Monday 6th July

Read & Interpret Line Graphs

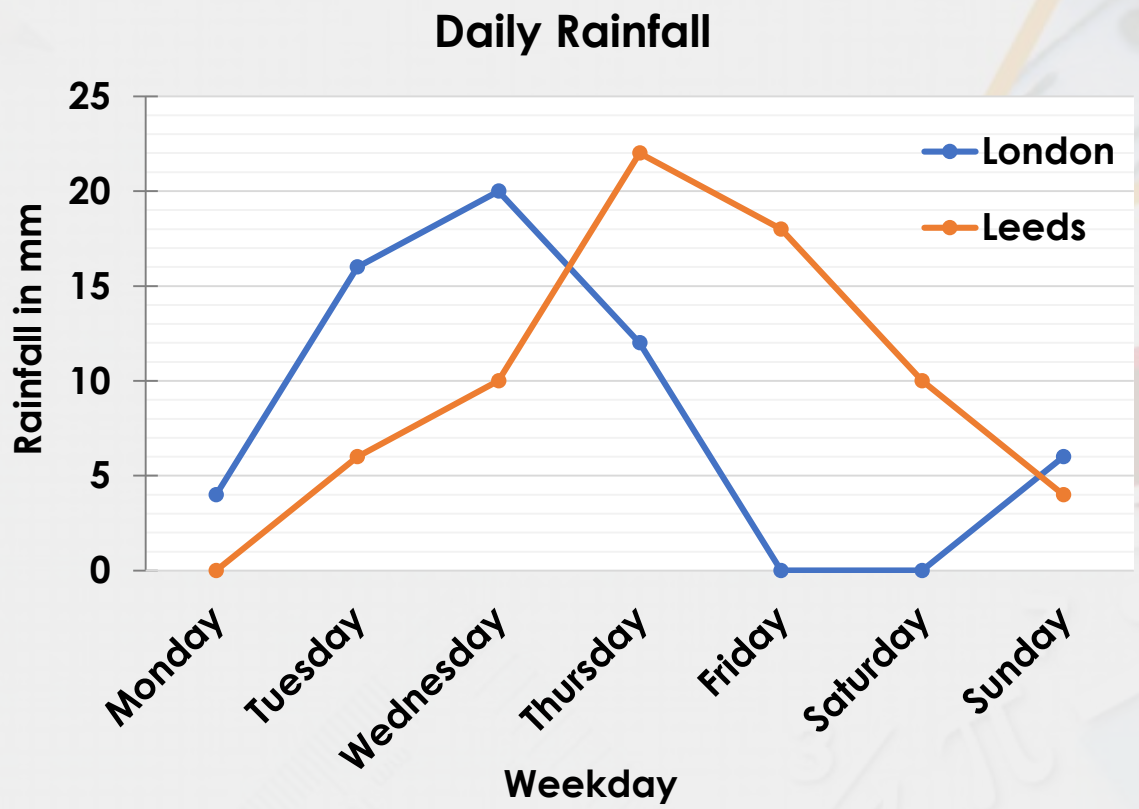
Watch the clip

https://watchkin.com/bb7fd16cb9

Introduction

Add the labels to the line graph.

title	key	x axis	y axis	data



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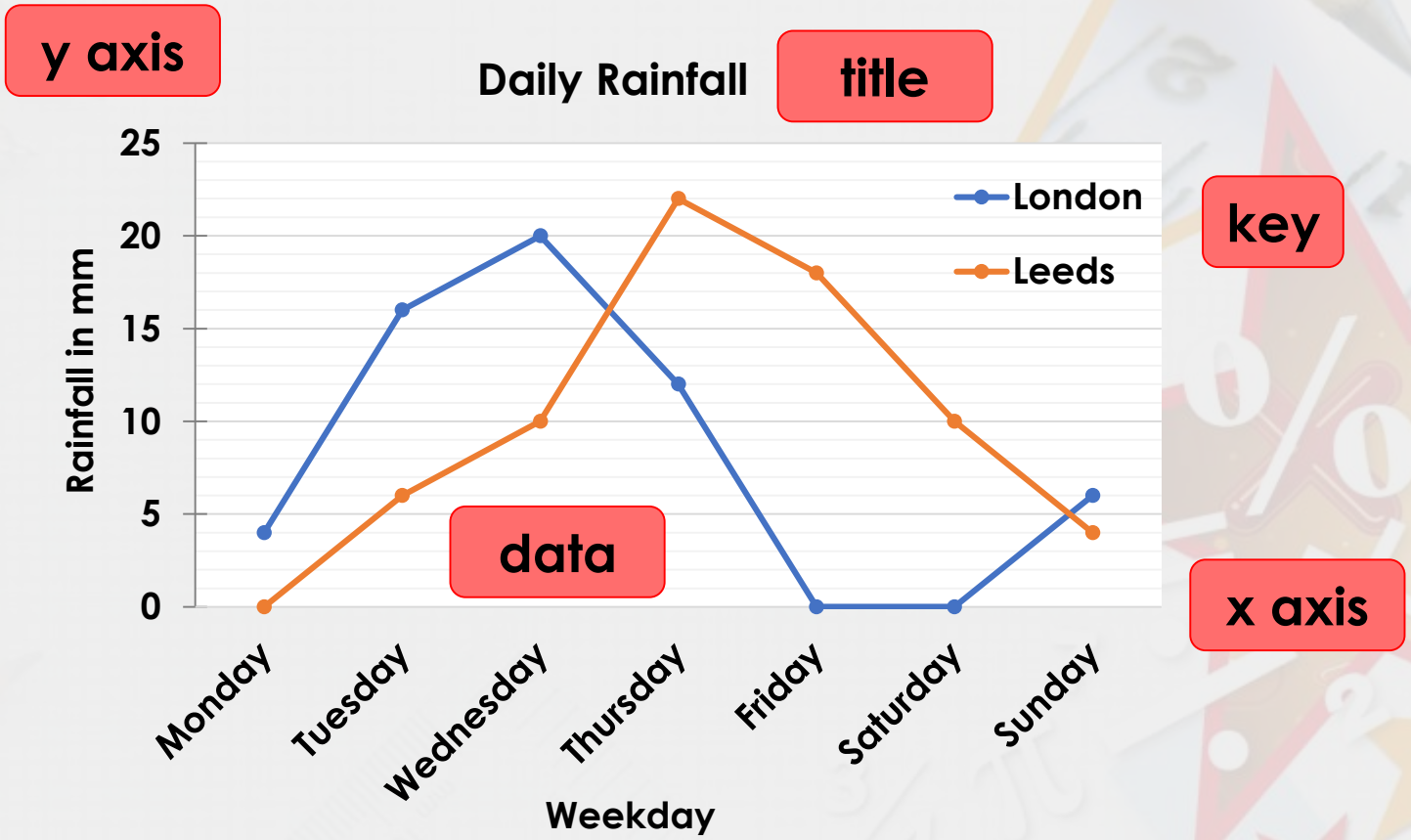
Introduction

Add the labels to the line graph.



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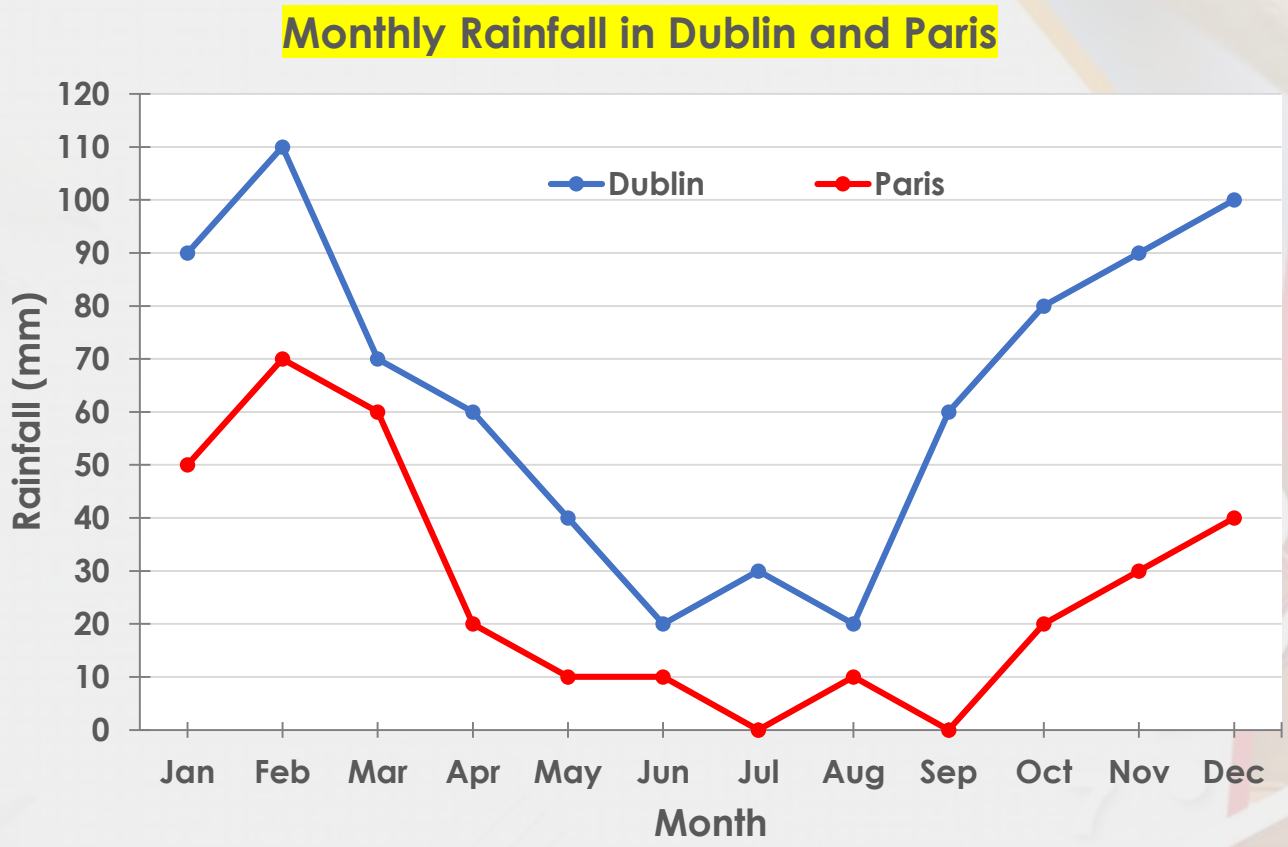
Varied Fluency 1

What was the difference in rainfall in October?



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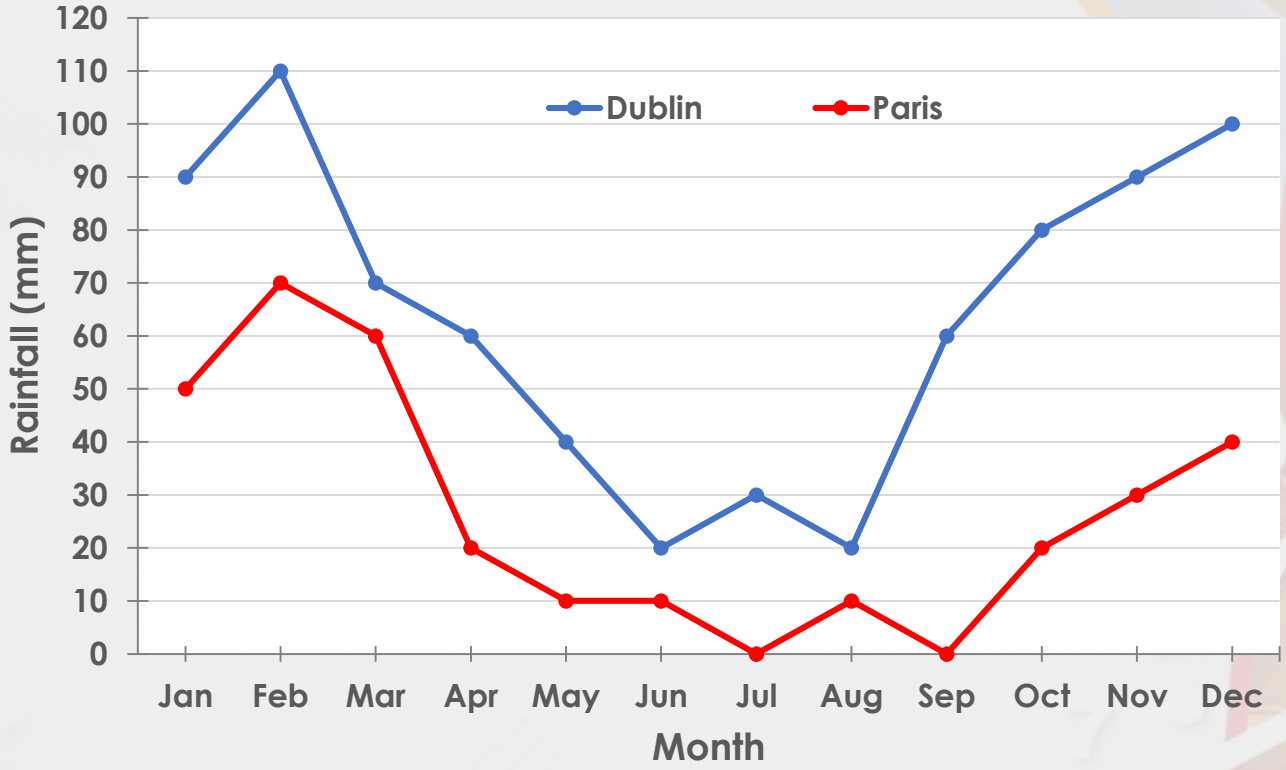
Varied Fluency 1

What was the difference in rainfall in October?

Monthly Rainfall in Dublin and Paris



60mm

(80 – 20 = 60)

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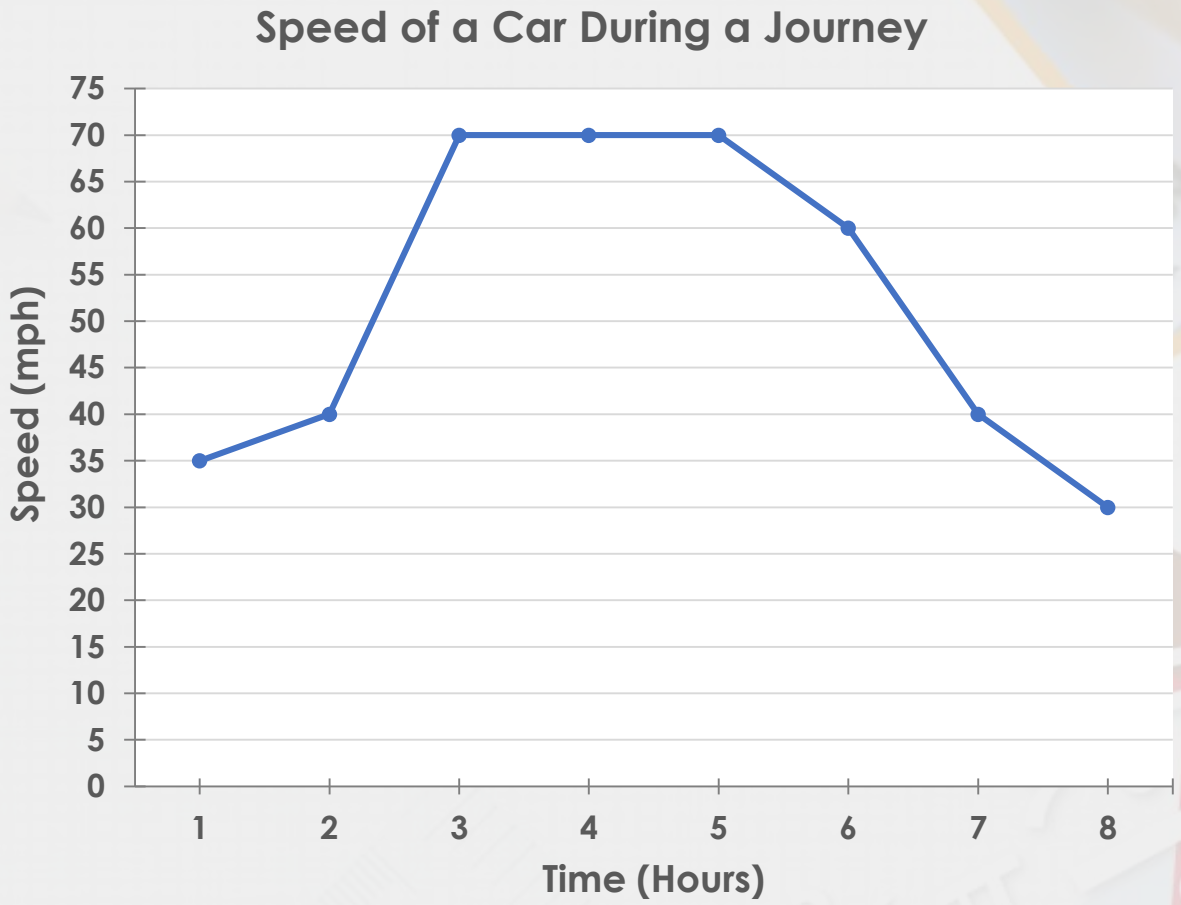
Varied Fluency 2

In which hours did the car travel faster than 50mph?



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Varied Fluency 2

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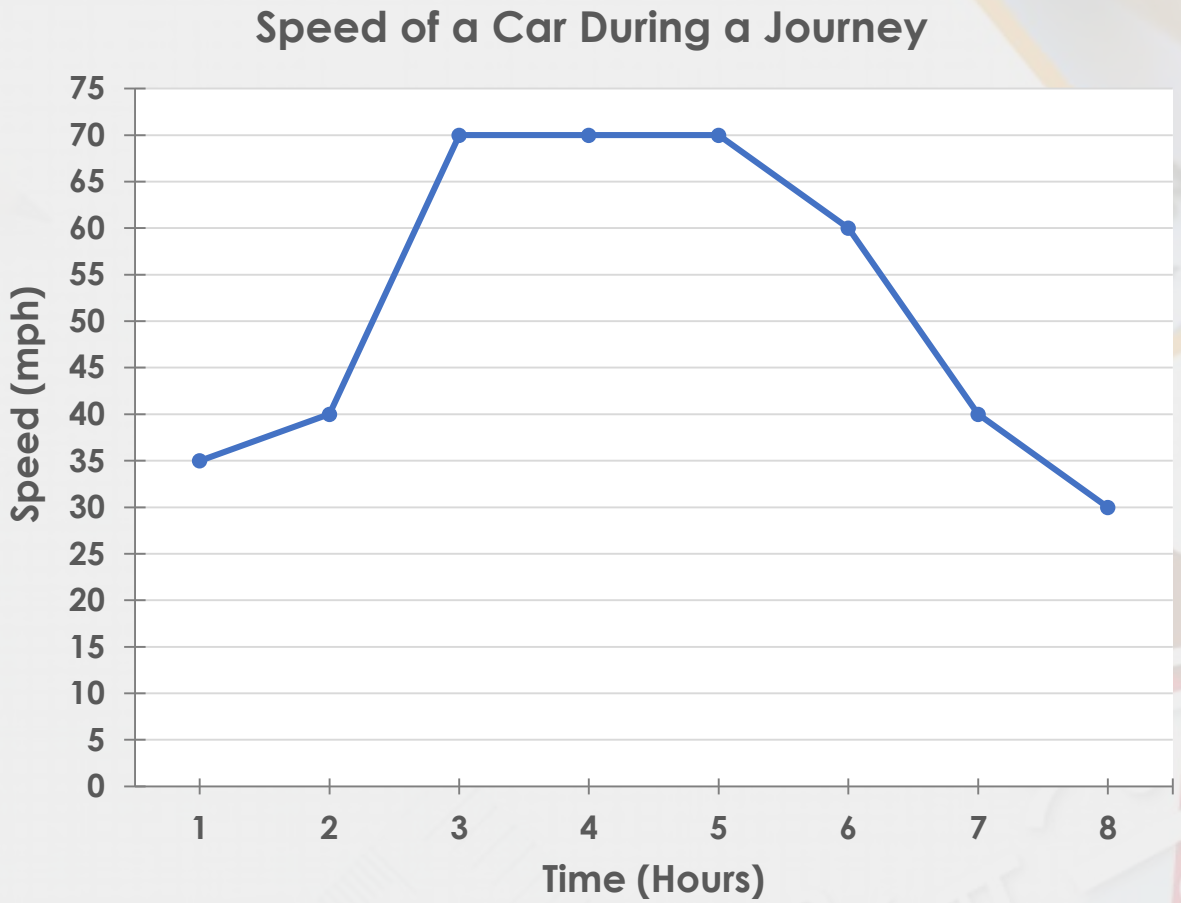

Hours 3, 4, 5 and 6

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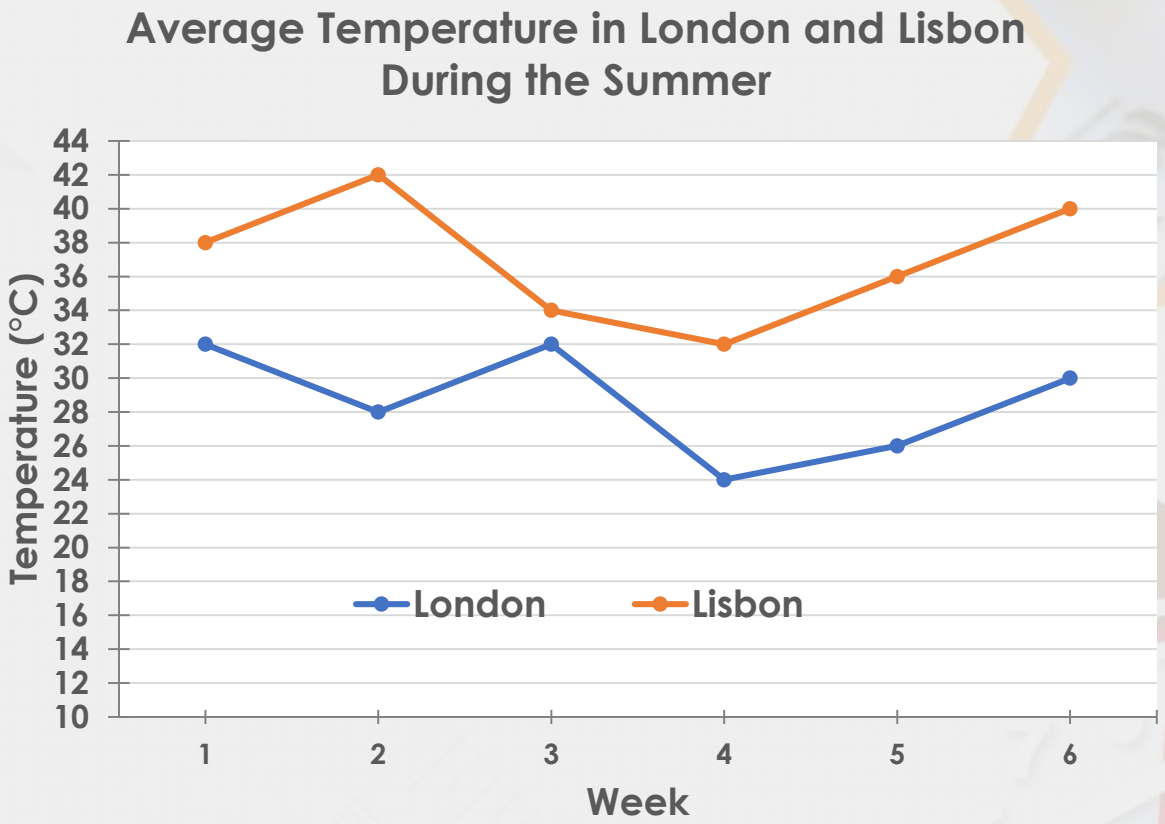
Varied Fluency 3

How many times was the temperature above 30°C in both London and Lisbon?



