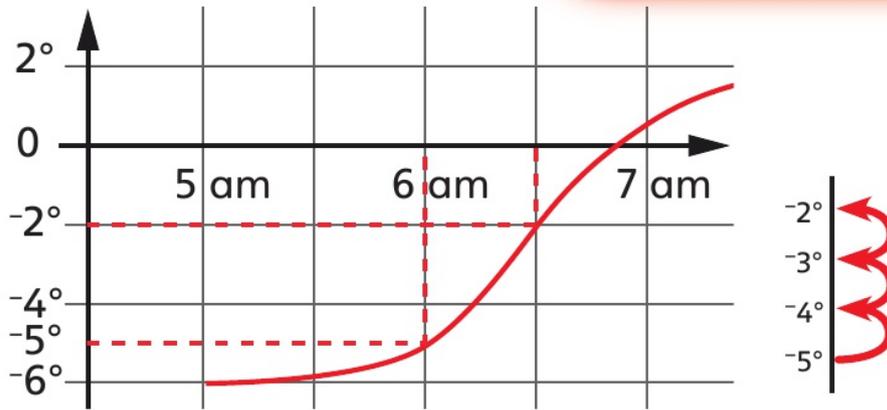


- I** a) How much did the temperature increase between 6 am and 6:30 am?
- b) Estimate at what time the temperature reached 1 °C.

Share

This graph shows temperatures above and below 0. There are values above and below the x-axis.

a)

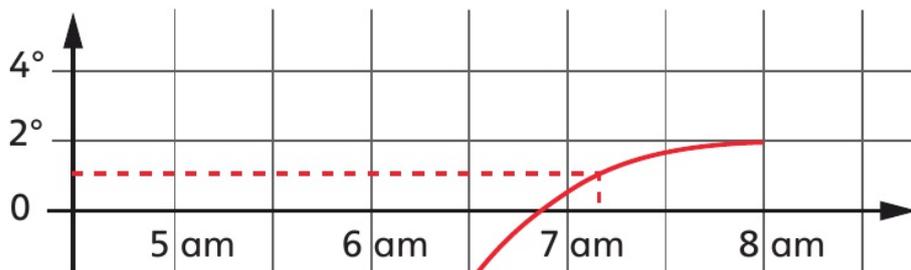


The temperature at 6 am was -5°C .

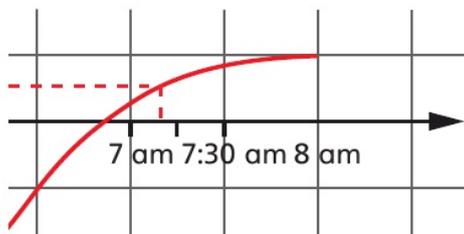
The temperature at 6:30 am was -2°C .

The temperature increased by 3°C .

b)



The temperature was 1°C between 7 am and 7:30 am.

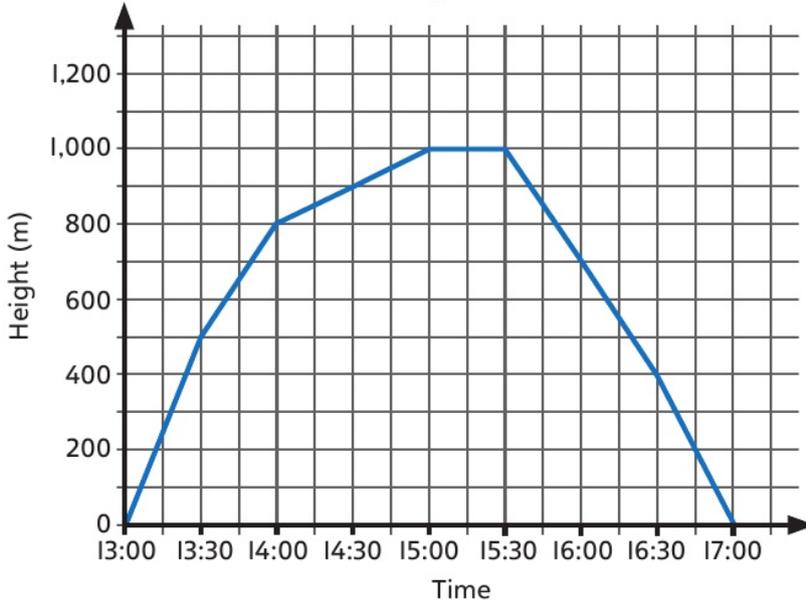


It was 1°C just before 7:15 am. A reasonable estimate would be 7:10 am.

