Reasoning and Problem Solving
Step 1: Read and Interpret Line Graphs

National Curriculum Objectives:

Mathematics Year 6: (6S1) Interpret and construct pie charts and line graphs and use these to solve problems

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Determine which of 2 line graphs (including 1 data set only) most likely represents a particular data set.
Expected Determine which of 2 line graphs (including 2 data sets) most likely represents a particular data set.
Greater Depth Write own story to represent the 2 data sets in 2 graphs.

Questions 2, 5 and 8 (Reasoning)
Developing Read two statements about a line graph showing 1 data set using scales in increments of 2 and 10 where all increments are shown. Determine which statement is correct and explain why.
Expected Read two statements about a line graph comparing 2 data sets using any scales where all increments are shown. Determine which statement is correct and explain why.
Greater Depth Read two statements about a line graph comparing 2 data sets using any scales where some of the increments are missing. Determine which statement is correct and explain why.

Questions 3, 6 and 9 (Problem Solving)
Developing Use information shown in a line graph to solve a simple problem. Includes 1 data set using scales in increments of 2 and 10 where all increments are shown.
Expected Use information shown in a line graph to solve a problem. Includes 2 data sets using any scales where all increments are shown.
Greater Depth Use information shown in a line graph solve a problem. Includes 2 data sets using any scales where some of the increments are missing.
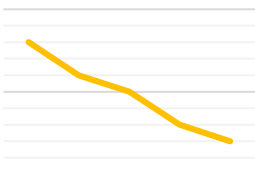
More Year 6 Statistics resource.

Did you like this resource? Don't forget to review it on our website.

classroomsecrets.co.uk

1a. Carrie is recording the amount of milk left in the jug in her fridge throughout the week. Which graph most likely shows her data? Explain how you know.
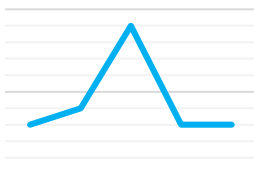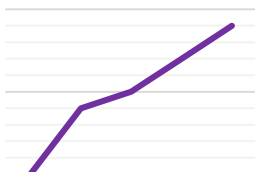
A

B

1b. Derrik is recording how many Easter presents his store sells during and after Easter weekend. Which graph most likely shows his data? Explain how you know.
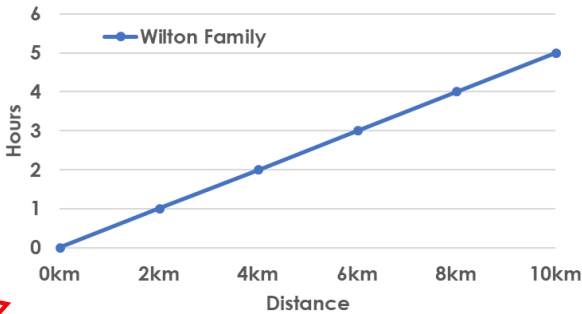.

A

B

2a. Anton and Lea are interpreting this graph. Anton says, "It took the family 5 hours to walk 10 kilometres."
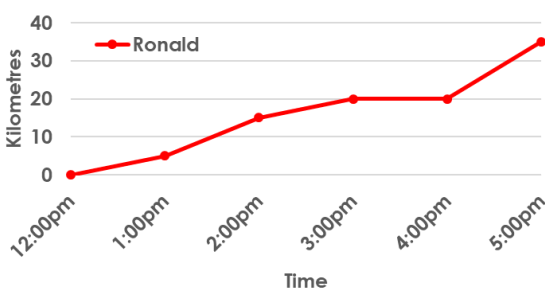Lea says, "The family had a break after walking for 3 hours."
Who is correct? Explain.

Family Walk

Wilton Family

Hours (y-axis): 0, 1, 2, 3, 4, 5, 6
Distance (x-axis): 0km, 2km, 4km, 6km, 8km, 10km

2b. Peter and Nora are interpreting this graph. Peter says, "Ronald travelled 20 kilometres between 3:00pm and 4:00pm."
Nora says, "Ronald stopped between 3:00pm and 4:00pm."
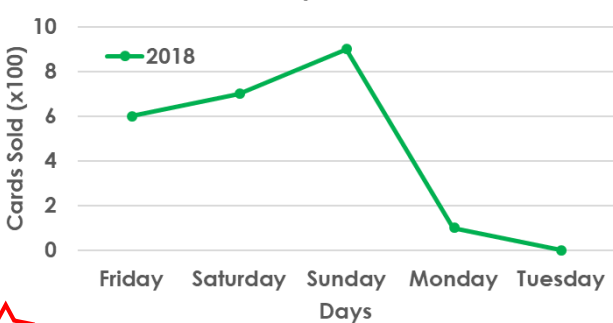Who is correct? Explain.