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Varied Fluency 3

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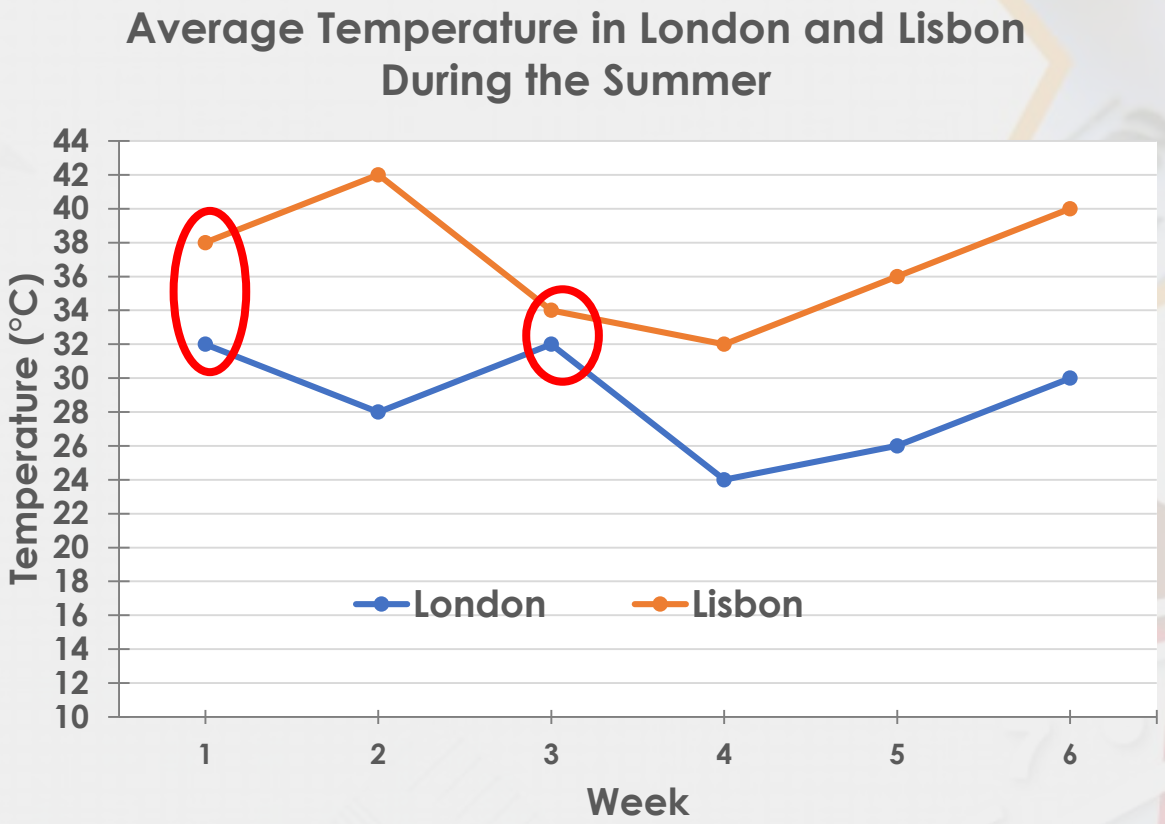

2 times

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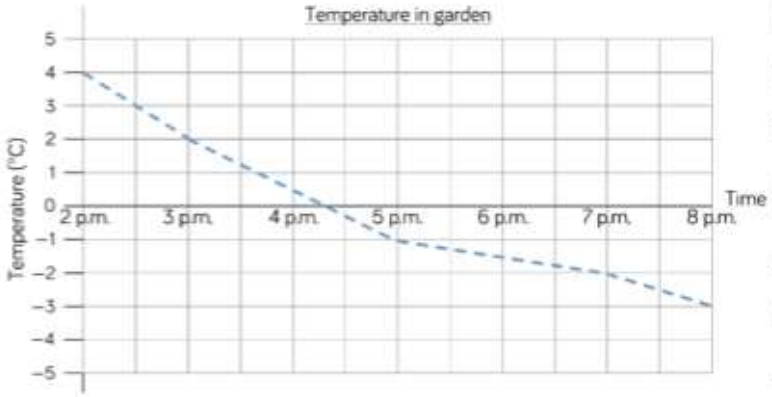
Varied Fluency

Use the labels on the axis and the grid lines to help you answer the questions.

Here is a line graph showing the temperature in a garden.



What was the temperature at 5 p.m.?

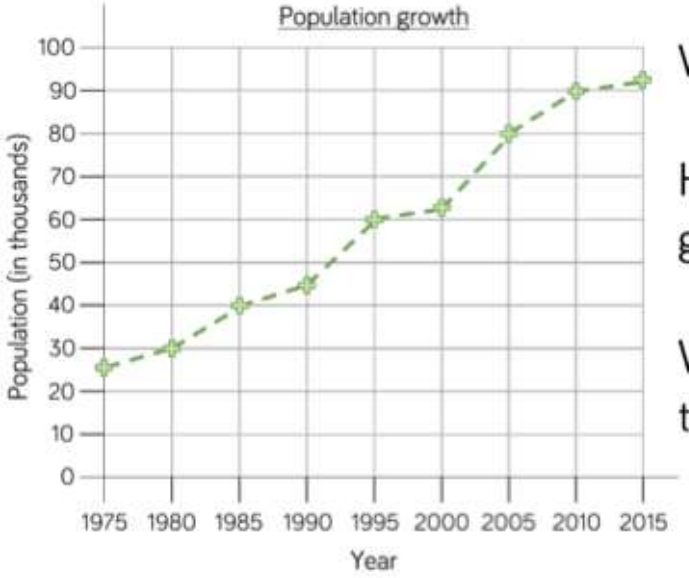
What was the difference in temperature between 3 p.m. and 7 p.m.?

When was the temperature 4°C?

Estimate the time when the temperature was 0°C.

Estimate the temperature at 6 p.m.

This line graph shows the population growth of a town.



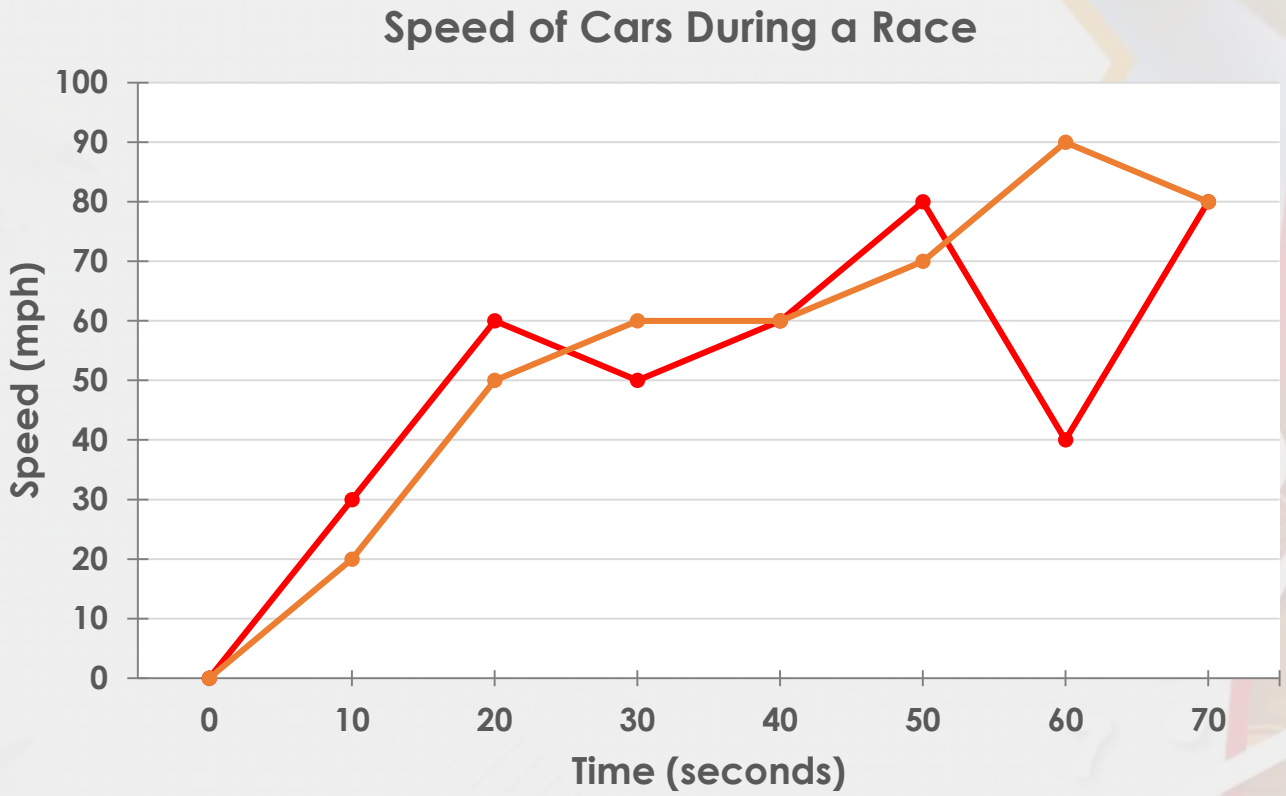
What was the population in 1985?

How much did the population grow between 1990 and 2010?

When was the population double the population of 1985?

Problem Solving 1

Jenna reached a higher top speed than Max in a car race.
Which line represents Jenna's performance?



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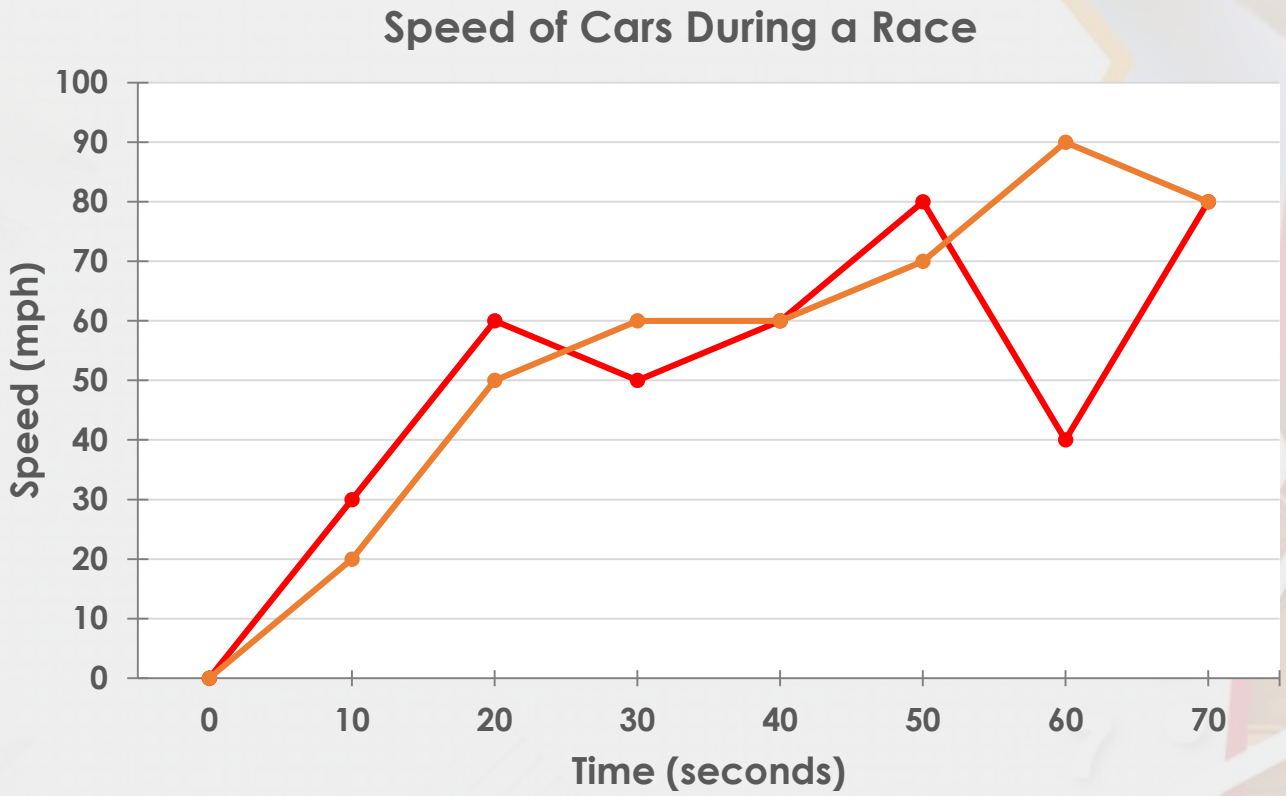
Problem Solving 1

Jenna reached a higher top speed than Max in a car race.
Which line represents Jenna's performance?



The orange line represents Jenna's performance.

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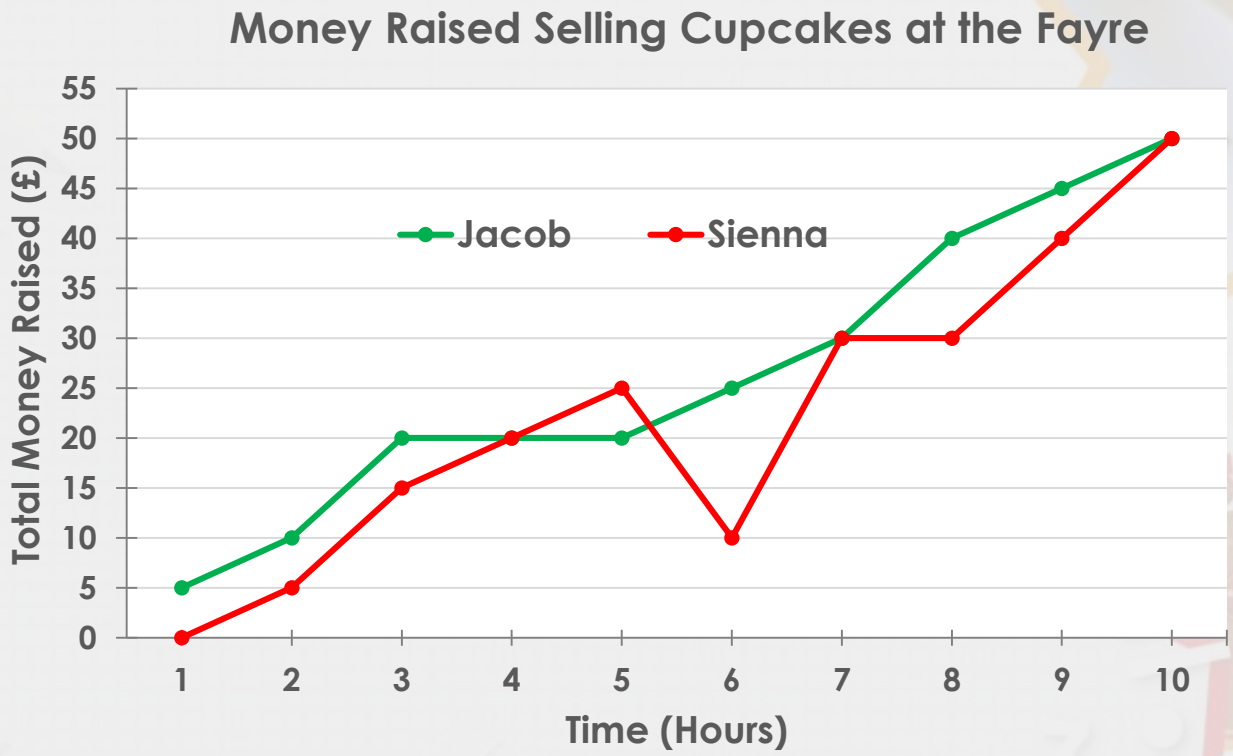
Reasoning 1

Benji made a mistake when he plotted his line graph.
Where do you think the mistake was made? Convince me.



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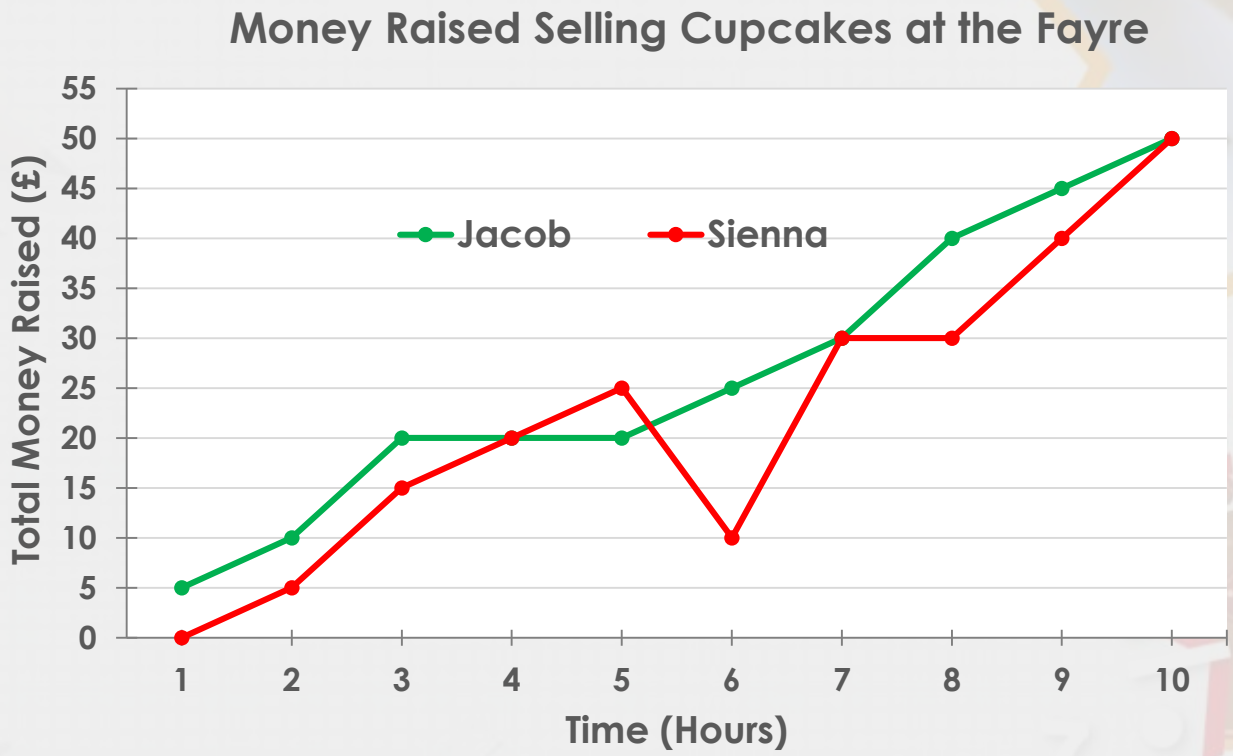

Benji has plotted Sienna's total money raised after 6 hours incorrectly because…

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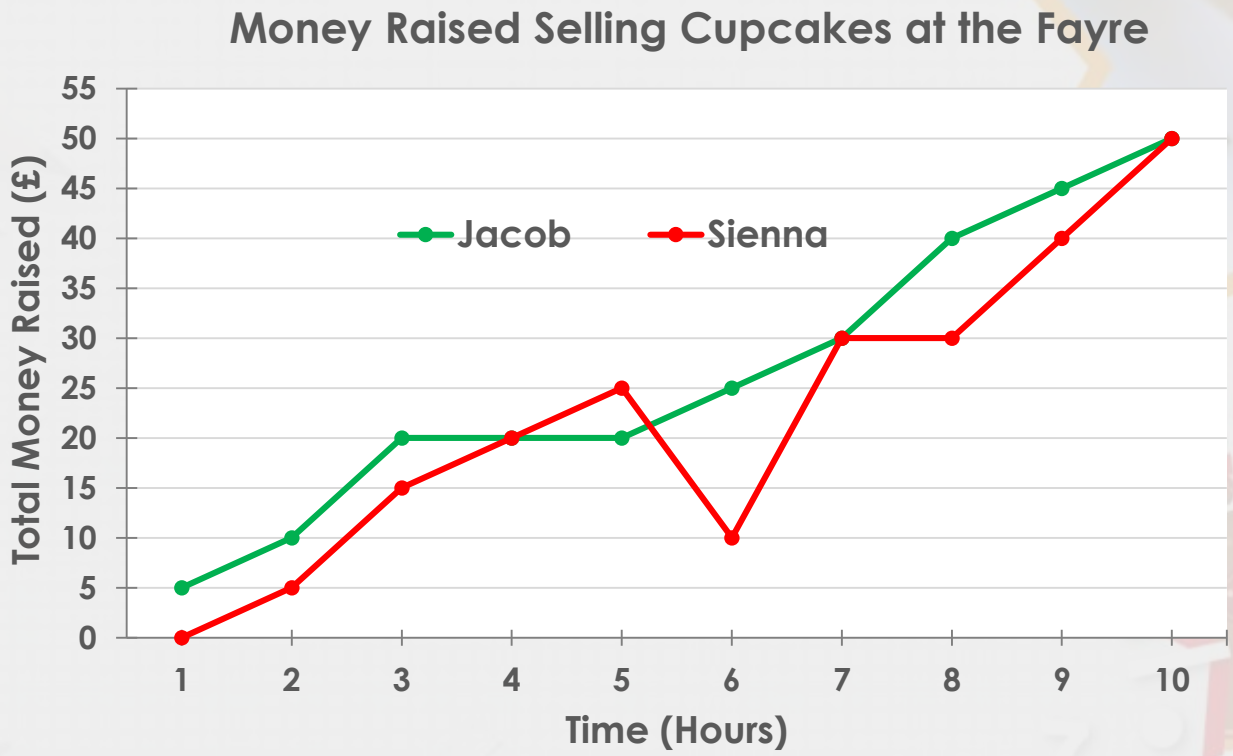
Reasoning 1

Benji made a mistake when he plotted his line graph.
Where do you think the mistake was made? Convince me.