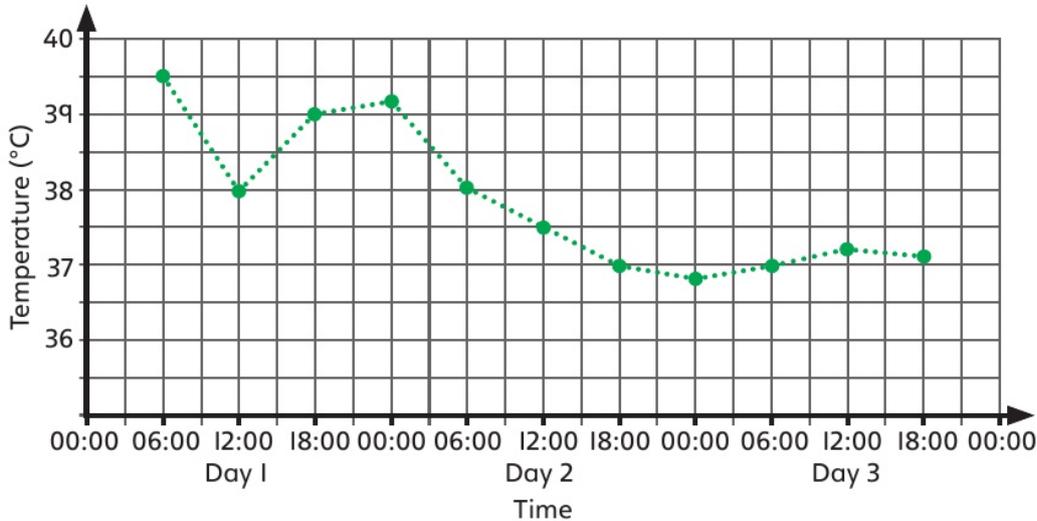


Think together

1 This **line graph** shows the height at which a balloon floated between 13:00 and 17:00. How long did the balloon remain above 500 m?