Bicycle Journey

Ronald

Kilometres (y-axis): 0, 10, 20, 30, 40
Time (x-axis): 12:00pm, 1:00pm, 2:00pm, 3:00pm, 4:00pm, 5:00pm

3a. Caring Cards Company earns £100 profit for every 100 cards sold. How much did they profit from Mother's Day cards? Why did sales drop so quickly on Monday?
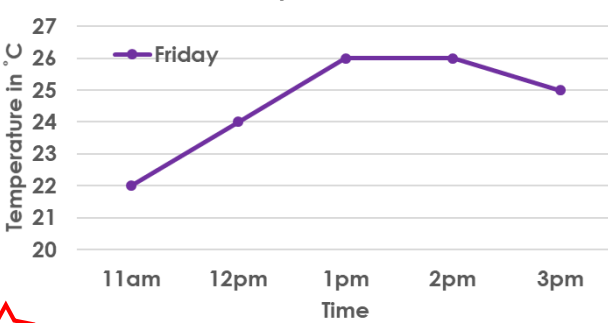
Mother's Day Card Sales

2018

Cards Sold (x100) (y-axis): 0, 2, 4, 6, 8, 10
Days (x-axis): Friday, Saturday, Sunday, Monday, Tuesday

3b. Lori is tracking the temperature throughout the day. She must drink a bottle of water per hour when it's 24°C or hotter. How many bottles of water will she drink?
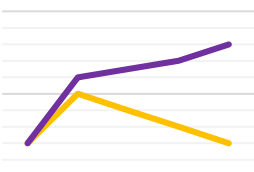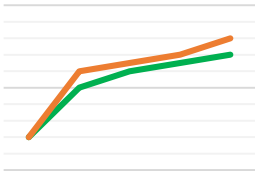
Temperature

Friday

Temperature in °C (y-axis): 20, 21, 22, 23, 24, 25, 26, 27
Time (x-axis): 11am, 12pm, 1pm, 2pm, 3pm

Varied Fluency – Read and Interpret Line Graphs – Year 6 Developing

Read and Interpret Line Graphs

Read and Interpret Line Graphs

4a. The health visitor is recording the height of twins during their first year. Which graph most likely shows her data? Explain how you know.
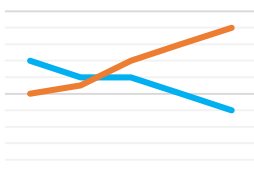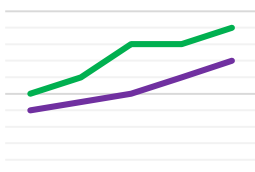
A

B

4b. Jim is recording the temperature from September to January in London and Sydney. Which graph most likely shows his data? Explain how you know.
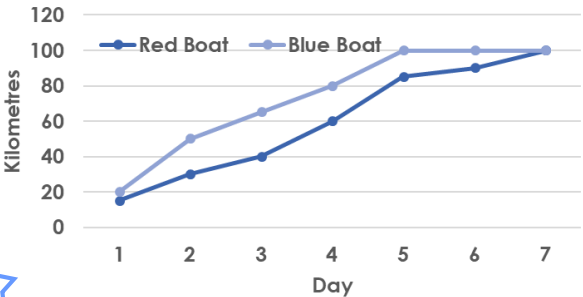
A

B

5a. Yulia and Naveed are interpreting a graph. Yulia says, "The blue boat reached their destination on Day 5." Naveed says, "The red boat travelled 100km between Day 6 and Day 7."
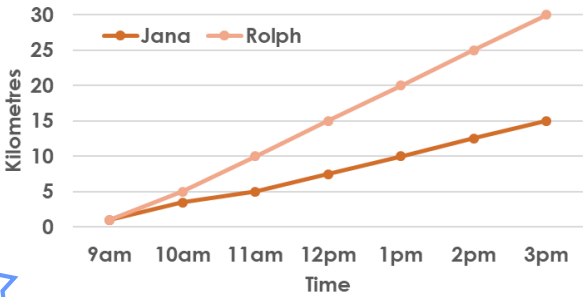Who is correct? Explain.

Distance Travelled

Red Boat Blue Boat

Kilometres

Day

5b. Nico and Harriet are interpreting a graph. Nico says, "Rolph's journey was steeper because his line is steeper on the graph." Harriet says, "Jana travelled much slower; her climb could have been more difficult." Who is correct? Explain.
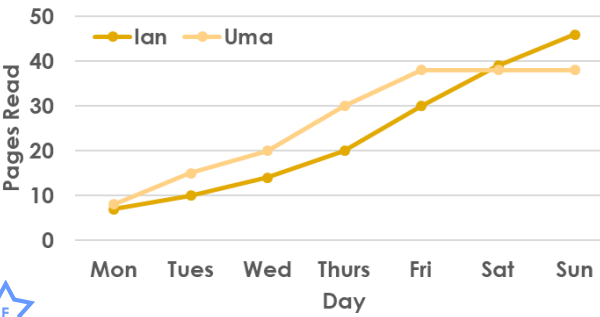
Hill Climb