Benji has plotted Sienna's total money raised after 6 hours incorrectly because the total has dropped down to £10 which is not possible since £25 had already been raised after 5 hours.

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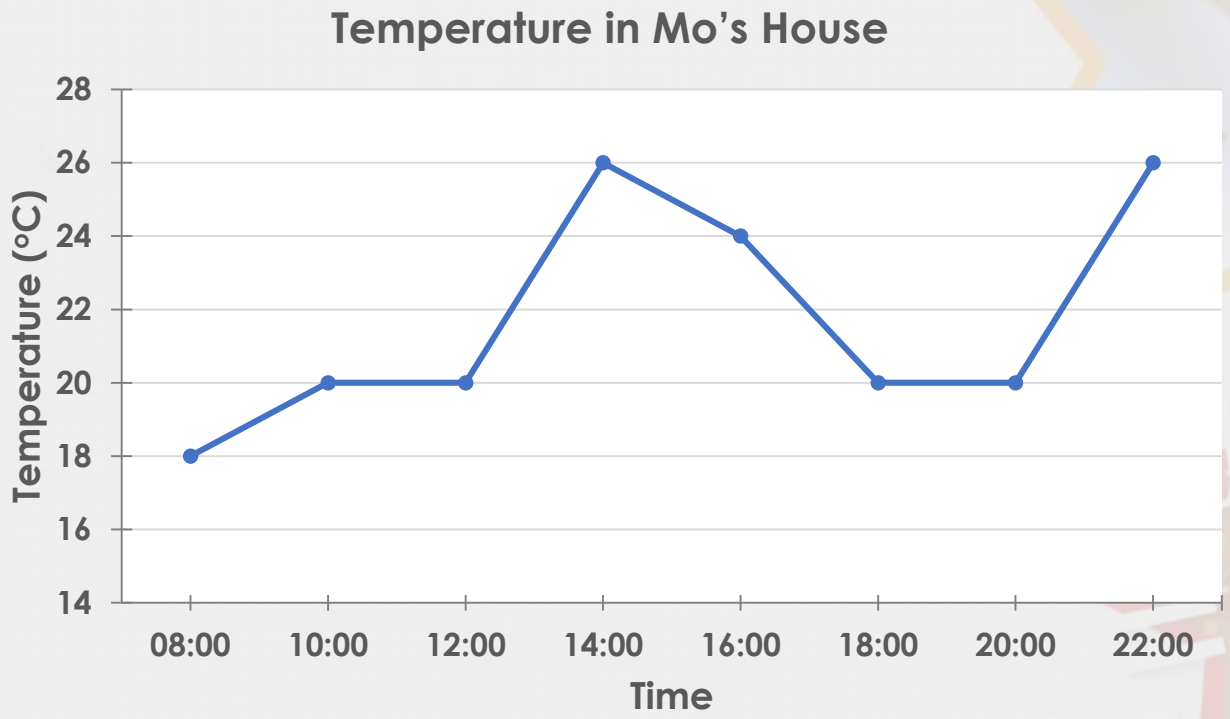
Reasoning 2

Mo thinks that the heating timer is set to come on at 1pm and 6pm. Is he correct? Explain why.



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Reasoning 2

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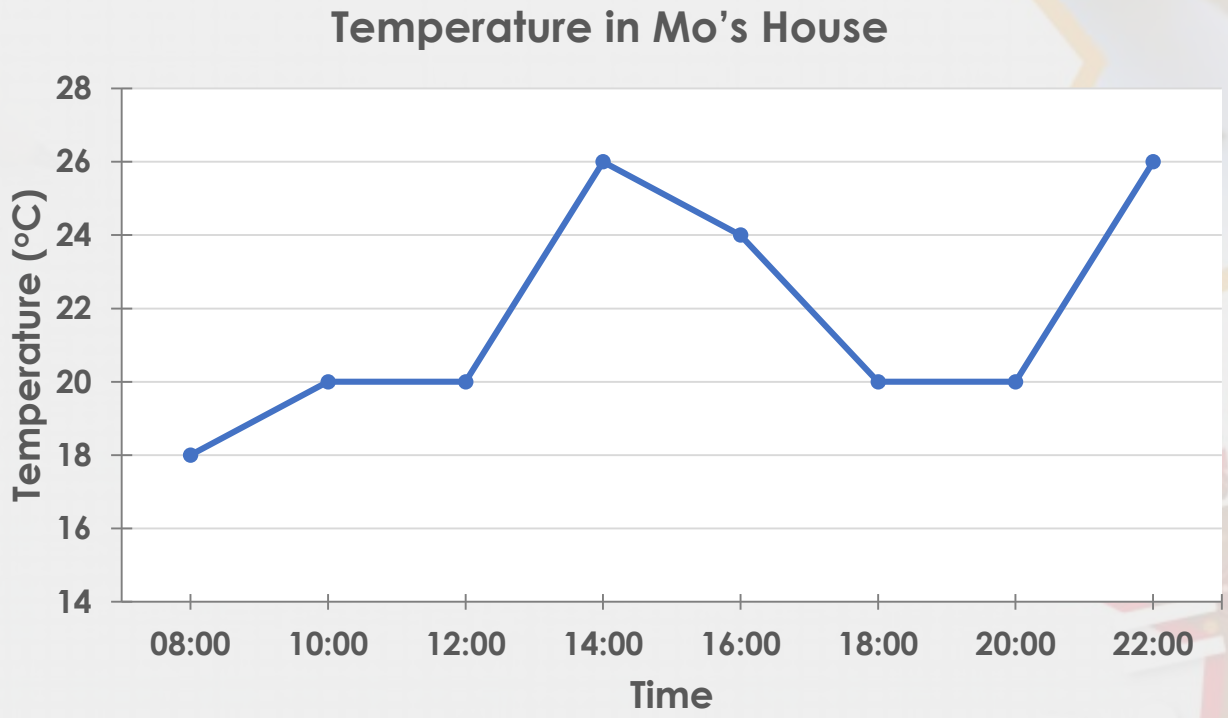

Mo is incorrect because…

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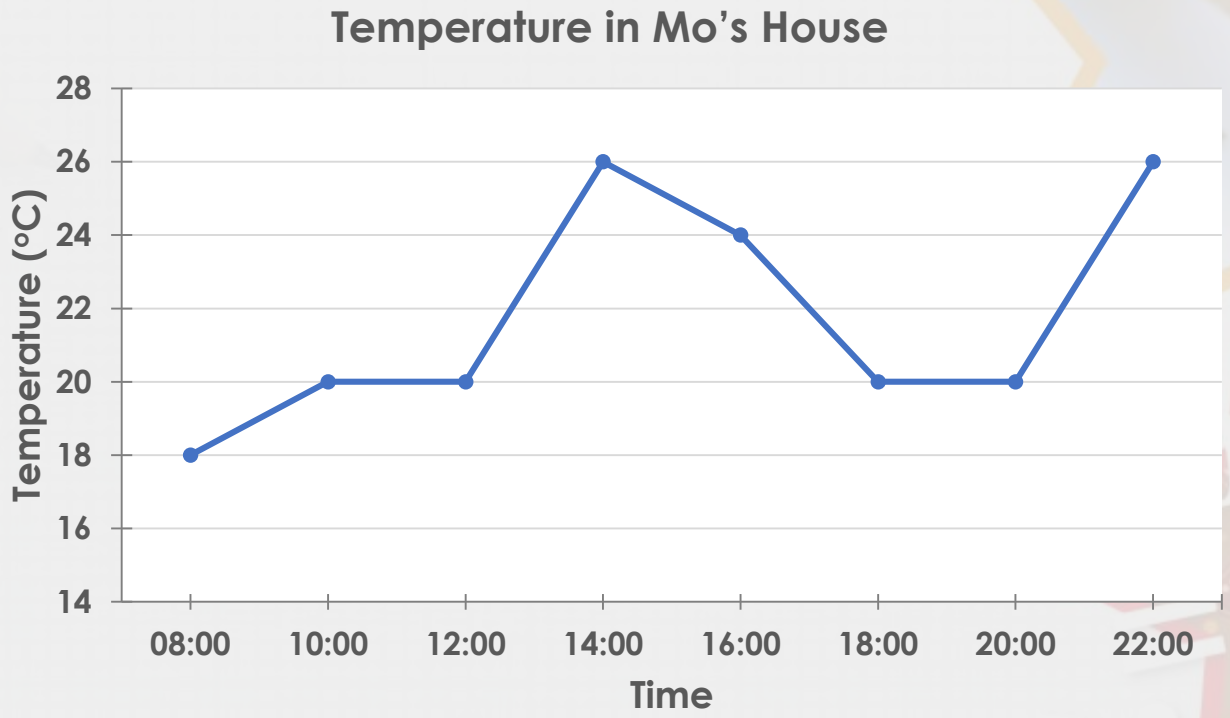
Reasoning 2

Mo thinks that the heating timer is set to come on at 1pm and 6pm. Is he correct? Explain why.



Mo is incorrect because the temperature starts to increase at 12pm and then decreases until 8pm when it starts to increase again. This suggests that the heating comes on at 12pm and 8pm.

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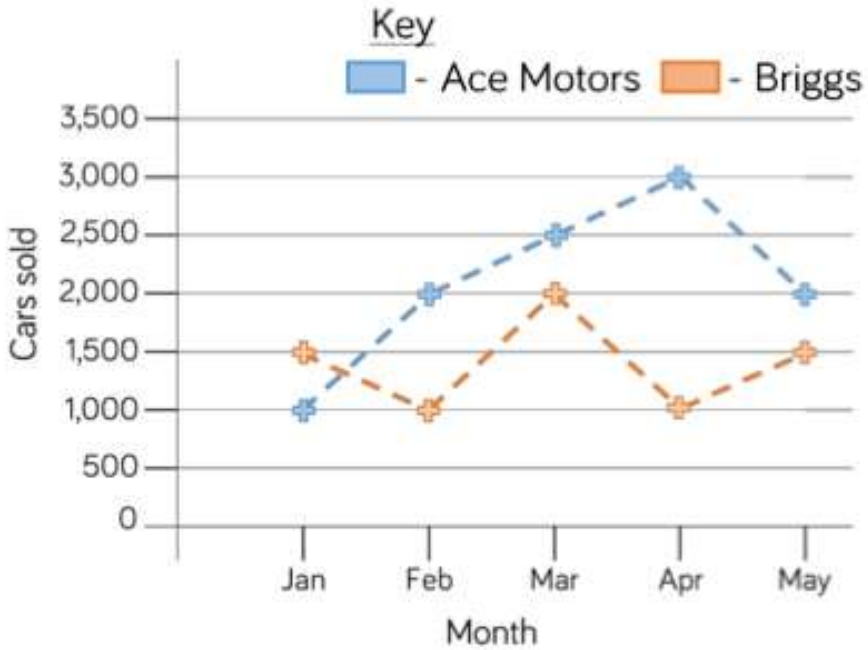
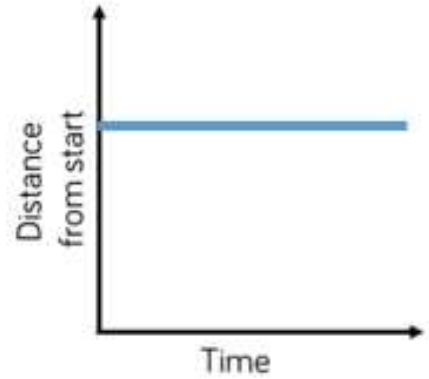
The graph shows the number of cars sold by two different companies.

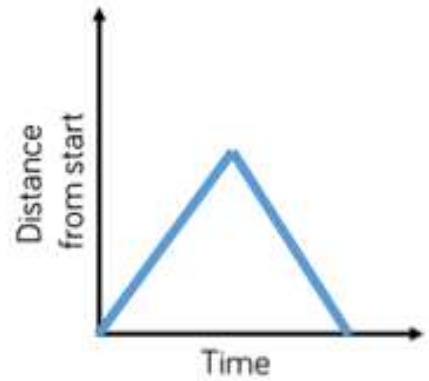


- How many more cars did Ace Motors sell than Briggs in April?
- From January to March, how many cars did each company sell? Who sold more? How many more did they sell?
- Crooks Motors sold 250 more cars than Briggs each month.
  Plot Crooks Motors' sales on the graph.

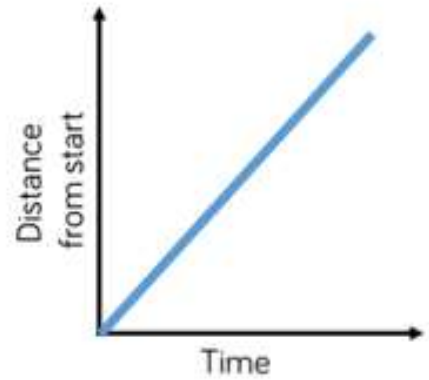
Match the graph to the activity.



A car travels at constant speed on the motorway.



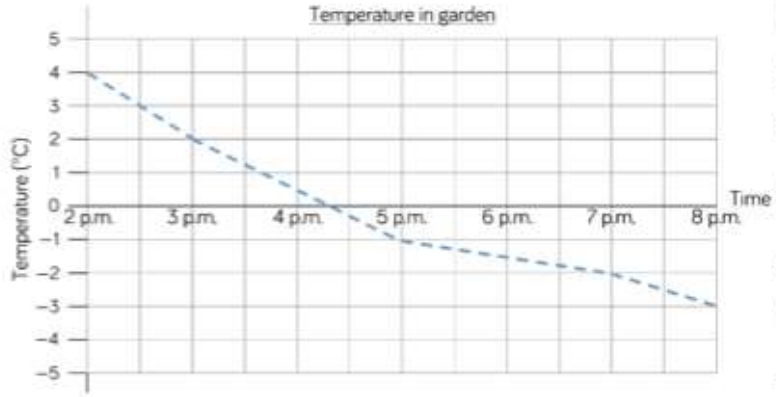
A car is parked outside a house.



A car drives to the end of the road and back.

Varied Fluency

Here is a line graph showing the temperature in a garden.



What was the temperature at 5 p.m.? -1°c

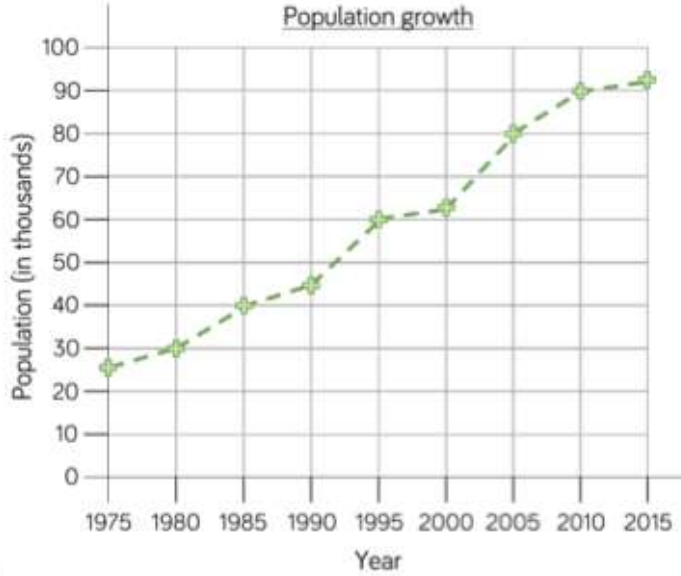
What was the difference in temperature between 3 p.m. and 7 p.m.? 4°c

When was the temperature 4°C? 2pm

Estimate the time when the temperature was 0°C. 4.15pm

Estimate the temperature at 6 p.m. -1.5°c

This line graph shows the population growth of a town.

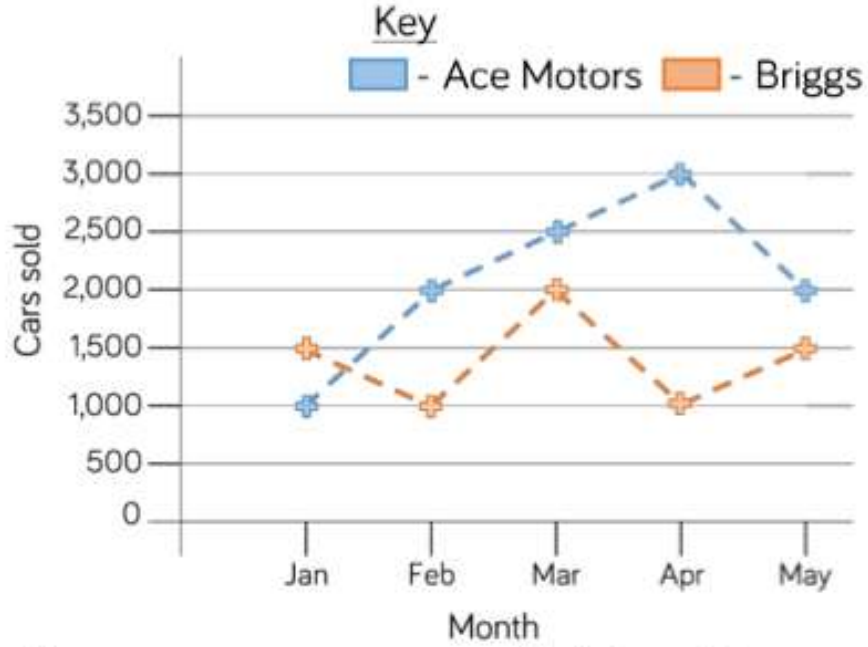


What was the population in 1985? 40,000

How much did the population grow between 1990 and 2010? 45,000

When was the population double the population of 1985? 2005

The graph shows the number of cars sold by two different companies.



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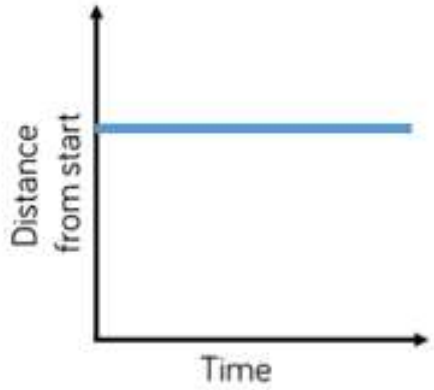
  Plot Crooks Motors' sales on the graph.

2,000

Ace 5,500
Briggs 4,500
Difference of 1,000
Ace sold more.

Points on graph are all half an interval up from Briggs.

Match the graph to the activity.



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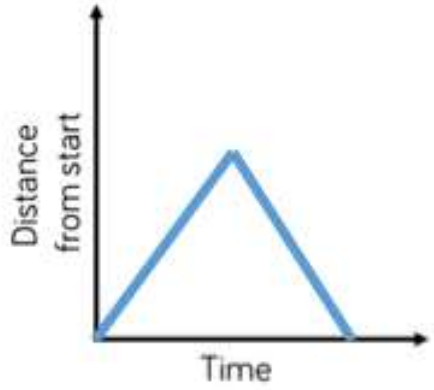

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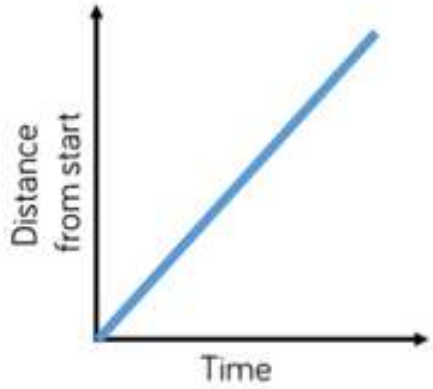


A car drives to the end of the road and back.

The first graph matches with the second statement.

Second graph with the third statement.

Third graph with the first statement.