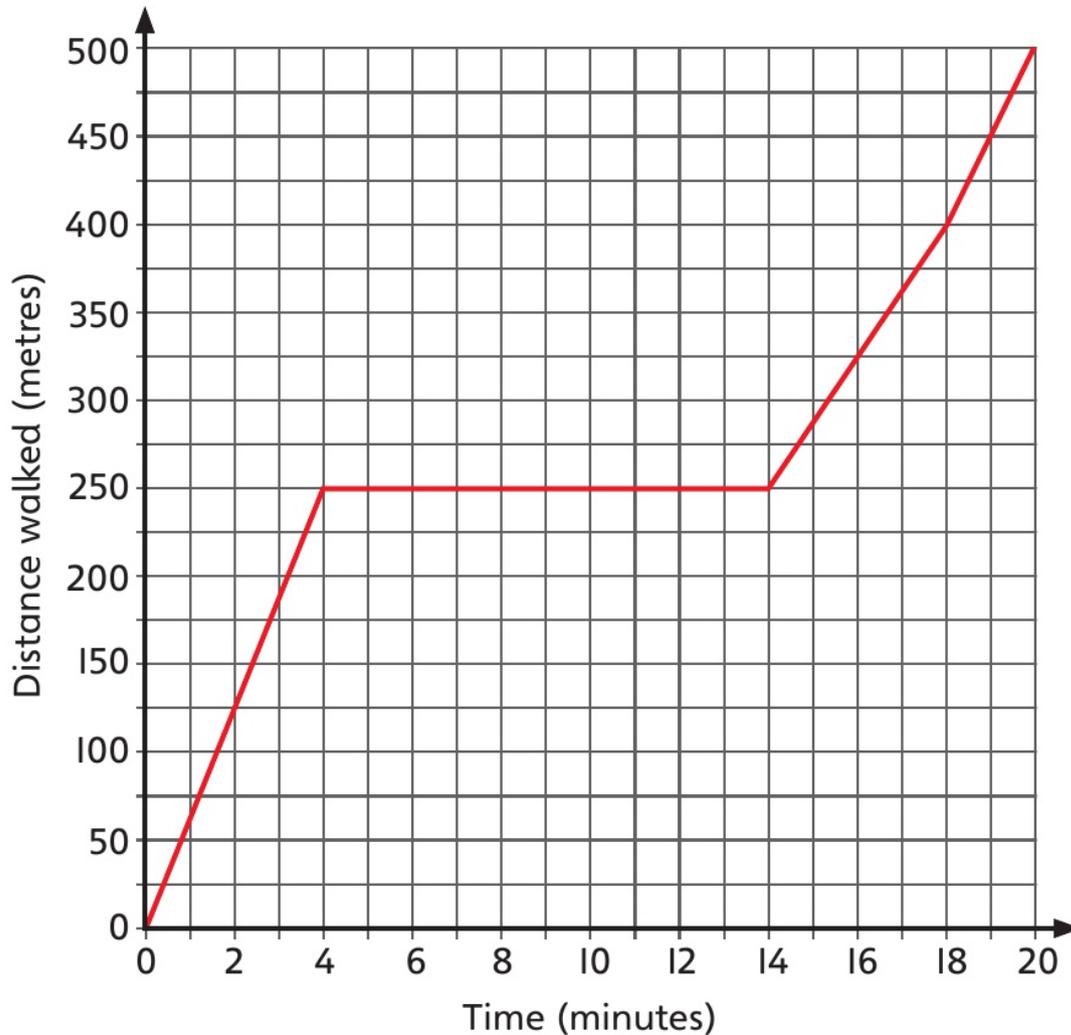
2 Below is a line graph showing a patient's temperature. Use the line graph to complete the values in the table. Estimate the temperatures as accurately as you can.



Time	09:00 – Day 1	09:00 – Day 2	09:00 – Day 3
Temperature			

CHALLENGE**3**

a) This line graph shows the distance Ambika walks as she goes to the shop and then back home.



How long does it take Ambika to reach the shop? How can you tell?

How long does Ambika stay in the shop?