Tuesday

Draw Line Graphs

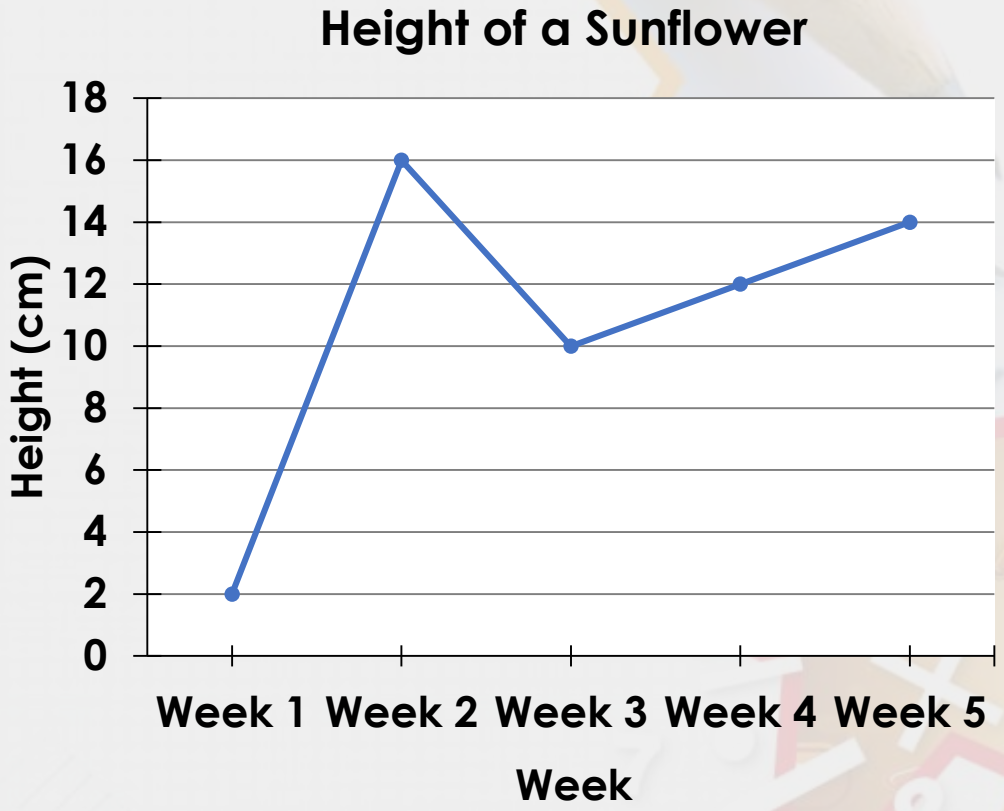
Watch the clip

https://watchkin.com/97456a5117

Introduction

Spot the mistake on the line graph.

Week	Height in cm
1	2
2	6
3	10
4	12
5	14



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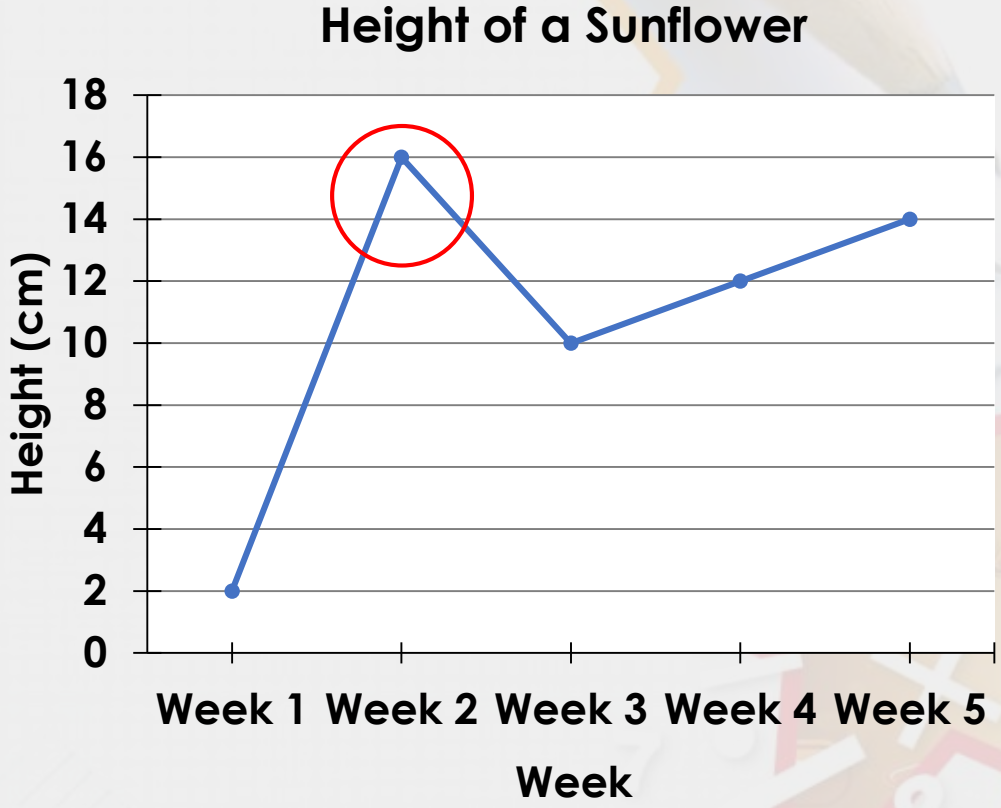

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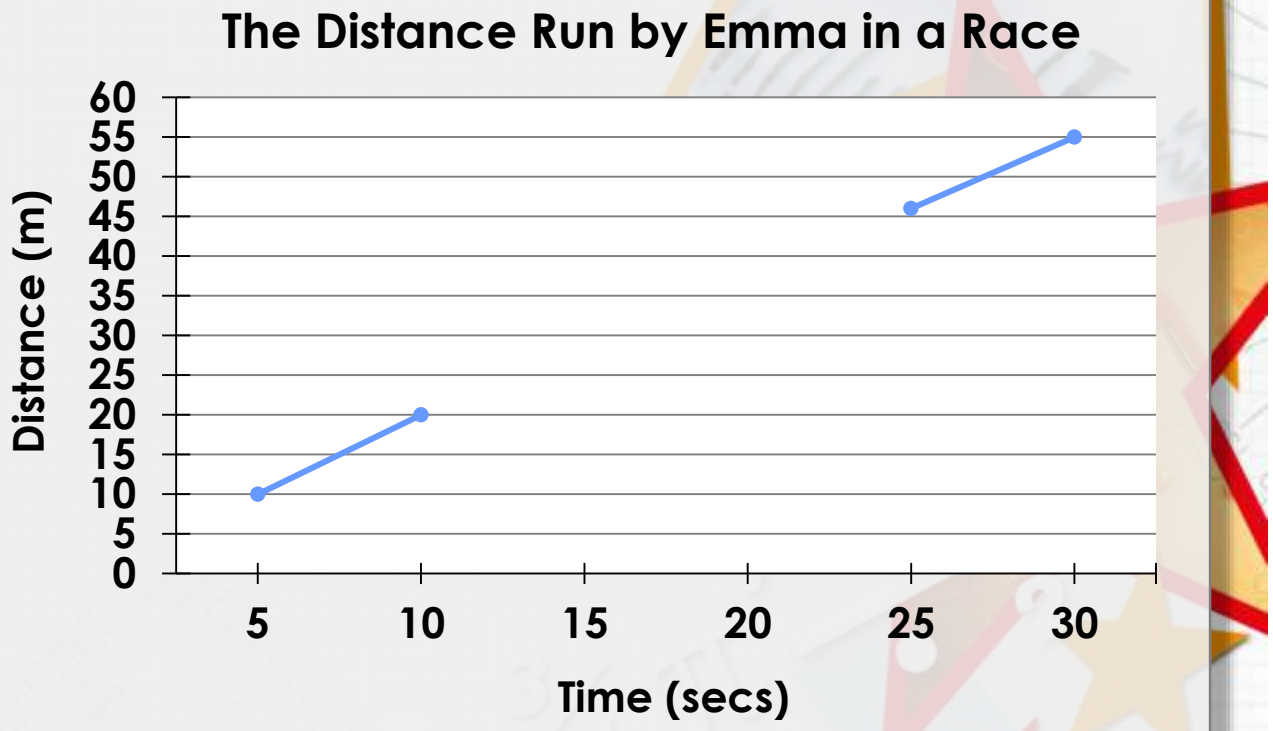
Varied Fluency 1

The table and line graph below show the distance Emma ran in a race.

Join the points in the line graph to estimate the missing distances in the table below.

Time (secs)	Distance (m)
5	10
10	20
15	
20	
25	46
30	55



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Varied Fluency 1

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Join the points in the line graph to estimate the missing distances in the table below.

Time (secs)	Distance (m)
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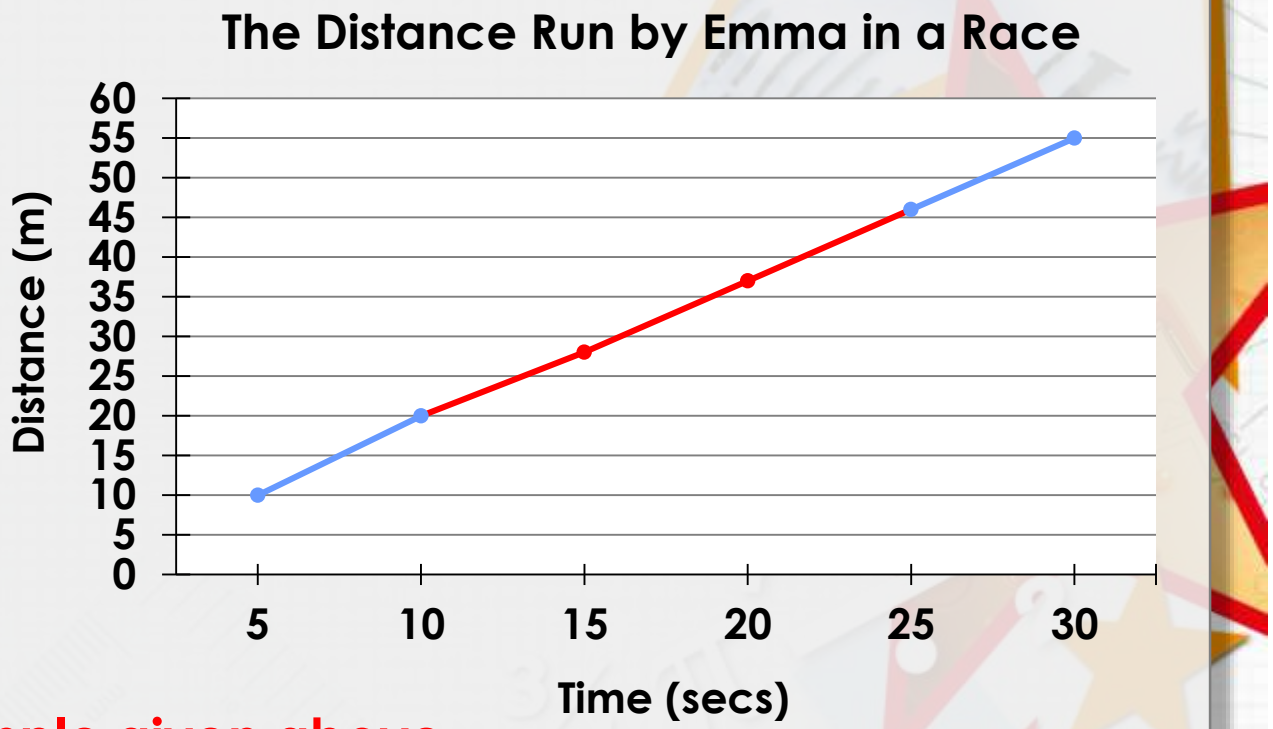
10	20
15	28
20	37
25	46
30	55



Various answers, example given above.

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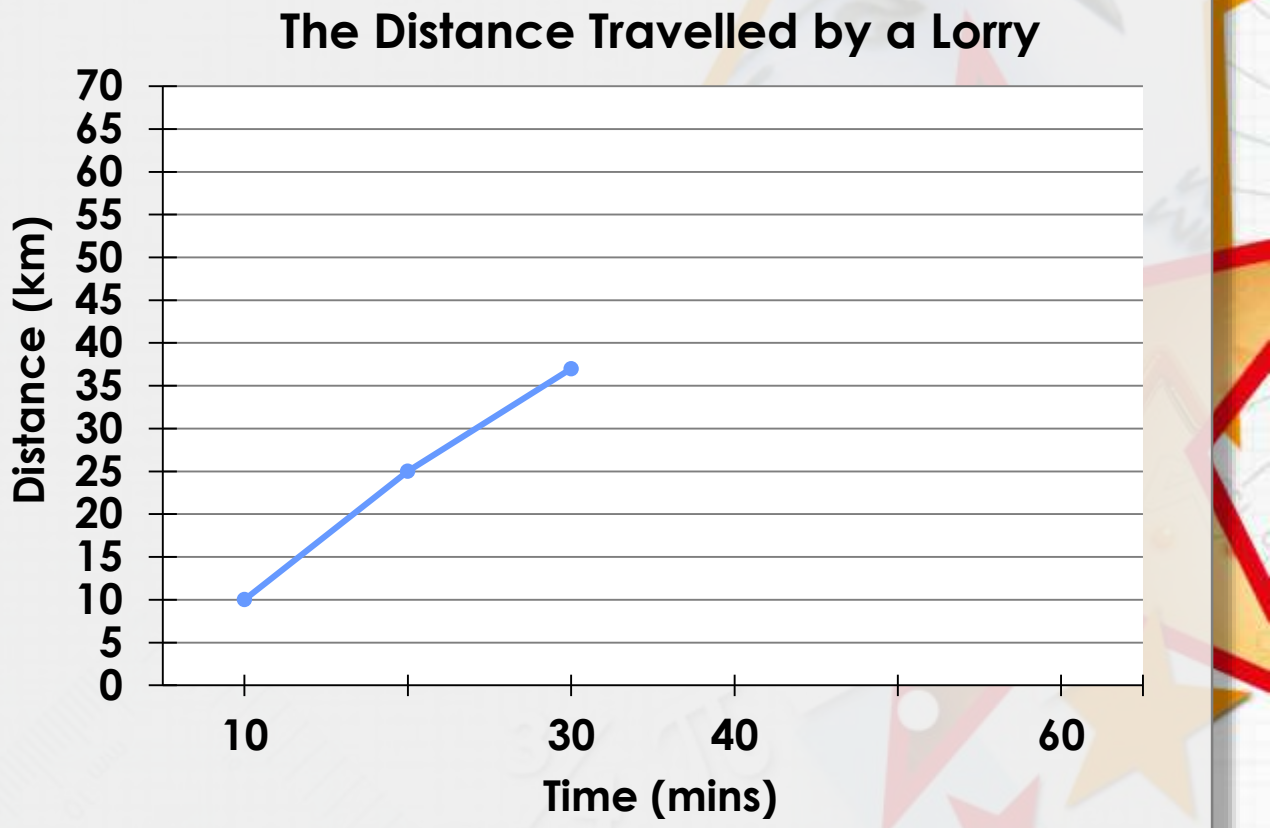
Varied Fluency 2

The table and line graph below show the distance travelled by a lorry. Use the information in the table to complete the line graph.

Time (mins)	Distance (km)
10	10
20	25
30	37
40	45
50	55
60	67



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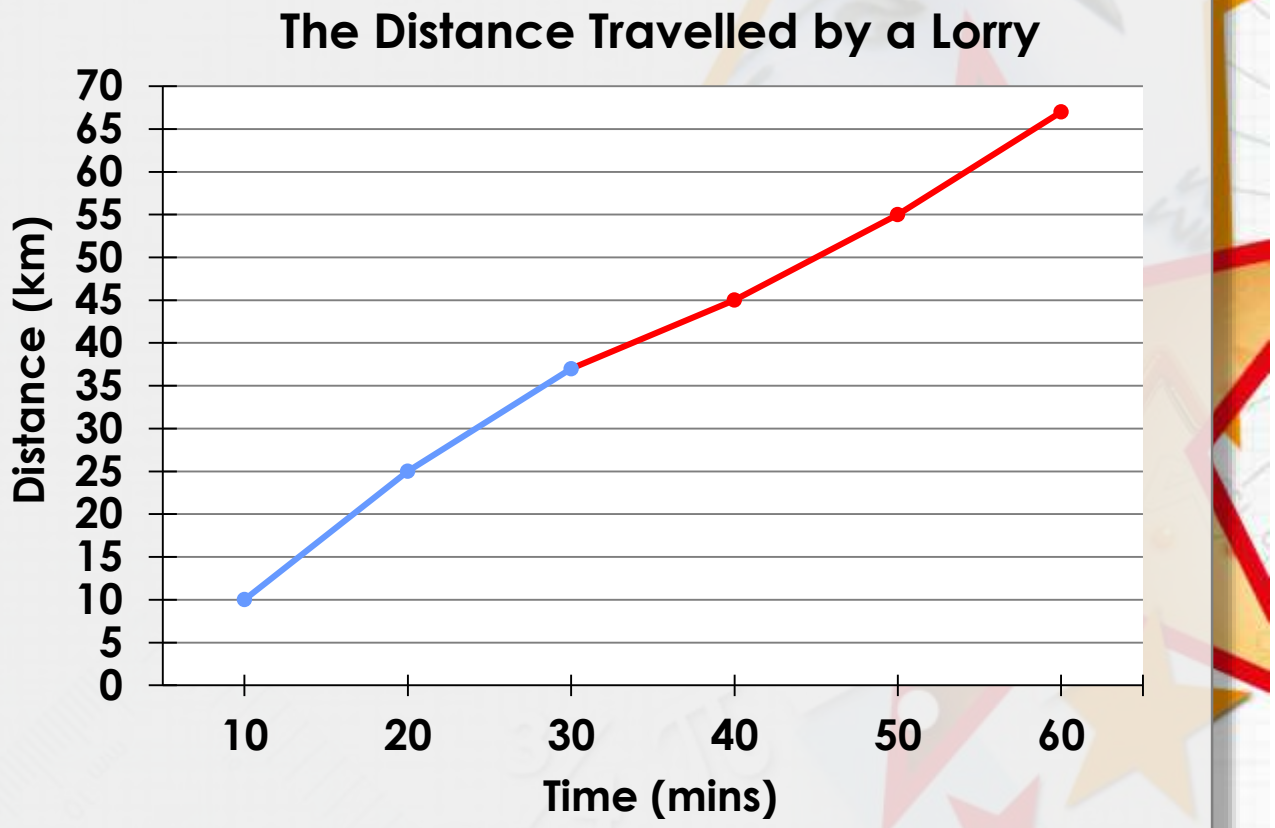

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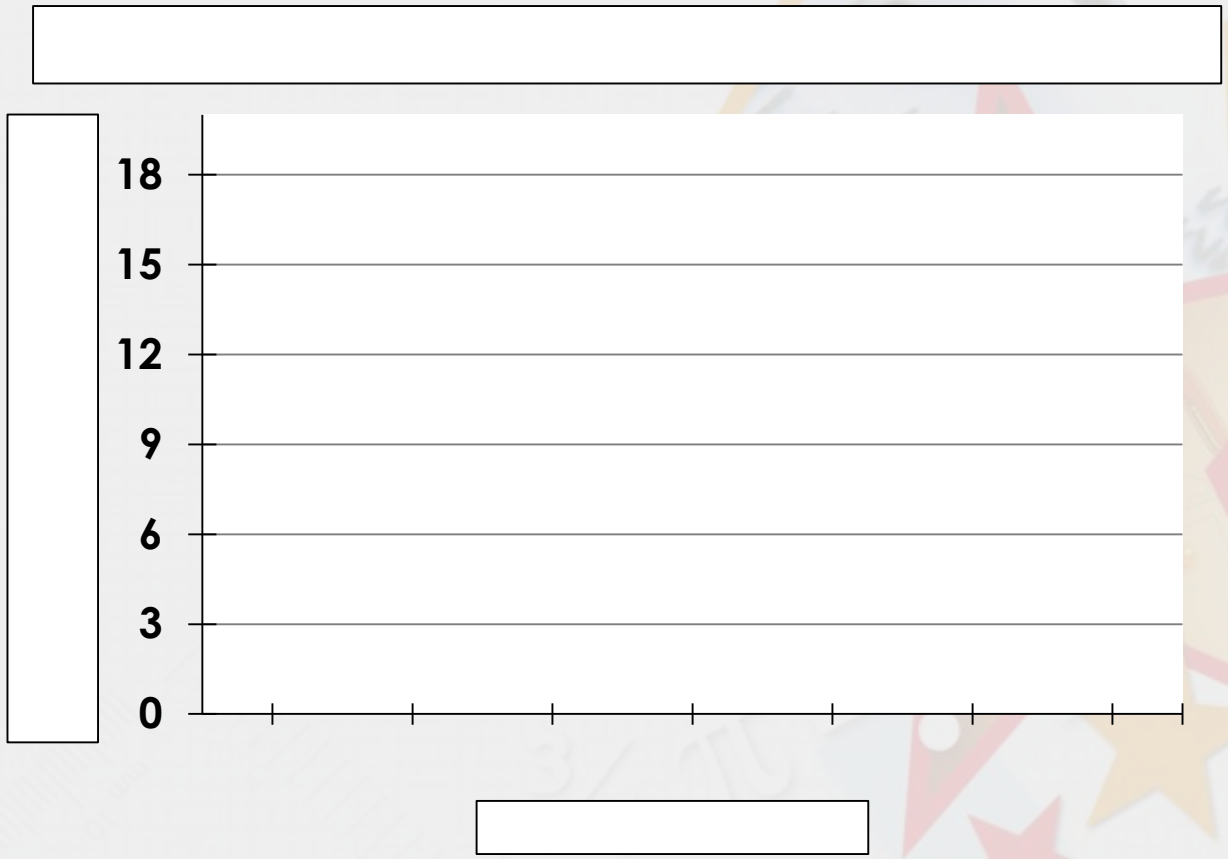
Varied Fluency 3

The table and line graph below show the average temperature in a week in Edinburgh. Complete the line graph by adding in the missing elements, including titles. Use the information in the table to help you.