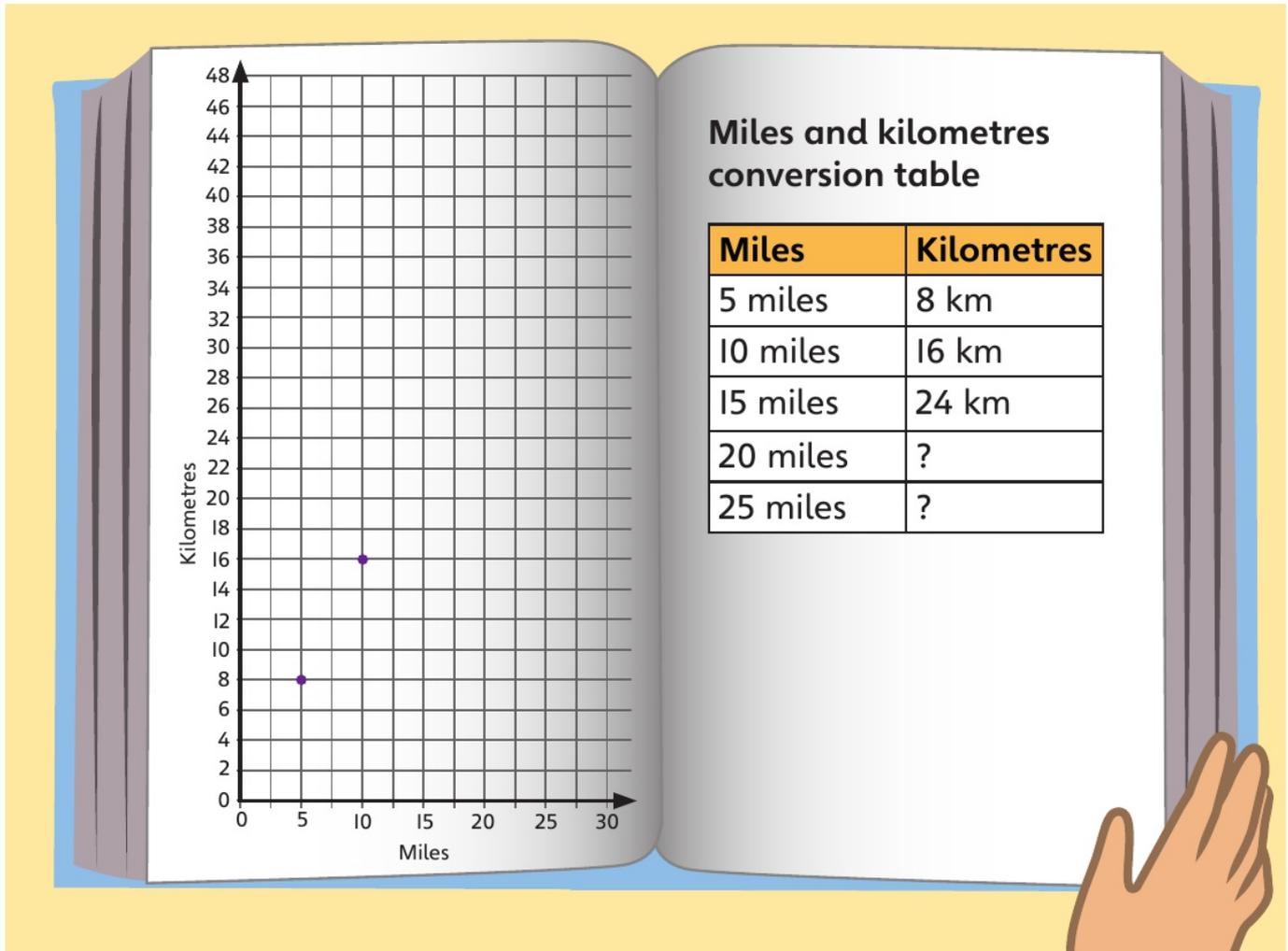
How far is the shop from her home?

b) Andy says: 'I think the graph is incorrect. The last part of the graph should return to 0 m by the end of her journey.'

Explain Andy's mistake.

Draw line graphs

Discover



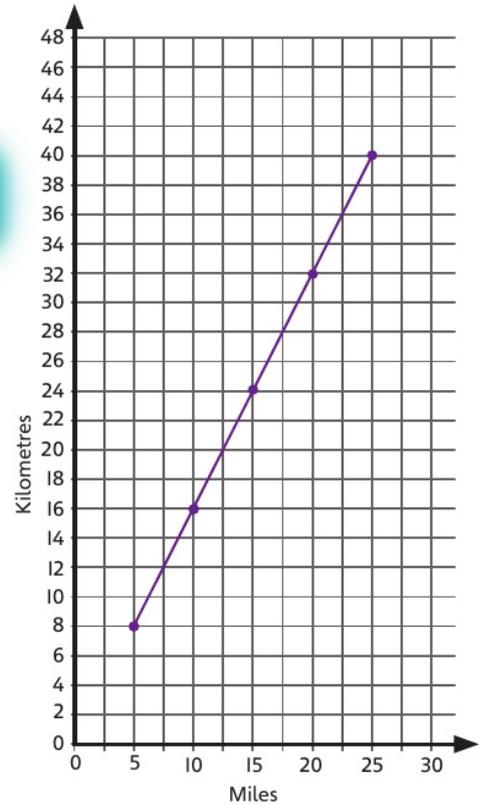
- 1** a) Show where the next points would go on the line graph and complete the missing values in the table.
- b) How many miles convert to 44 km?