Day	Temp (˚C)
Mon	10
Tue	12
Wed	15
Thu	15
Fri	9
Sat	12
Sun	18



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Varied Fluency 3

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Tue	12
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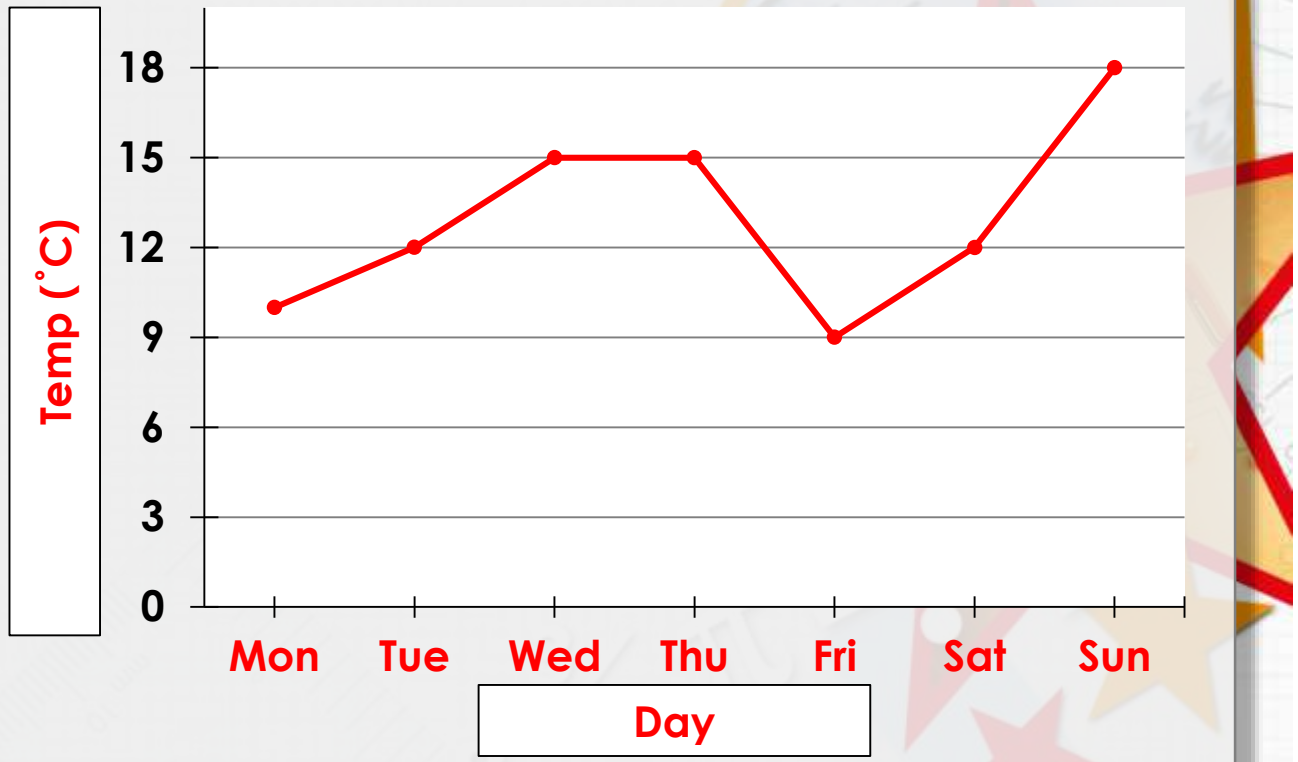
Thu	15
Fri	9
Sat	12
Sun	18



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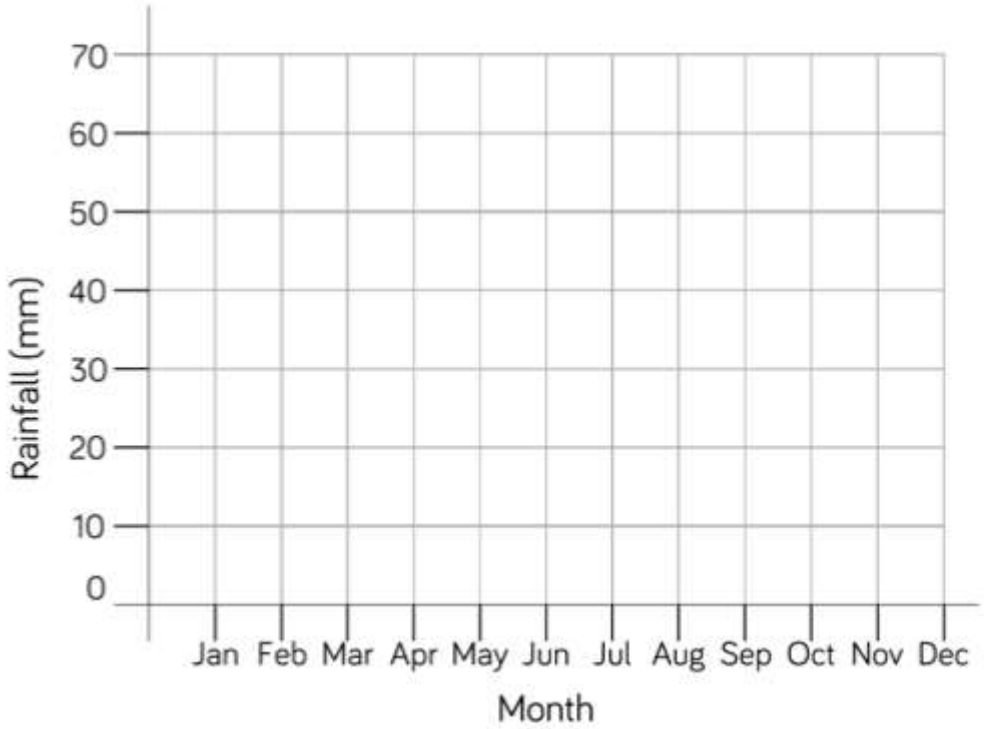
Varied Fluency

The table shows average rainfall in Leicester over a year.
Complete the graph using the information from the table.



Month	Rainfall (mm)
Jan	54
Feb	40
Mar	38
Apr	38
May	48
Jun	46
Jul	58
Aug	60
Sep	50
Oct	57
Nov	65
Dec	50

Here is a table showing the conversion between pounds and rupees. Present the information as a line graph.

Pounds	1	2	3	4	5	6	7	8	9	10
Rupees	80	160	240	320	400	480	560	640	720	800

Reasoning 1

Simon is creating a line graph to show the population growth in Newcastle from 2014 to 2018.

The population in 2014 was 290,000; at its highest in 2018, it was 310,000. I will use intervals of 1 million for the population axis.

Will his line graph work? Draw a line graph to help you explain why.

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Reasoning 1

Simon is creating a line graph to show the population growth in Newcastle from 2014 to 2018.

The population in 2014 was 290,000; at its highest in 2018, it was 310,000. I will use intervals of 1 million for the population axis.

Will his line graph work? Draw a line graph to help you explain why.

Simon's line graph will not work because…

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Reasoning 1

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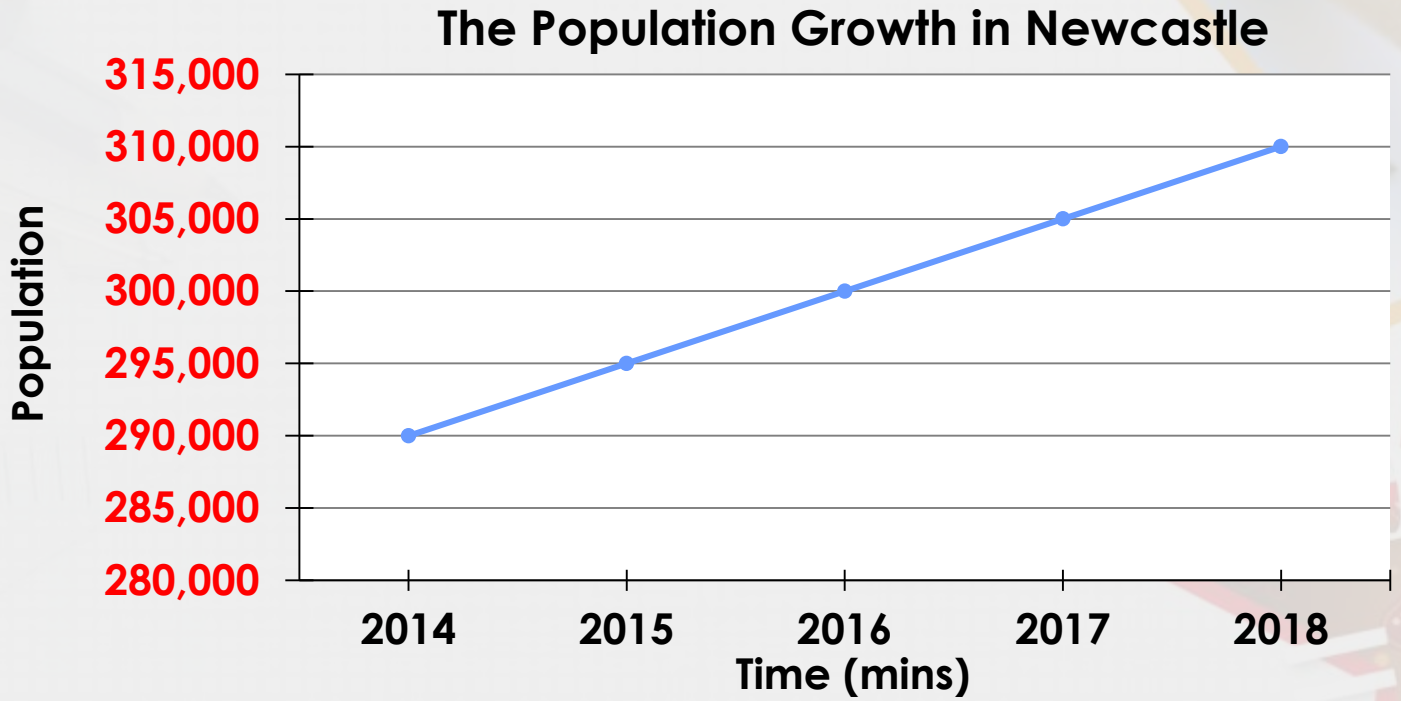

Will his line graph work? Draw a line graph to help you explain why.

Simon's line graph will not work because intervals of 1 million are too big. He could use intervals of 5,000 instead (as shown above).

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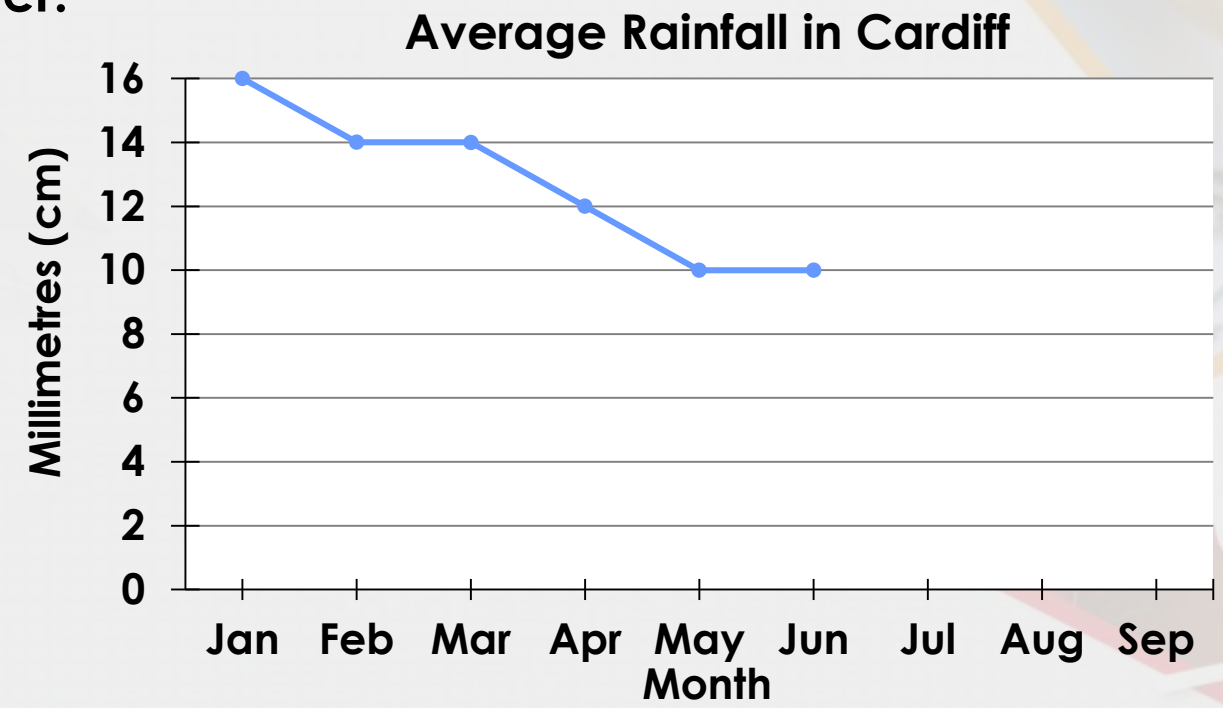
Problem Solving 1

Part of this line graph is missing. It should show from January to September.



If the graph continues in the same way, what is the average rainfall in July? Draw the completed line graph.

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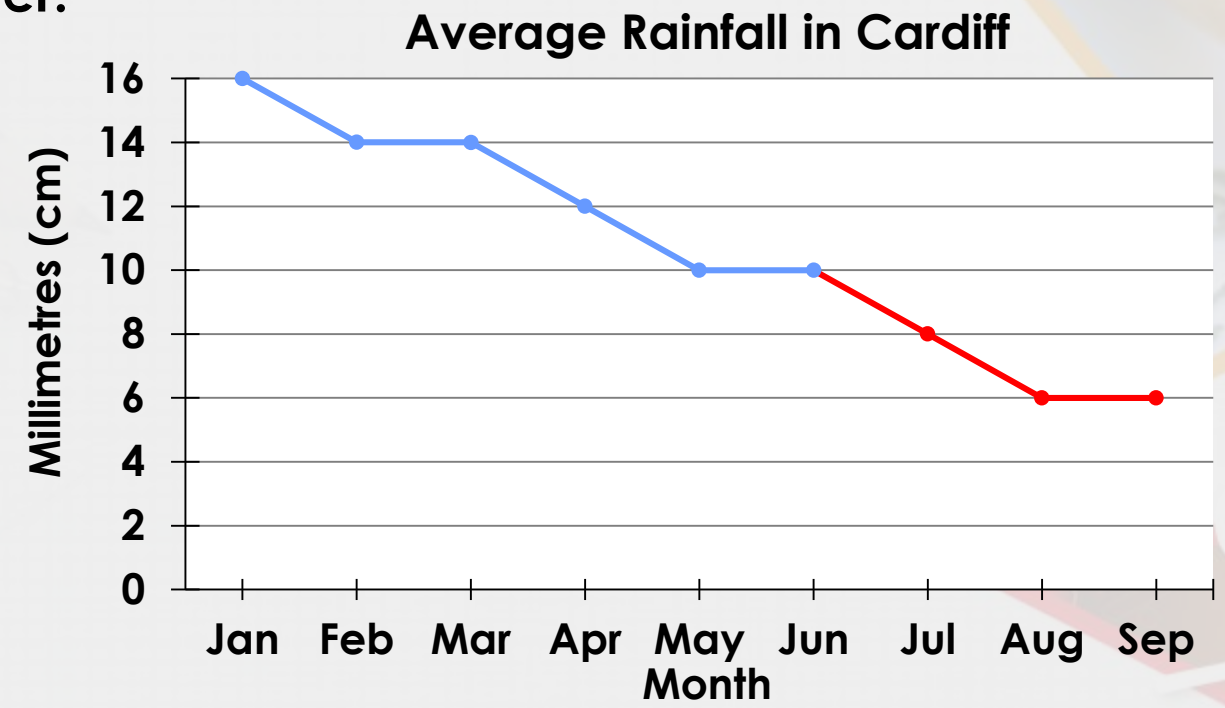
Problem Solving 1

Part of this line graph is missing. It should show from January to September.



If the graph continues in the same way, what is the average rainfall in July? Draw the completed line graph.

If the line graph continues in the same way, the average rainfall in July will be 8cm.

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Problem Solving 2

Tyra has created a line graph to show how many steps she took in a 5 hour period.

She says,

My line graph uses increments of 1,800 steps. The two titles I have used are 'Numbers of Steps' and 'Hour'. I walked 900 steps per hour.

Use these pieces of information to draw Tyra's line graph.

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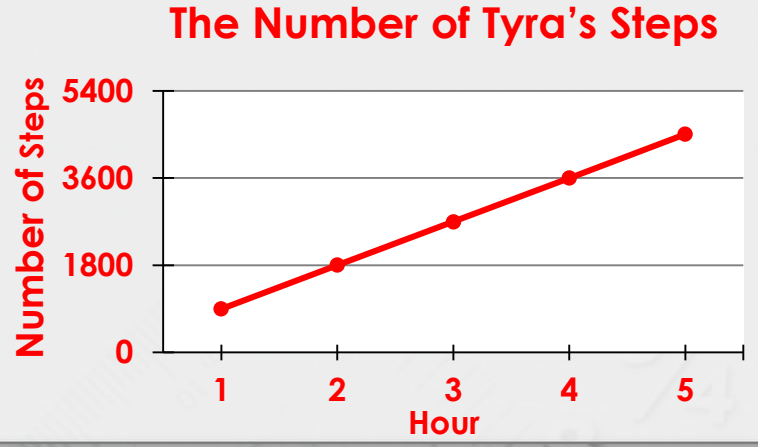
Problem Solving 2

Tyra has created a line graph to show how many steps she took in a 5 hour period.

She says,

My line graph uses increments of 1,800 steps. The two titles I have used are 'Numbers of Steps' and 'Hour'. I walked 900 steps per hour.

Use these pieces of information to draw Tyra's line graph.



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Encourage the children to collect their own data and present it as a line graph. As this objective is taken from the science curriculum, it would be a good idea to link it to investigations.
Possible investigations could be:

- Measuring shadows over time
- Melting and dissolving substances
- Plant growth

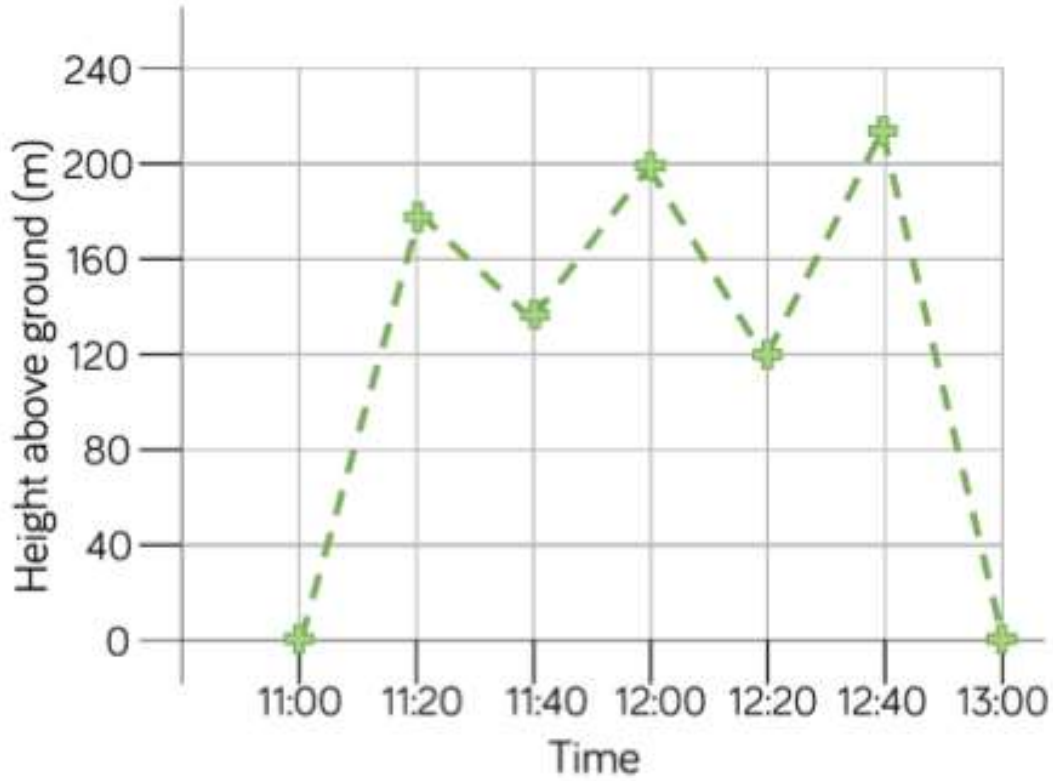
Here is a table of data.

Time (min)	15	30	45	60	75
Distance (km)	25	46	67	72	98

Which intervals would be the most appropriate for the vertical axis of the line graph?
Explain your answer.

Rosie has used the data in the table to plot the line graph.

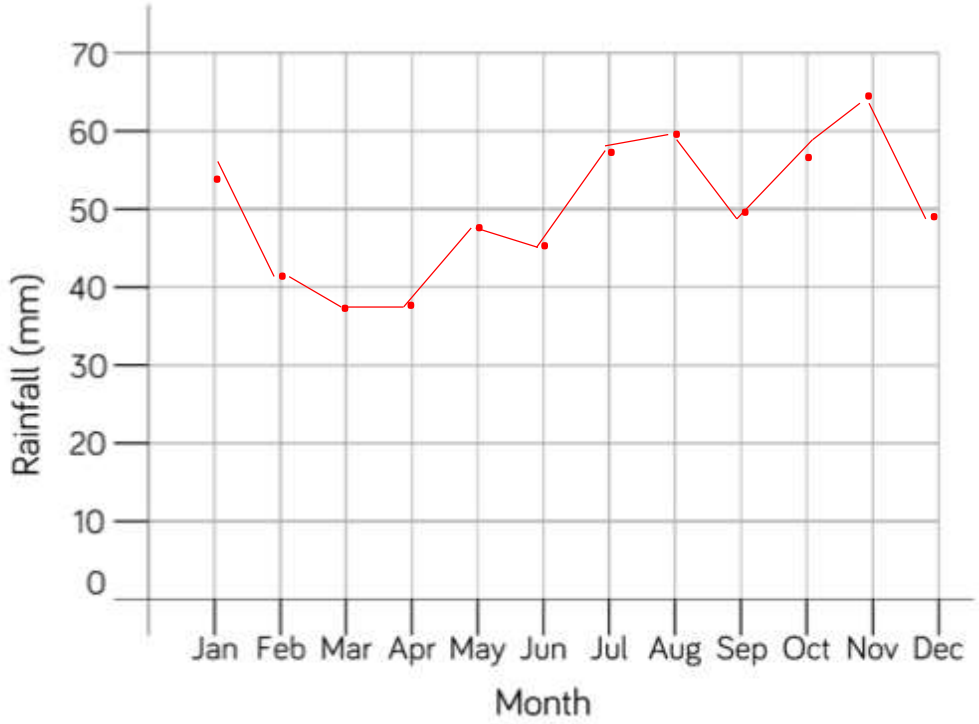
Time	11:00	11:20	11:40	12:00	12:20	12:40	13:00
Height above ground (m)	0	180	150	200	210	120	0



What mistakes has Rosie made?
Can you draw the line graph correctly?

Varied Fluency

The table shows average rainfall in Leicester over a year.
Complete the graph using the information from the table.



Month	Rainfall (mm)
Jan	54
Feb	40
Mar	38
Apr	38
May	48
Jun	46
Jul	58
Aug	60
Sep	50
Oct	57
Nov	65
Dec	50

Here is a table showing the conversion between pounds and rupees. Present the information as a line graph.

Pounds	1	2	3	4	5	6	7	8	9	10
Rupees	80	160	240	320	400	480	560	640	720	800

Encourage the children to collect their own data and present it as a line graph. As this objective is taken from the science curriculum, it would be a good idea to link it to investigations.
Possible investigations could be:

- Measuring shadows over time
- Melting and dissolving substances
- Plant growth

Children will present a range of line graphs over the year.

Here is a table of data.

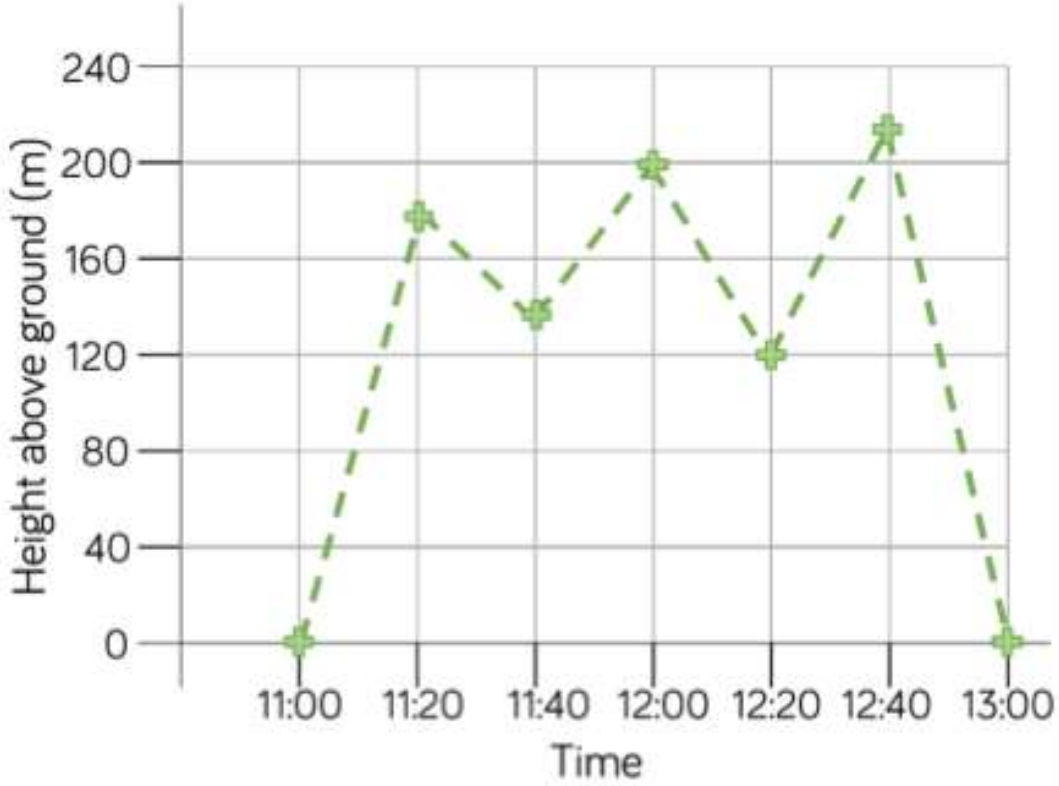
Time (min)	15	30	45	60	75
Distance (km)	25	46	67	72	98

Which intervals would be the most appropriate for the vertical axis of the line graph?
Explain your answer.

Children may give different answers but should give clear reasons. Intervals may range from 2s up to 10s. The most appropriate scale may be in 5s.

Rosie has used the data in the table to plot the line graph.

Time	11:00	11:20	11:40	12:00	12:20	12:40	13:00
Height above ground (m)	0	180	150	200	210	120	0



What mistakes has Rosie made?

Can you draw the line graph correctly?

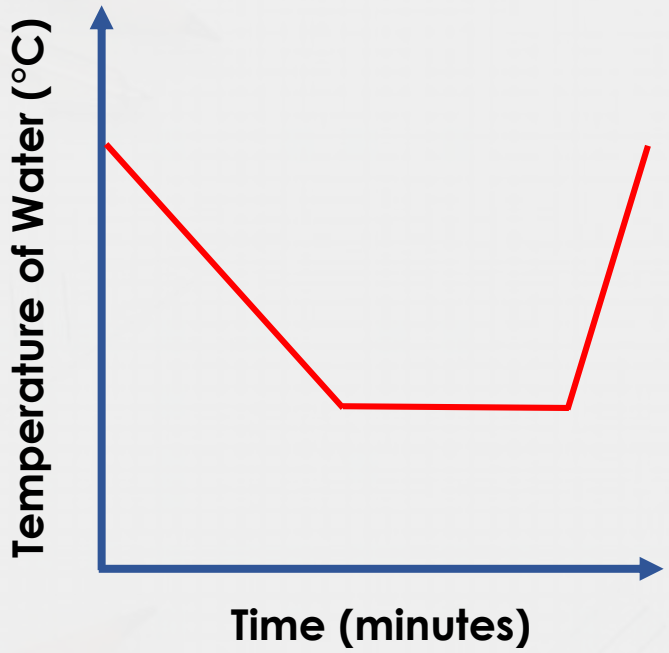
Rosie has plotted the time for 11:40 inaccurately, it should be closer to 160 than 120

She has mixed up the points for 12:20 and 12:40 and plotted them the other way round.

Wednesday

Problems with Line Graphs

Which story best matches the line graph?



The water in the kettle is at room temperature. It is turned on and the water is boiled. It is then left to cool.

The kettle is turned on. Once boiled, the water starts to cool down.

The boiled water in the kettle cools down to room temperature before the kettle is turned on again.

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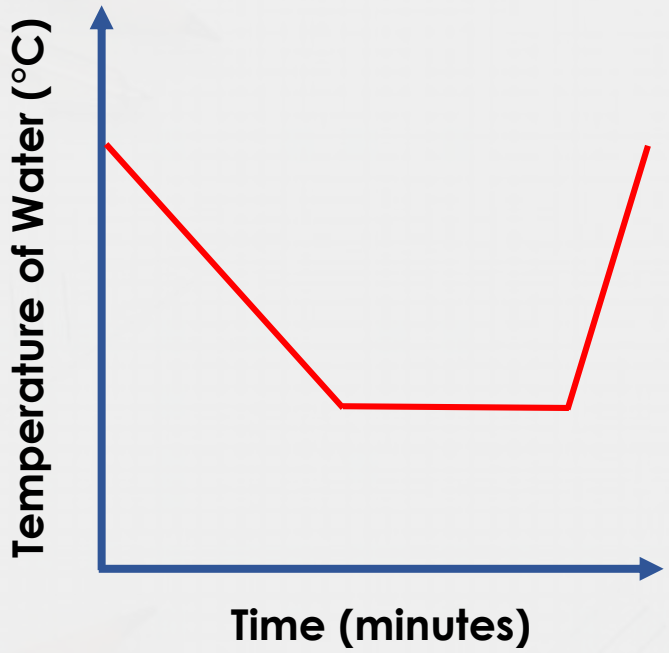
Introduction

Which story best matches the line graph?



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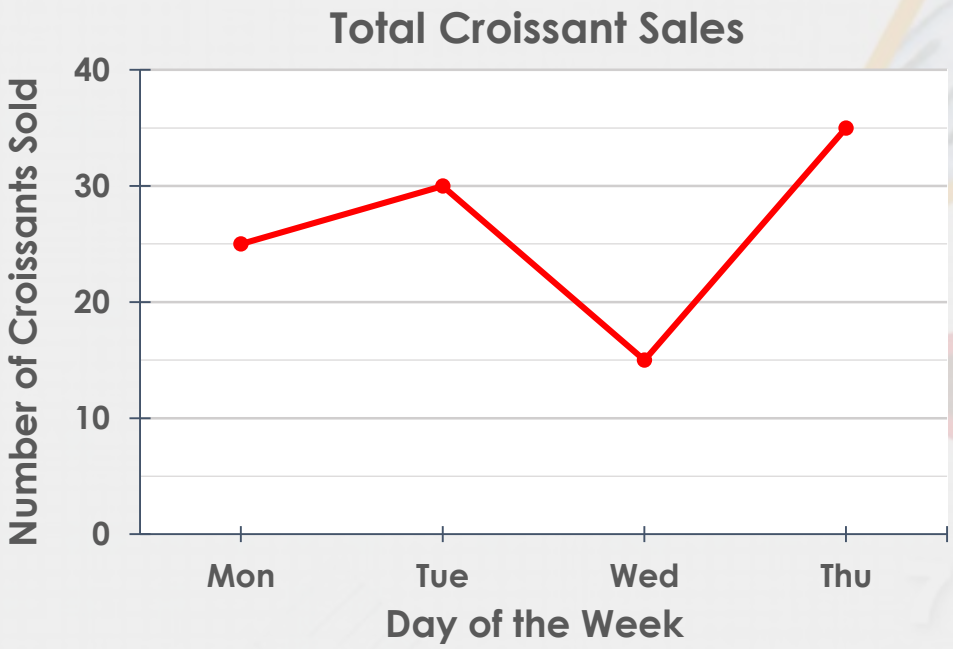
Varied Fluency 1

True or false?

More croissants were sold on Monday and Tuesday than on Wednesday and Thursday.



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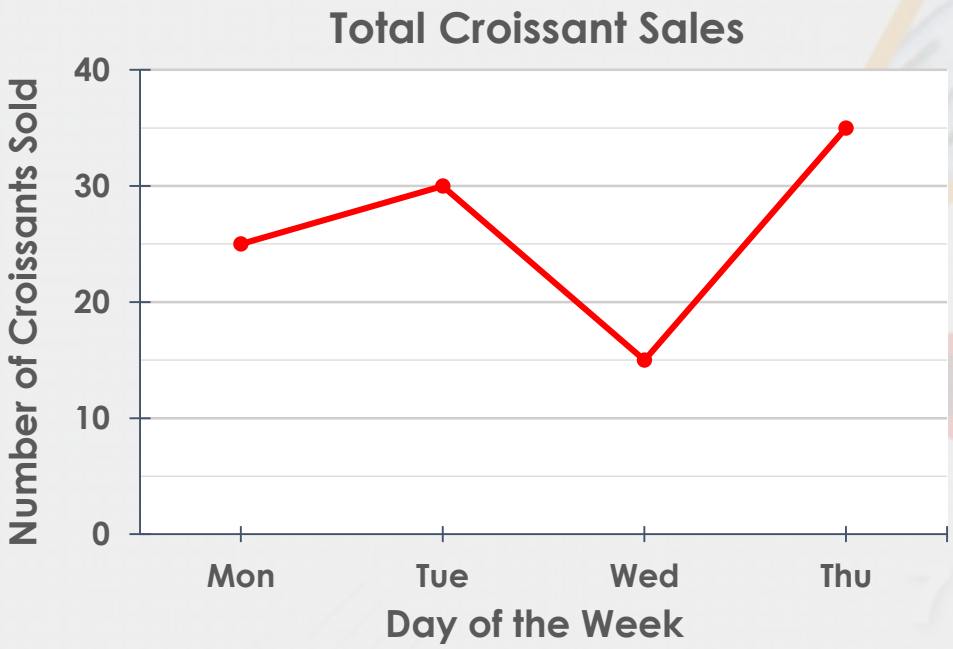
Varied Fluency 1

True or false?

More croissants were sold on Monday and Tuesday than on Wednesday and Thursday.



True

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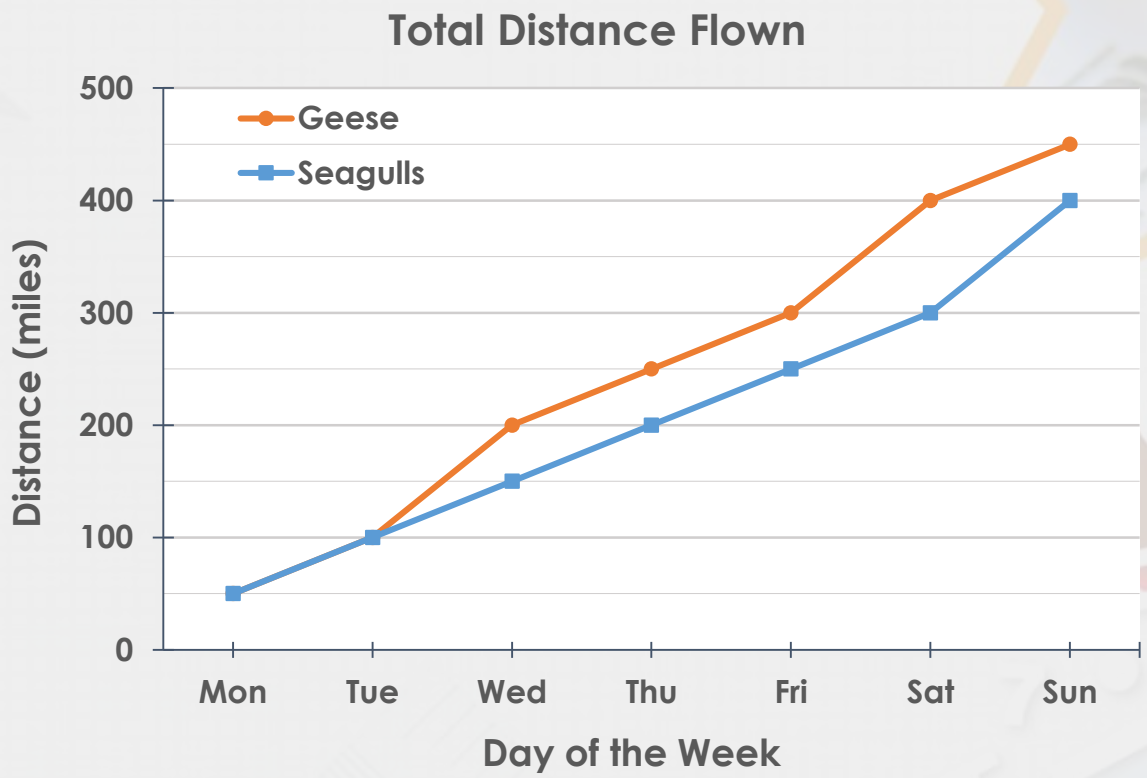
Varied Fluency 2

How much longer did it take for the seagulls to fly 200 miles than the geese?



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Varied Fluency 2

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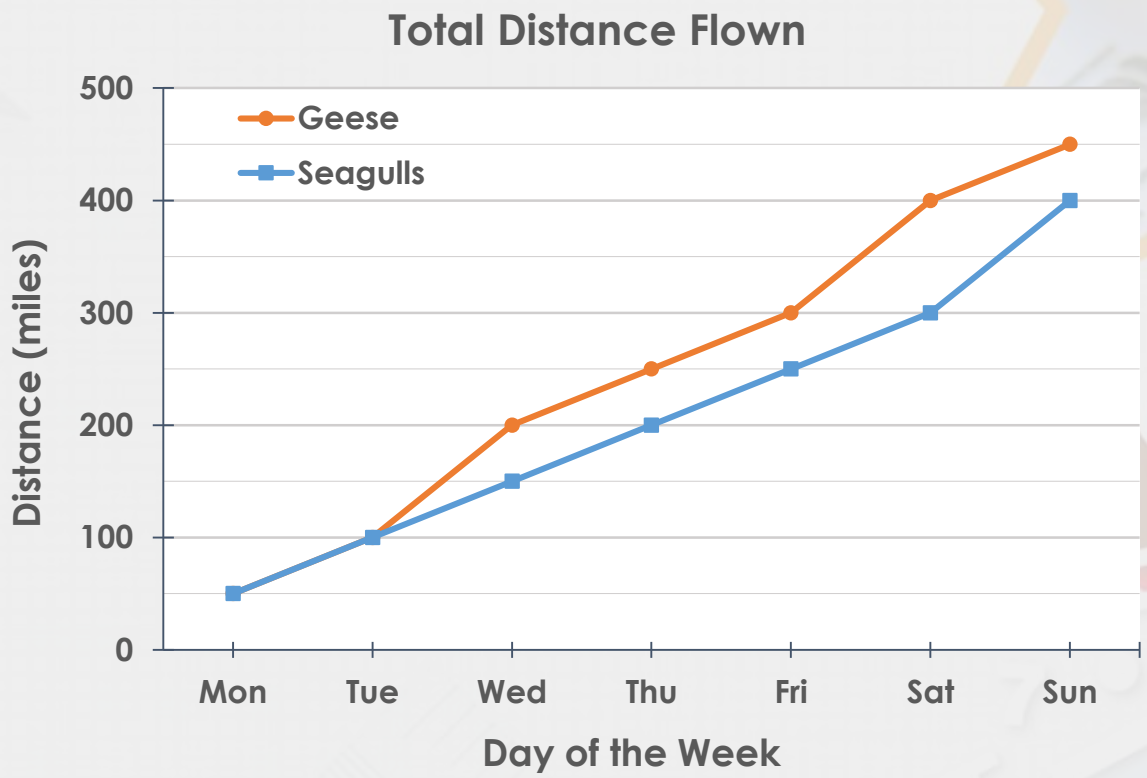

One day

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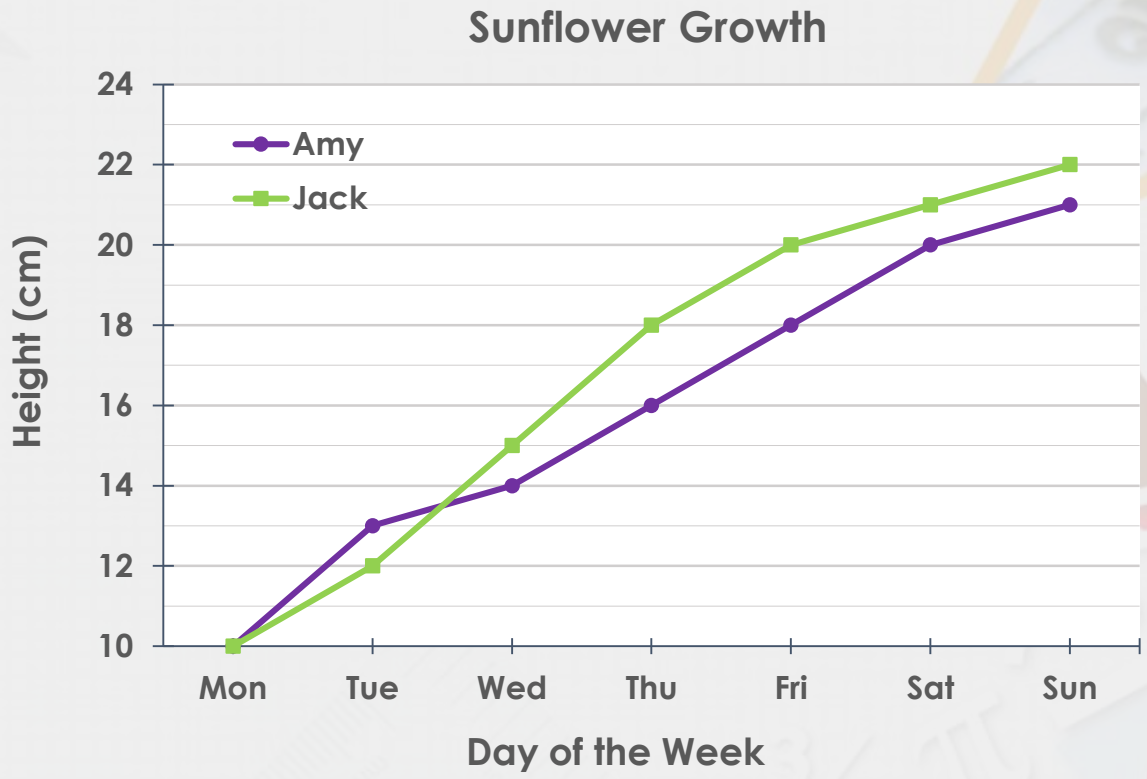
Varied Fluency 3

Complete the sentence.