Share

- a) The next point on the graph shows that 15 miles converts to 24 km.

I noticed the points lie in a straight line.

Miles	Kilometres
5 miles	8 km
10 miles	16 km
15 miles	24 km
20 miles	32 km
25 miles	40 km



I think the graph is a straight line because there are 5 miles for every 8 km.

- b) 44 km is half-way between 40 and 48 km.
 27.5 miles is half-way between 25 and 30 miles.
 So 27.5 miles converts to 44 km.

Miles	Kilometres
25 miles	40 km
27.5 miles	44 km
30 miles	48 km

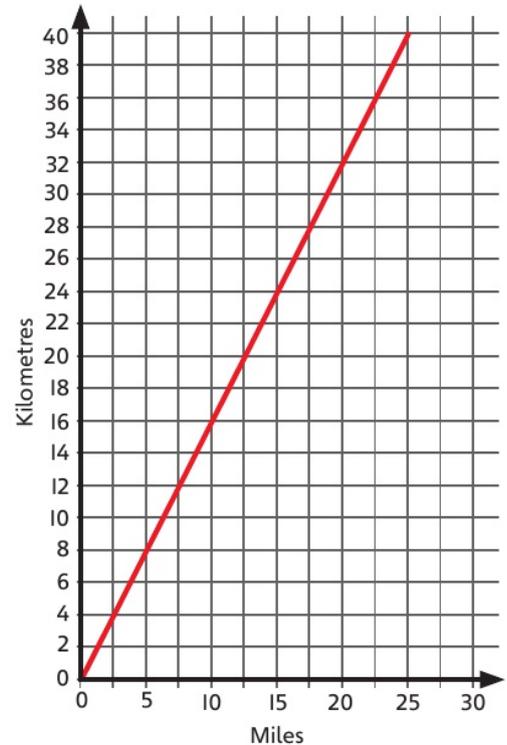
Think together

1 This line graph shows the conversion of miles and kilometres. Use the information on the graph to complete these conversions.

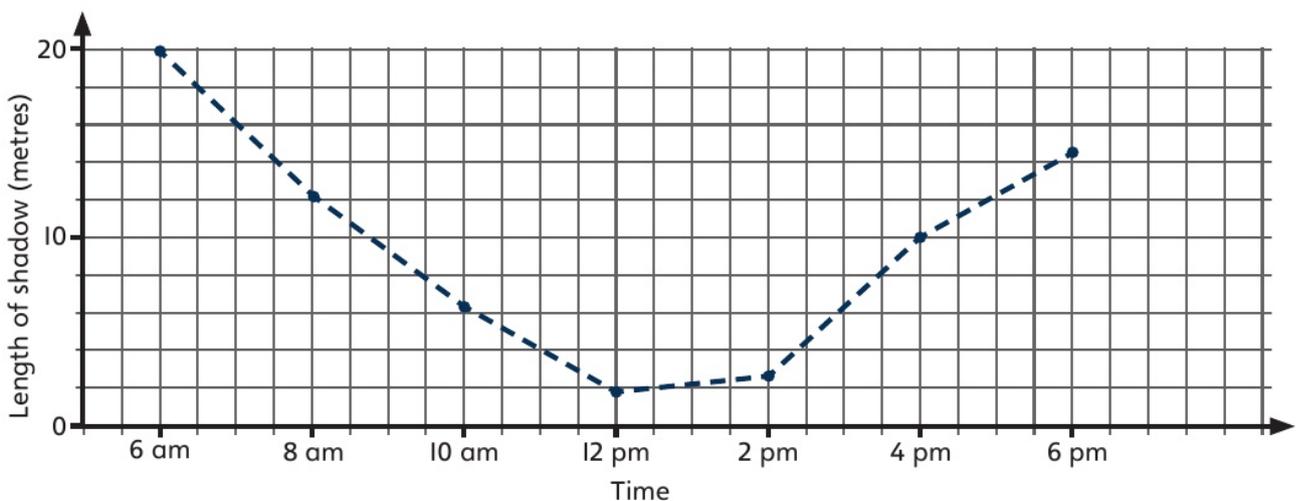
10 miles is equivalent to kilometres.

20 kilometres is equivalent to miles.

There are kilometres in 1 mile.



2 This graph shows the length of the shadow of a tree at different times of the day.



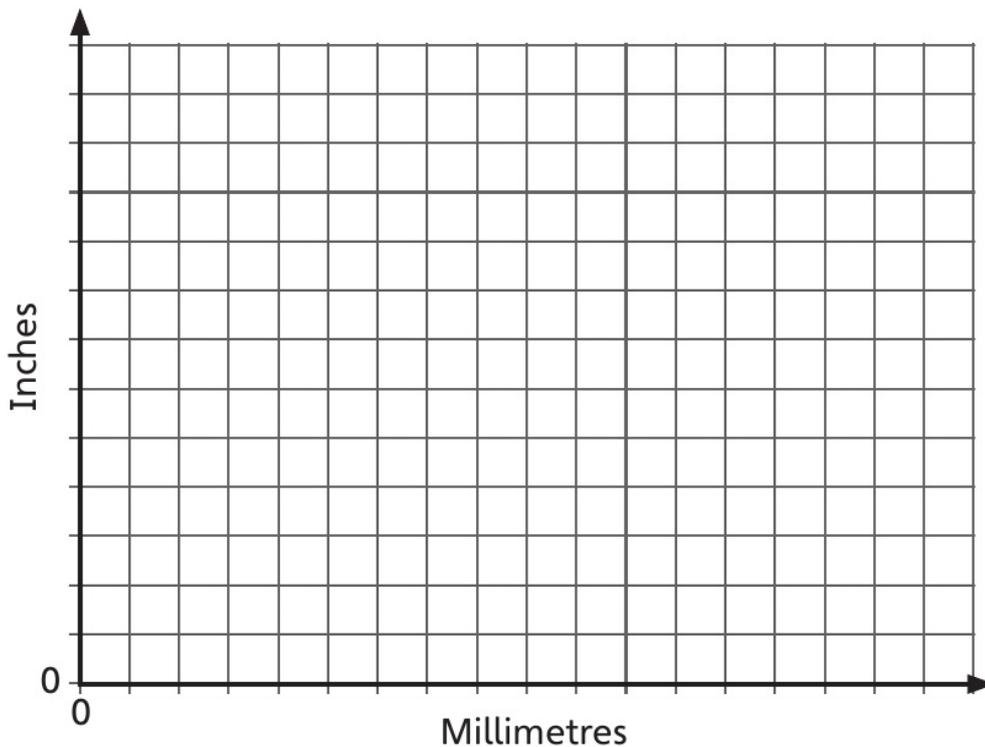
a) When was the shadow 10 m long?

b) Use this graph to predict the height of the shadow at 8 pm.

CHALLENGE

- 3 a) Use the figures in the table to draw a conversion line graph for inches to millimetres.

Inches and millimetres conversion table					
Inches	10	20	30		
Millimetres	254	508	762		



I will first decide what scales to use for my axes.



- b) Use the graph to find the following approximate conversions.