Amy's sunflower was taller than Jack's on _____ .



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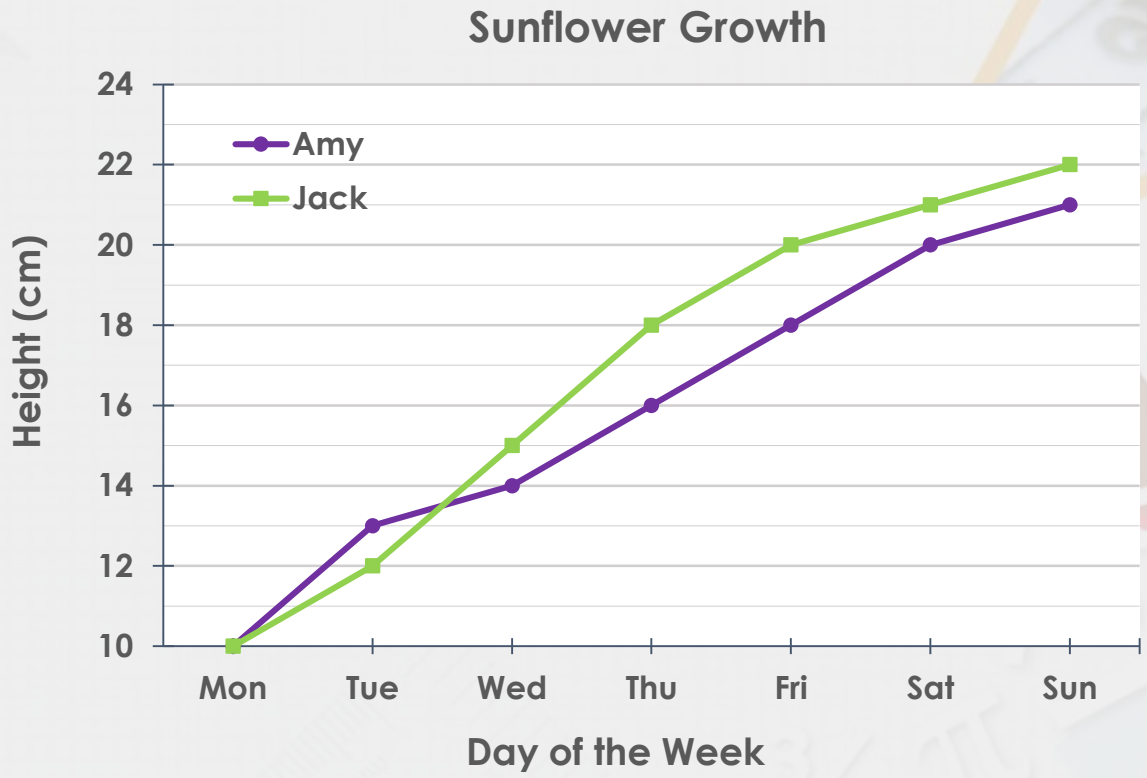
Varied Fluency 3

Complete the sentence.

Amy's sunflower was taller than Jack's on **Tuesday** **.**



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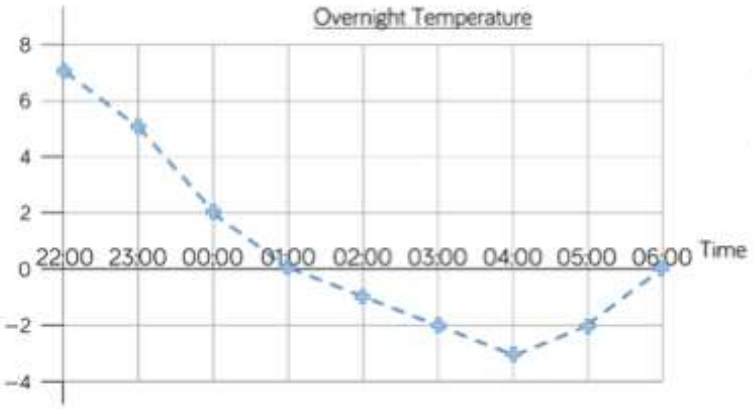
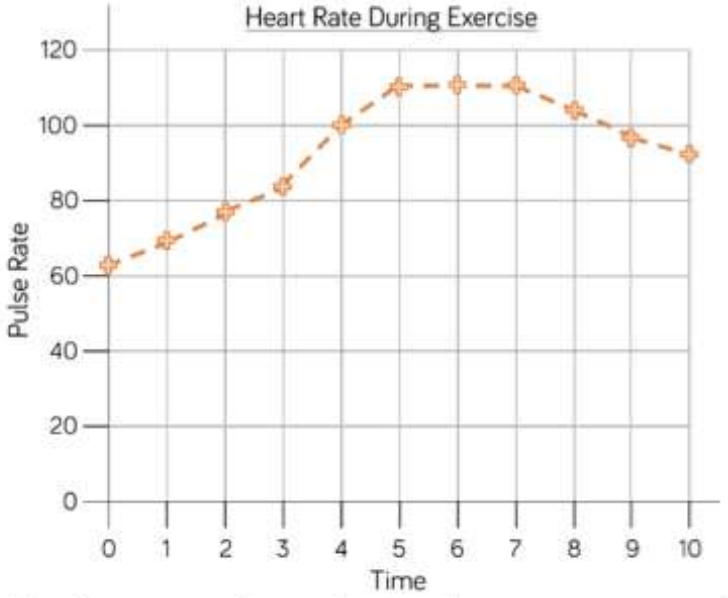
Varied Fluency



What was the highest/lowest temperature?
What time did they occur?
What is the difference between the highest and lowest temperature?
How long did the temperature stay at freezing point or less?



How long did it take for the pulse rate to reach the highest level? Explain your answer, using the graph to. help.
What could have happened at 5 minutes?
What could have happened at 7 minutes?

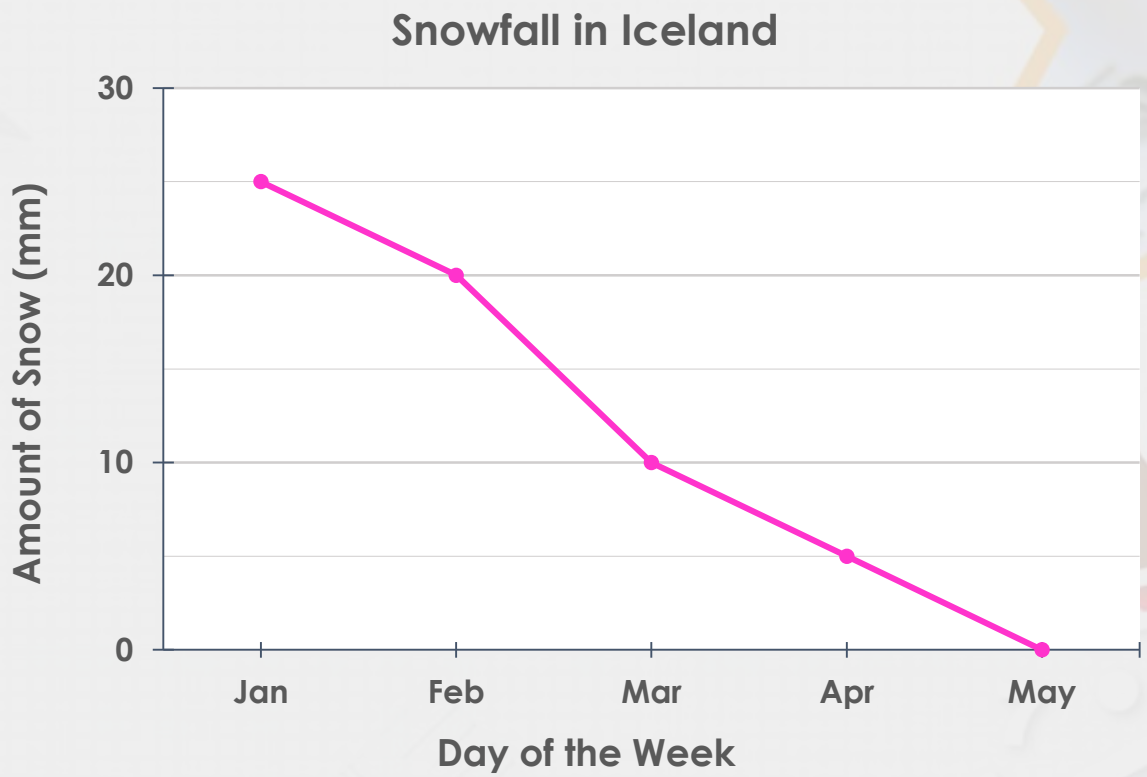
Estimate what the pulse rate was after 2 and a half minutes. How did you get an accurate estimate?

How does drawing vertical and horizontal lines support me in reading the line graph?

How will you plan out your own heart rate experiment? What information will you need to gather? What unit will you measure in? How will you label your axes?

Problem Solving 1

When Carli went to Iceland, there was 10mm more snow on average than in March. When did Carli go to Iceland?



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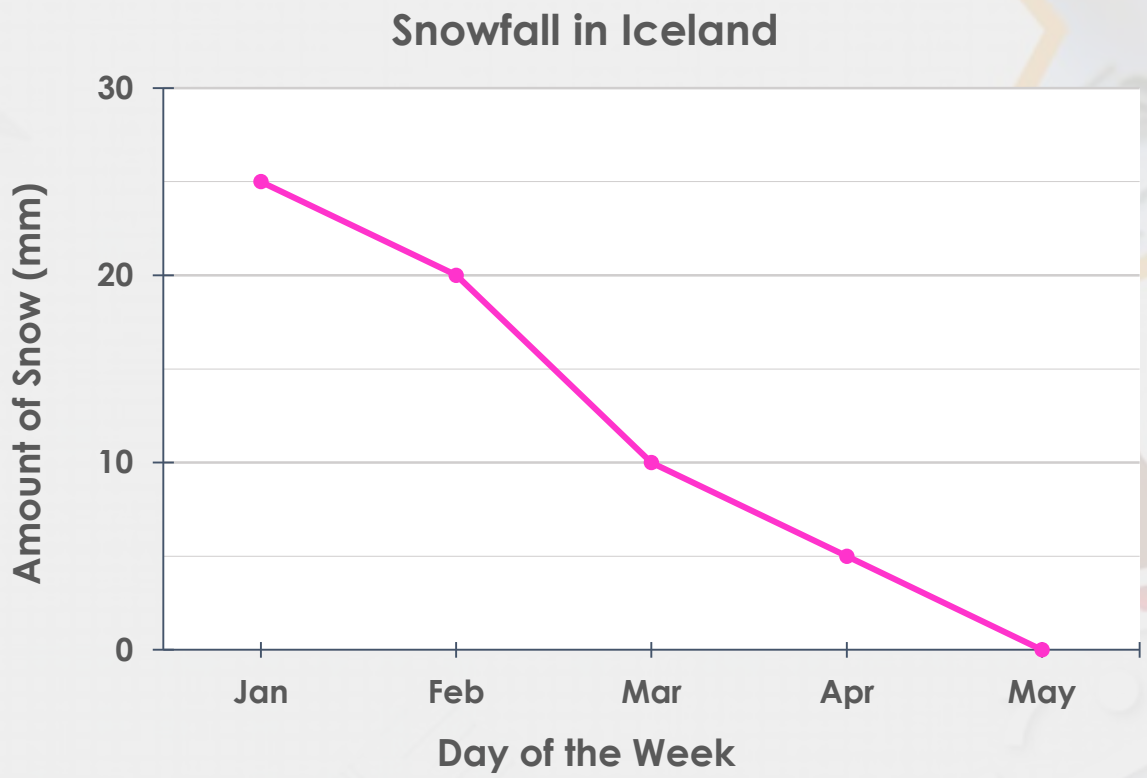
Problem Solving 1

When Carli went to Iceland, there was 10mm more snow on average than in March. When did Carli go to Iceland?



February

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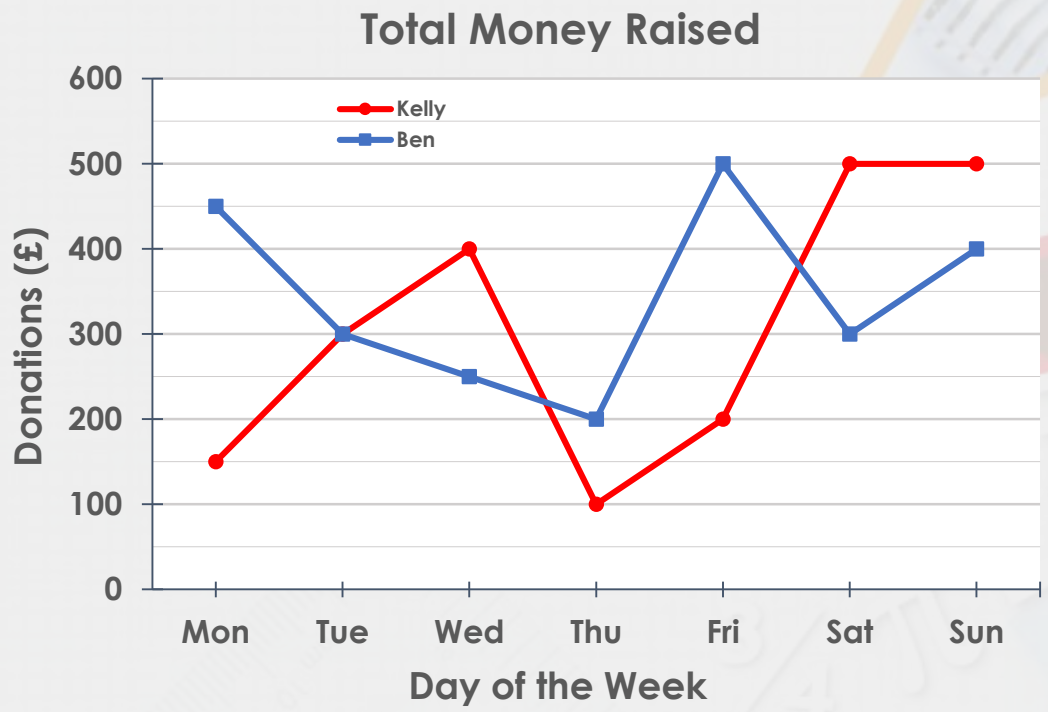
Problem Solving 2

Complete the sentences.

Kelly raised £50 more on [ ] than [ ].

Ben raised more on [ ] and [ ] than on Sunday.



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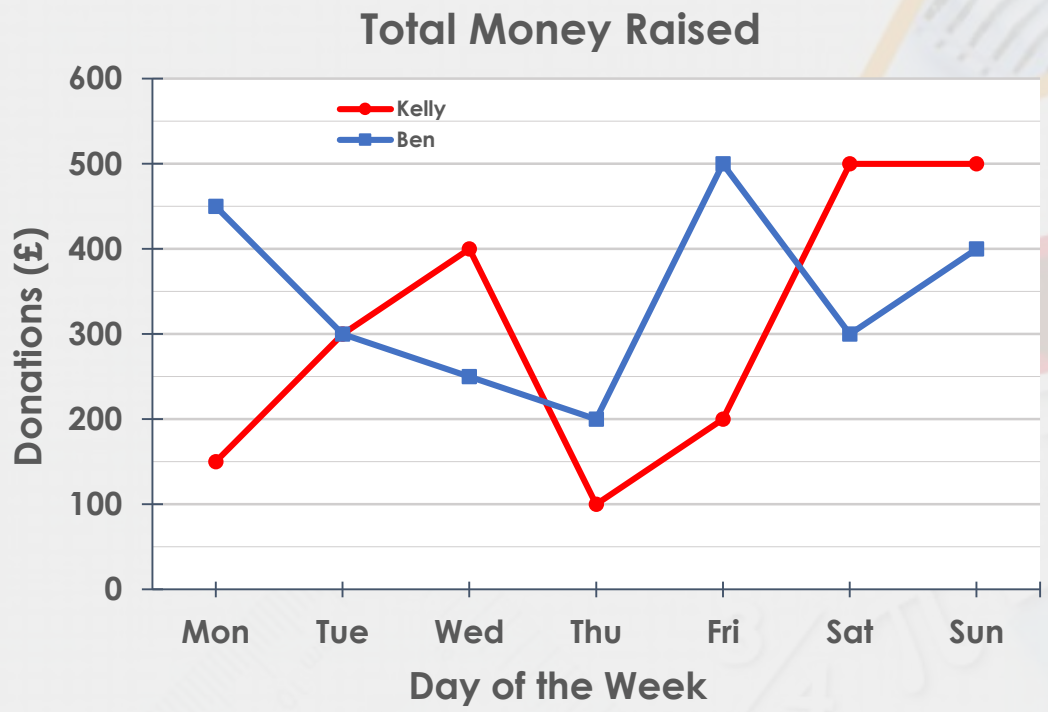
Problem Solving 2

Complete the sentences.

Kelly raised £50 more on [Friday] than [Monday].

Ben raised more on [Monday] and [Friday] than on Sunday.



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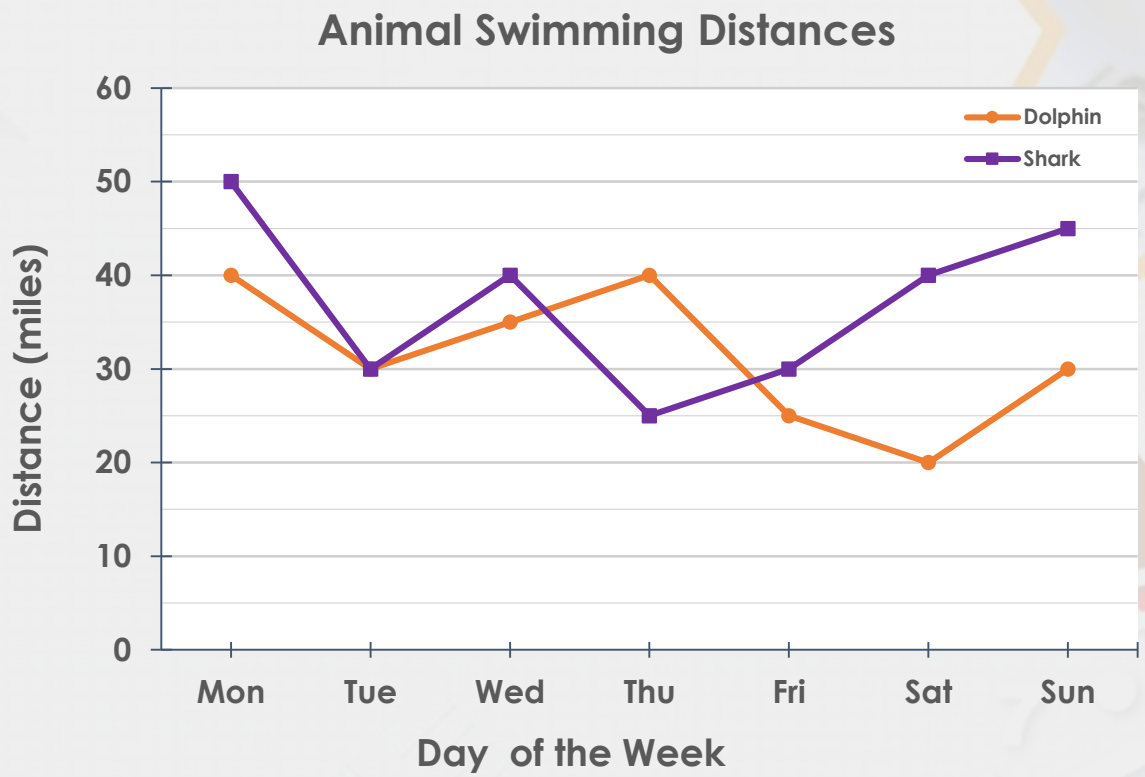
Reasoning 1

Lucy thinks that the dolphin swam further than the shark last week. Is she correct? Use the line graph to convince me.