25 inches = mm 1 m = inches

800 mm = inches 6 ft = m

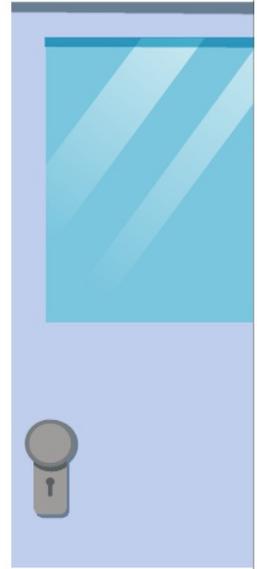
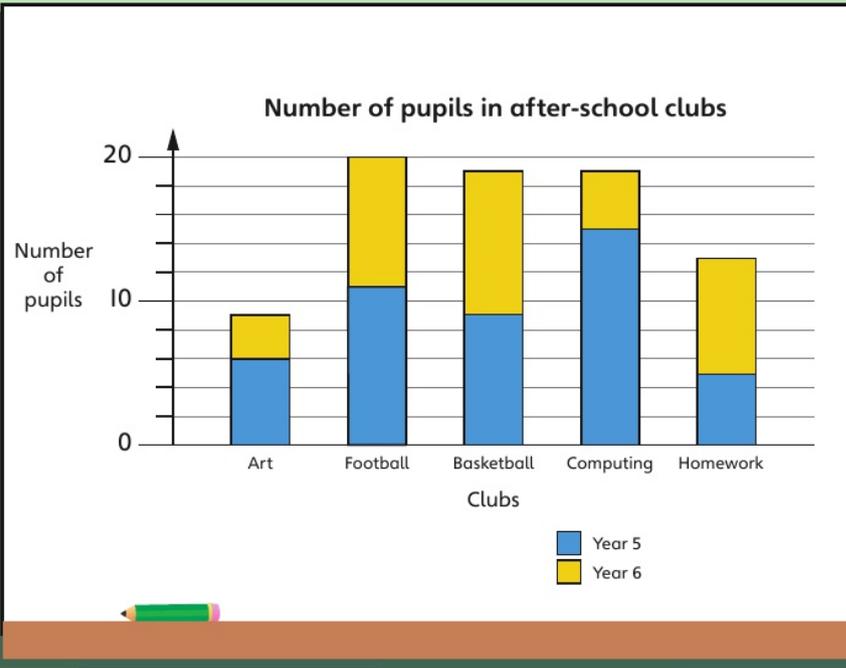
15 inches = cm

There are 12 inches in 1 foot.



Advanced bar charts

Discover



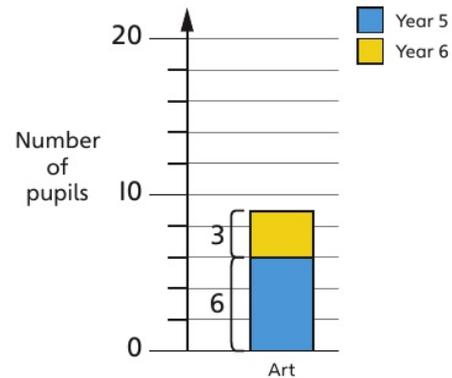
1 a) Discuss why each bar is split into two sections.

b) Which club is the most popular overall?

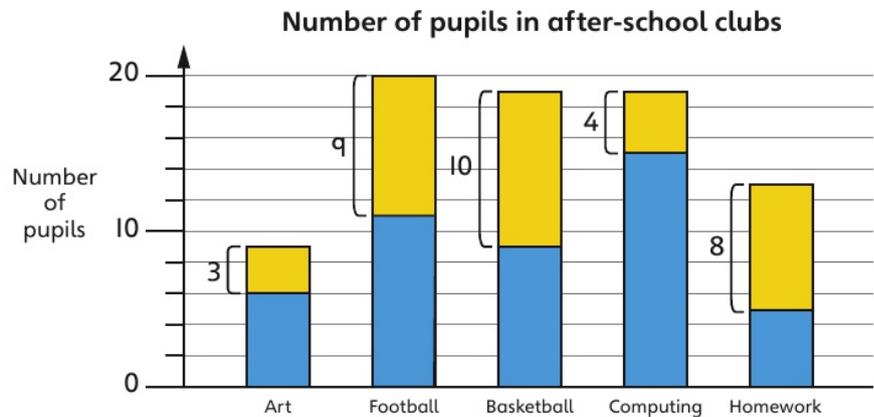
Which club is the most popular amongst children in Year 6?

Share

- a) Each bar is split to show the results for children in Year 5 and also for children in Year 6.



- b) Football is the most popular club overall.



However, basketball is the most popular choice for children in Year 6.



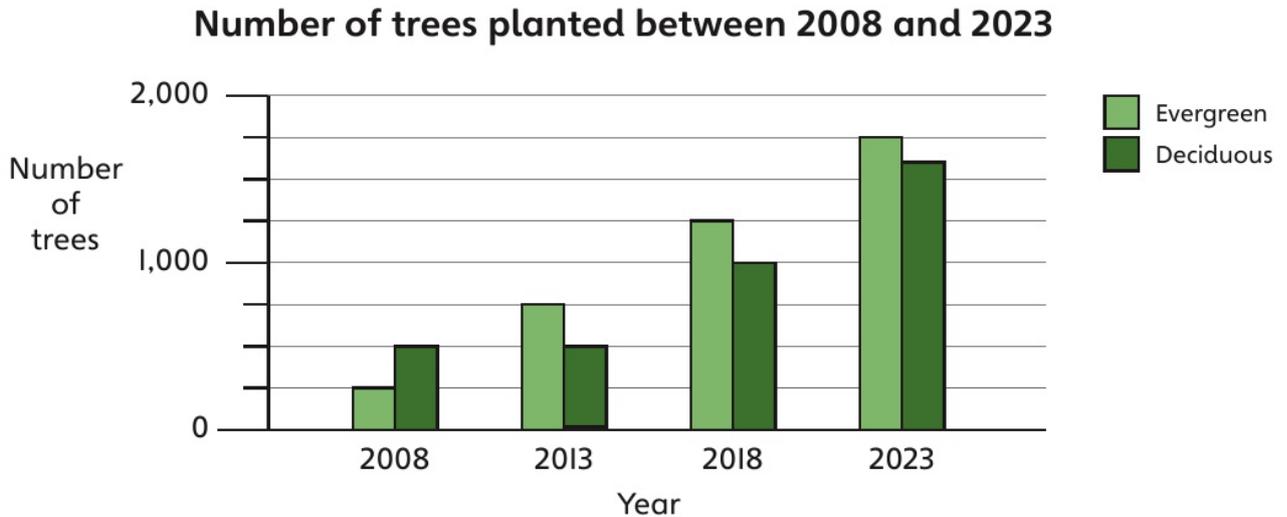
I thought the tallest bar would tell me which club was the most popular.

I needed to be careful to only look at the heights of the bars for children in Year 6.



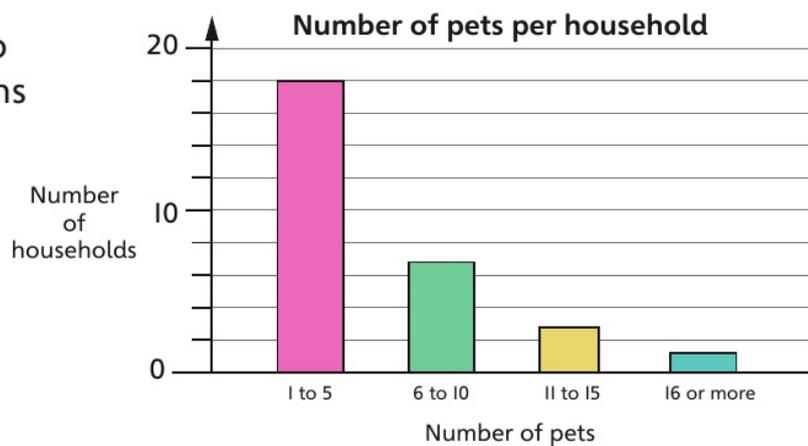
Think together

1 Use the **bar chart** to answer the questions below.



- In which years were more evergreen trees planted than deciduous trees?
- How many evergreen trees were planted in total?
- Estimate the number of deciduous trees planted in 2023.

2 Use the bar chart to answer the questions below.



- How many households have fewer than 11 pets?
- How many households have 16 or more pets?