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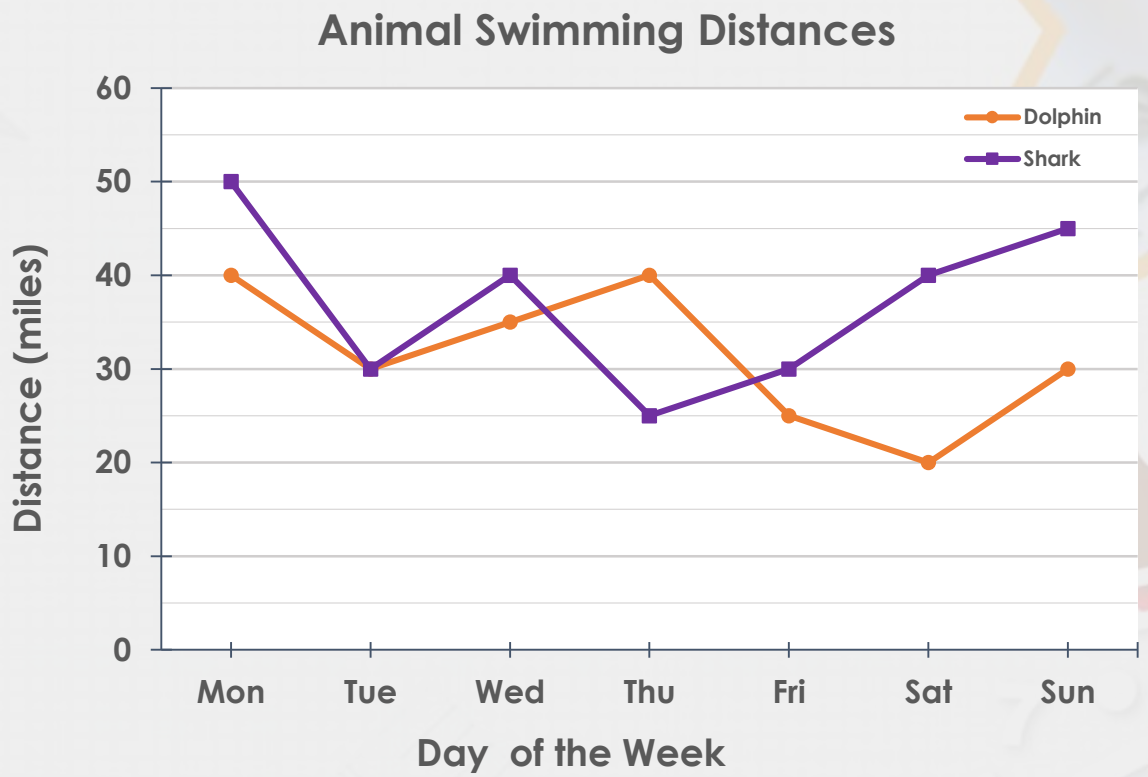

Lucy is not correct because…

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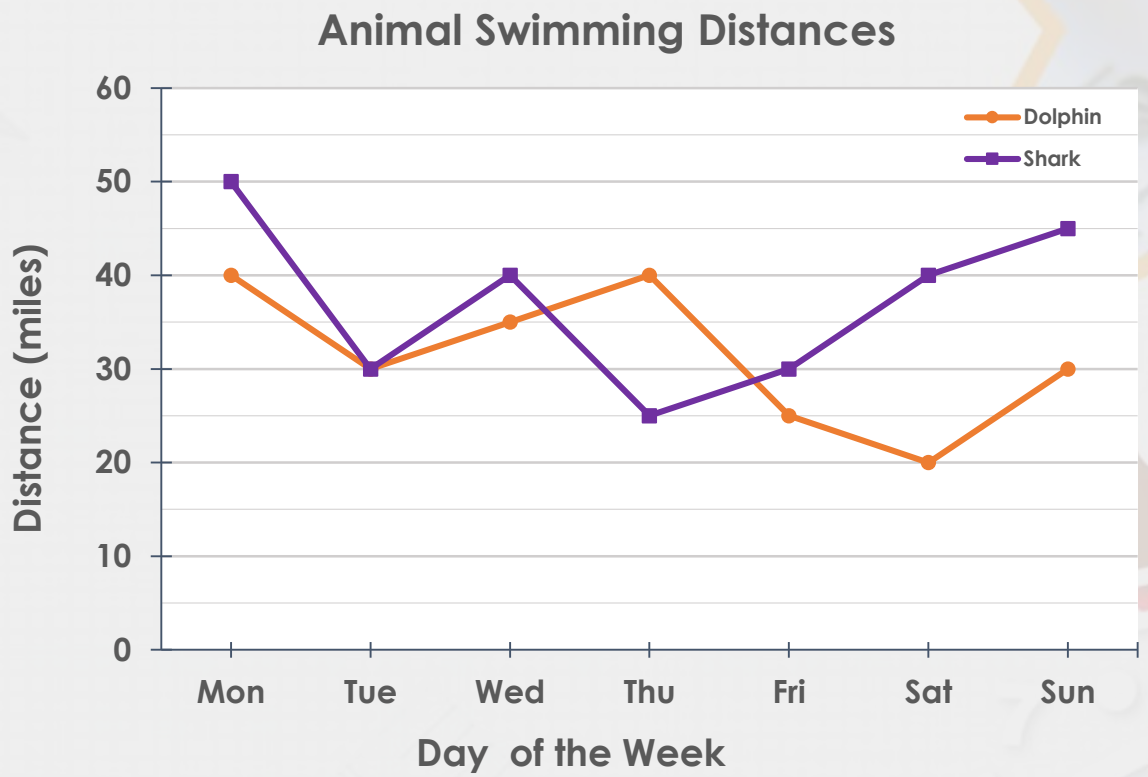
Reasoning 1

Lucy thinks that the dolphin swam further than the shark last week. Is she correct? Use the line graph to convince me.



Lucy is not correct because the dolphin swam 220 miles last week and the shark swam 260 miles.

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Carry out your own exercise experiment and record your heart rate on a graph like the one shown in the section above. How does it compare?

Can you make a set of questions for a friend to answer about your graph?

Can you put the information into a table?

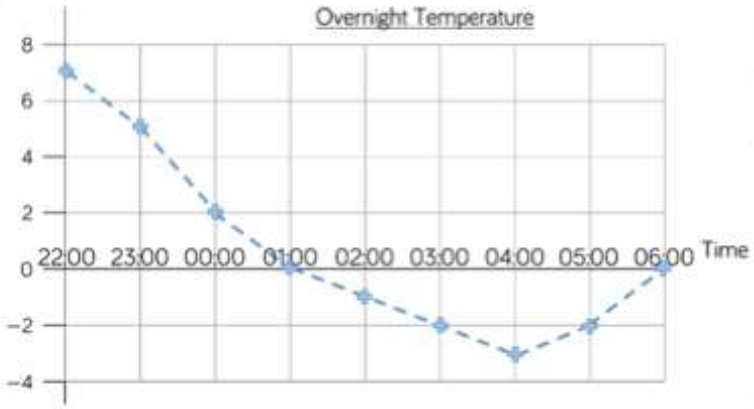
Here is a line graph showing a bath time.
Can you write a story to explain what is happening in the graph?

How long did it take to fill the bath?

How long did it take to empty?

The bath doesn't fill at a constant rate.
Why might that be?

Varied Fluency

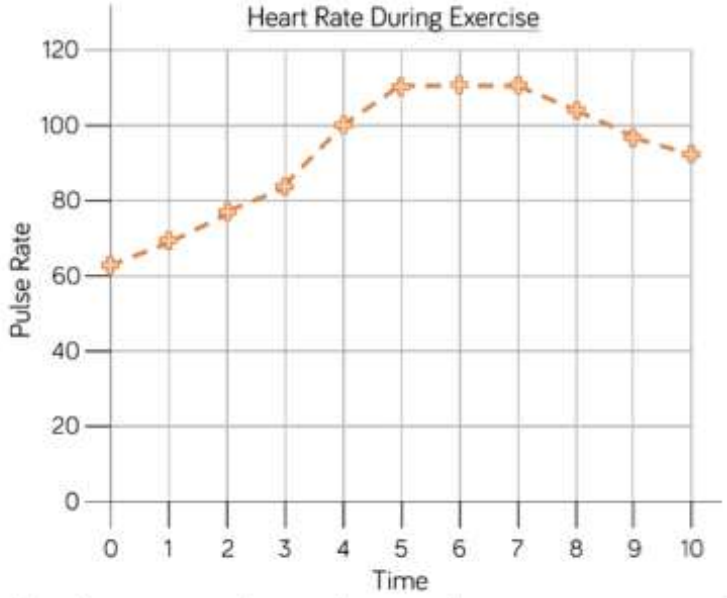


What was the highest/lowest temperature? 7°c / -3°c

What time did they occur? 22.00 – 04.00

What is the difference between the highest and lowest temperature? 10°c

How long did the temperature stay at freezing point or less? 5hrs



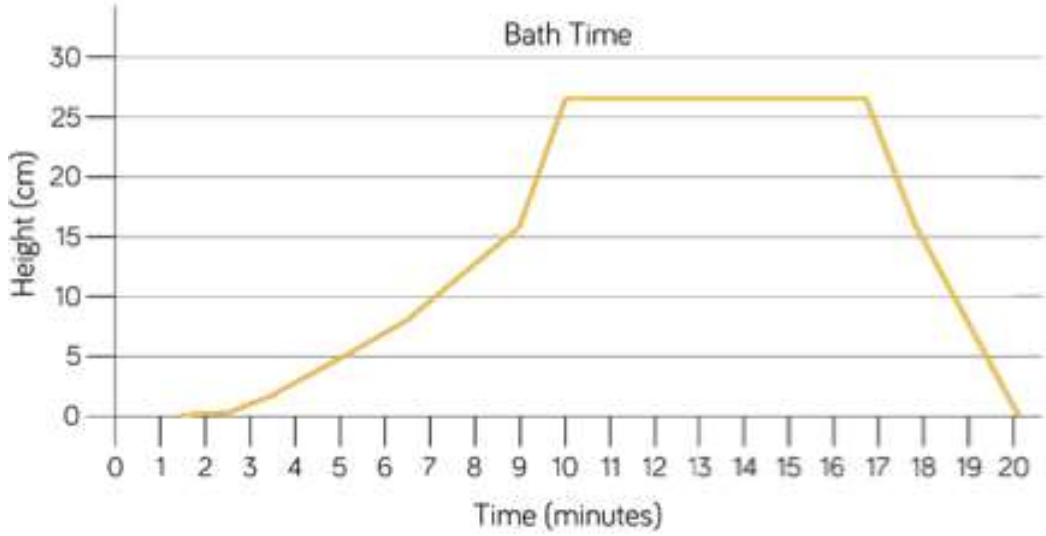
How long did it take for the pulse rate to reach the highest level? Explain your answer, using the graph to help. 5 minutes – increase in activity caused the heart rate to increase.

What could have happened at 5 minutes? They slowed down.

What could have happened at 7 minutes? They stopped.

Estimate what the pulse rate was after 2 and a half minutes. How did you get an accurate estimate? 80 bpm – used the grid lines to help.

Here is a line graph showing a bath time. Can you write a story to explain what is happening in the graph?



How long did it take to fill the bath?

How long did it take to empty?

The bath doesn't fill at a constant rate. Why might that be?

Discussions around what happens to the water level when someone gets in the bath would be useful.
Approximately 9 and a half mins to fill the bath.
Approximately 3 and a half mins to empty.
One or two taps could be used to fill.

Thursday

Read & Interpret Tables

Introduction

Use the information below to complete the table.

Year Group	Number of Pupils
Year 3	
Year 4	
Year 5	
Year 6	

- There are 120 pupils in KS2 altogether.
- One quarter of the pupils are in Year 4.
- There are 2 fewer pupils in Year 3 than in Year 4.
- There are 3 more pupils in Year 5 than in Year 3.

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Introduction

Use the information below to complete the table.

Year Group	Number of Pupils
Year 3	28
Year 4	30
Year 5	31
Year 6	31

- There are 120 pupils in KS2 altogether.
- One quarter of the pupils are in Year 4.
- There are 2 fewer pupils in Year 3 than in Year 4.
- There are 3 more pupils in Year 5 than in Year 3.

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Varied Fluency 1

True or false?

Destination	Abu Dhabi	Cape Town	Mexico City	Sydney
Distance from Gatwick (km)	5,470.1	13,513	8,932.3	17,006

Cape Town is the second furthest destination from Gatwick.

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Varied Fluency 1

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Distance from Gatwick (km)	5,470.1	13,513	8,932.3	17,006

Cape Town is the second furthest destination from Gatwick.

True

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Varied Fluency 2

Look at the table below.

Concert	Fairy Metal	Banana Army	Beautiful North
Ticket Sales	32,565	152,109	65,506

How many more tickets did Banana Army and Beautiful North sell compared with Banana Army and Fairy Metal?

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Varied Fluency 2

Look at the table below.

Concert	Fairy Metal	Banana Army	Beautiful North
Ticket Sales	32,565	152,109	65,506

How many more tickets did Banana Army and Beautiful North sell compared with Banana Army and Fairy Metal?

32,941 more tickets.

Banana Army and Beautiful North sold 217,615 tickets. Banana Army and Fairy Metal sold 184,674 tickets. The difference is 32,941.

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Varied Fluency 3

Which two arenas have combined ticket sales of 509,156?

Fairy Metal Tour	Anfield Arena	Hull Arena	First Direct	Bolton Arena
Ticket Sales	231,345	156,722	277,811	500,238

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Varied Fluency 3

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Fairy Metal Tour	Anfield Arena	Hull Arena	First Direct	Bolton Arena
Ticket Sales	231,345	156,722	277,811	500,238

Anfield Arena and First Direct

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Varied Fluency

Here is a table with information about planets. Use the table to answer the questions.

Planet	Time for Revolution	Diameter (km)	Time for Rotation
Mercury	88 days	4,878	59 days
Venus	225 days	12,104	243 days
Earth	365 days	12,756	24 hours
Mars	687 days	6,794	25 hours
Jupiter	12 years	142,984	10 hours
Saturn	29 years	120,536	11 hours
Uranus	84 years	51,118	17 hours
Neptune	165 years	49,500	17 hours

How many planets take more than one day to rotate?
Which planets take more than one year to make one revolution?
Write the diameter of Jupiter in words.
What is the difference between the diameter of Mars and Earth?
What is the difference between the time for rotation between Mercury and Venus?

Use the table to answer the questions.

City	Leeds	Wakefield	Bradford	Liverpool	Coventry
Population	720,000	316,000	467,000	440,000	305,000

What is the difference between the highest and lowest population?
Which two cities have a combined population of 621,000?
How much larger is the population of Liverpool than Coventry?

- Why are column and row headings important in a table?
- If I am finding the difference, what operation do I need to use?
- Can you think of your own questions to ask about the information in the table?
- Why is it important to put units of measure in the table?

Problem Solving 1

The table below shows the number of minutes spent on different activities by 5 children in a year.

	Sleeping	Playing out	Eating
Jean	175,211	16,614	29,239.5
Hayley	158,563	30,700	21,023
Afifa	182,444	21,409.5	16,202
Gus	171,423	33,439	20,899.5
Hamish	208,431	24,232	21,031

Create three questions about the data. Make sure you include answers.

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Problem Solving 1

The table below shows the number of minutes spent on different activities by 5 children in a year.

	Sleeping	Playing out	Eating
Jean	175,211	16,614	29,239.5
Hayley	158,563	30,700	21,023
Afifa	182,444	21,409.5	16,202
Gus	171,423	33,439	20,899.5
Hamish	208,431	24,232	21,031

Create three questions about the data. Make sure you include answers.

Various answers, for example:

How many more minutes did Jean spend sleeping than Hayley?

175,211 – 158,563 = 16,648

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Reasoning 1

The table below shows the highest maximum speeds (km/h) recorded over three races.

	Race 1	Race 2	Race 3
Suzi Whizz	142.2	141.3	136.7
Flash Johno	231.5	215.4	241.1
Carla Kwikstick	129.9	120.4	132.7

In race 2, the lowest maximum speed was 215.4 km/h.
Do you agree? Explain your answer.

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Do you agree? Explain your answer.

No because…

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Carla Kwikstick	129.9	120.4	132.7

In race 2, the lowest maximum speed was 215.4 km/h.
Do you agree? Explain your answer.

No because 215.4 km/h was the highest maximum speed. The lowest maximum speed was 120.4 km/h.

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Reasoning 2

Keira records the number of vehicles crossing a bridge over three weeks.

	Week 1	Week 2	Week 3
Cars	341,755	302,122	312,343
Bikes	1,075	2,343	1,899
Lorries	2,189	1,999	2,019

Week 1 had the most traffic.

Do you agree with Keira? Why?

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Week 1 had the most traffic.

Do you agree with Keira? Why?

Keira is correct because…

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Week 1 had the most traffic.

Do you agree with Keira? Why?

Keira is correct because week 1 has 345,019 vehicles compared with 306,464 in week 2 and 316,261 in week 3.

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	100 m sprint (s)	Shot put (m)	50 m Sack race (s)	Javelin (m)
Amir	15.5	6.5	18.9	11.2
Dora	16.2	7.5	20.1	13.3
Teddy	15.8	6.9	19.3	13.9
Rosie	15.6	7.2	18.7	14.1
Ron	17.9	6.3	18.7	13.3

Ron thinks that he won the 100 m sprint because he has the biggest number.

Do you agree?
Explain your answer.

This table shows the 10 largest stadiums in Europe.

Stadium	City	Country	Capacity
Camp Nou	Barcelona	Spain	99,365
Wembley	London	England	90,000
Signal Iduna Park	Dortmund	Germany	81,359
Santiago Bernabeu	Madrid	Spain	81,044
San Siro	Milan	Italy	80,018
Stade de France	Paris	France	80,000
Luzhniki Stadium	Moscow	Russia	78,300
Ataturk Olimpiyat Stadium	Istanbul	Turkey	76,092
Old Trafford	Manchester	England	75,811
Allianz Arena	Munich	Germany	75,000

True or False?

- The fourth largest stadium is the San Siro.
- There are 6 stadiums with a capacity of more than 80,000
- Three of the largest stadiums are in England.

Varied Fluency

Here is a table with information about planets. Use the table to answer the questions.

Planet	Time for Revolution	Diameter (km)	Time for Rotation
Mercury	88 days	4,878	59 days
Venus	225 days	12,104	243 days
Earth	365 days	12,756	24 hours
Mars	687 days	6,794	25 hours
Jupiter	12 years	142,984	10 hours
Saturn	29 years	120,536	11 hours
Uranus	84 years	51,118	17 hours
Neptune	165 years	49,500	17 hours

How many planets take more than one day to rotate? 3

Which planets take more than one year to make one revolution? Mars, Jupiter, Saturn, Uranus, Neptune.

Write the diameter of Jupiter in words. One hundred and forty two thousand, nine hundred and eighty four km.

What is the difference between the diameter of Mars and Earth? 5,972 km

What is the difference between the time for rotation between Mercury and Venus? 184 days

Use the table to answer the questions.

City	Leeds	Wakefield	Bradford	Liverpool	Coventry
Population	720,000	316,000	467,000	440,000	305,000

What is the difference between the highest and lowest population? 415,000

Which two cities have a combined population of 621,000? Wakefield and Coventry

How much larger is the population of Liverpool than Coventry? 135,000

	100 m sprint (s)	Shot put (m)	50 m Sack race (s)	Javelin (m)
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Teddy	15.8	6.9	19.3	13.9
Rosie	15.6	7.2	18.7	14.1
Ron	17.9	6.3	18.7	13.3

Ron thinks that he won the 100 m sprint because he has the biggest number.

Do you agree?
Explain your answer.

Ron's number is the biggest but this means he was the slowest therefore he did not win the 100 m sprint.

This table shows the 10 largest stadiums in Europe.

Stadium	City	Country	Capacity
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True or False?

- The fourth largest stadium is the San Siro. — False
- There are 6 stadiums with a capacity of more than 80,000 — False
- Three of the largest stadiums are in England. — False

Friday

Arithmetic

Year 6

https://myminimaths.co.uk/year-6-arithmetic-practice-paper-week-4/
https://myminimaths.co.uk/year-6-arithmetic-practice-paper-week-4-answers/

Year 5

Arithmetic

1	32 + 4 + 4 =		1 mark
2	888 − 10 =		1 mark
3	21 × 0 =		1 mark
4	245 + 7 =		1 mark
5	2 × 8 =		1 mark
6	245 ÷ 1 =		1 mark
7	871 + 109		1 mark

8	49 ÷ 7 =		1 mark
9	$\frac{2}{9} + \frac{5}{9} =$		1 mark
10	873 − 97 =		1 mark
11	59,145 + 2,878 =		1 mark
12	3 × 5 × 3 =		1 mark
13	0.65 = ?%		1 mark
14	143 × 7		1 mark

15	$1.9 + 3.6 =$	1 mark
16	$\begin{array}{r} 45{,}902 \\ -\ 15{,}005 \\ \hline \end{array}$	1 mark
17	$9.3 \div 10 =$	1 mark
18	$7.2 \times 100 =$	1 mark
19	$\frac{4}{7}$ of $14 =$	1 mark
20	$30 \times 60 =$	1 mark
21	$5217 \div 3 =$	1 mark

22	$\frac{1}{4}$ of $508 =$	1 mark
23	$\begin{array}{r} 43.8 \\ \times\ \ 6 \\ \hline \end{array}$	1 mark
24	$3^3 + 3^2 =$	1 mark
25	$3\frac{1}{3} \times 3 =$	1 mark
26	$0.3 = \frac{?}{10}$	1 mark
27	$\begin{array}{r} 306 \\ \times\ \ 24 \\ \hline \end{array}$	2 marks
28	$52.4 - 6.67 =$	1 mark
29	$\frac{3}{4} - \frac{1}{8} =$	1 mark

Mark scheme

1. 40 **[1]**

2. 878 **[1]**

3. 0 **[1]**

4. 252 **[1]**

5. 16 **[1]**

6. 245 **[1]**

7. 980 **[1]**

8. 7 **[1]**

9. $\frac{7}{9}$ **[1]**

10. 776 **[1]**

11. 62,023 **[1]**

12. 45 **[1]**

13. 65% **[1]**

14. 1,001 **[1]**

15. 5.5 **[1]**

16. 30,897 **[1]**

17. 0.93 **[1]**

18. 720 **[1]**

19. 8 **[1]**

20. 1,800 **[1]**

21. 1,739 **[1]**

22. 127 **[1]**

23. 262.8 **[1]**

24. 36 **[1]**

Accept 6^2

25. 10 or equivalent **[1]**

e.g. $\frac{30}{3}$

Do not *accept unconventional notation for mixed numbers*

e.g. $9\frac{3}{3}$

26. $\frac{3}{10}$ **[1]**

27. *For 2 marks* 7,344 **[2]**

Award only 1 mark if there is ***either*** *one error in the multiplication steps, then added correctly,*
or *no error in the multiplication steps but an error in the addition step.*

28. 45.73 **[1]**

29. $\frac{5}{8}$ **[1]**