Jana Rolph

Kilometres

Time

6a. Every Friday, Ian and Uma's teacher gives a sticker for every multiple of 10 pages they read. Who received the most stickers this week? Who read the most pages in total? Why did Uma stop reading on Friday?
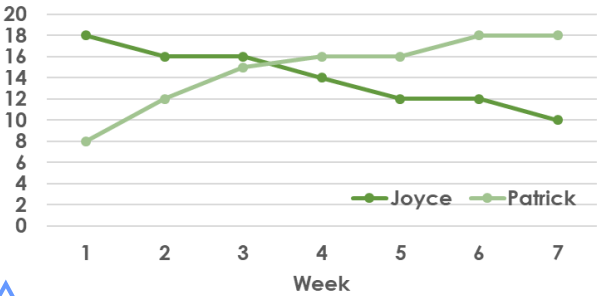
Reading Records

Ian Uma

Pages Read

Day

6b. Joyce and Patrick each earn one point for their class every time they score more than 15 on a spelling quiz. How many points will they each earn this half term? Who has shown improvement?
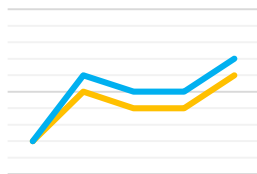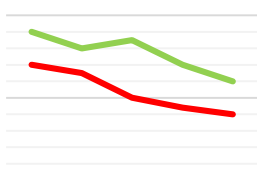
Spelling Quiz Scores

Joyce Patrick

Week

7a. Write your own story to match the data in the two graphs below.
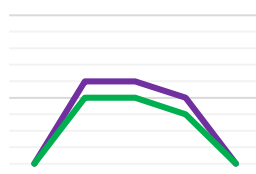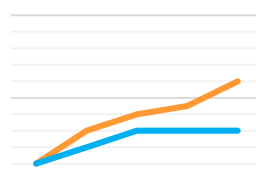
A

B

GD

R

7b. Write your own story to match the data in the two graphs below.
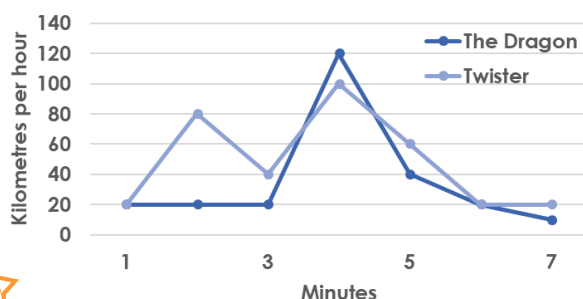
A

B

GD

R

8a. Fazir and May are interpreting a graph.
Fazir says, "The Dragon has a rapid increase in speed at 3 minutes."
May says, "The Twister goes the fastest."
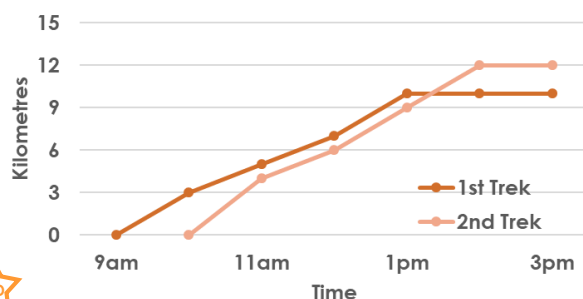**Who is correct? Explain.**

Speed of Roller Coaster

Kilometres per hour

— The Dragon
— Twister

140
120
100
80
60
40
20
0

1   3   5   7

Minutes

GD

R

8b. Nancy and Quinn are interpreting a graph.
Nancy says, "Both treks started at 9am."
Quinn says, "The 2ⁿᵈ trek was the longest by 2km."
Who is correct? Explain.

Trekking

Kilometres

15
12
9
6
3
0

9am   11am   1pm   3pm

— 1st Trek
— 2nd Trek

Time

GD

R

9a. Carl's Cards makes it's biggest profit in the holiday season. What date is the shop closed for business? If the shop earns £200 for every 100 cards sold, which year made the biggest profit?

Christmas Card Sales

Sales (x100)

— 2017   — 2018

18
16
14
12
10
8
6
4
2
0

22nd   24th   26th   28th

Date (December)

GD
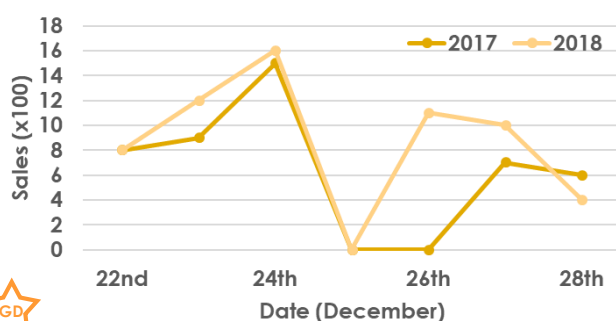
PS

9b. Years 5 and 6 are holding a fundraiser for charity. For every £1 raised, the school is giving an extra £2 to the same charity. How much money did each year group raise in total?

Fundraising

Total Money Raised

35
30
25
20
15
10
5
0

1pm   2pm   3pm

— Year 5   — Year 6

Time

GD

PS

classroomsecrets.co.uk

Varied Fluency – Read and Interpret Line Graphs – Year 6 Greater Depth

Reasoning and Problem Solving
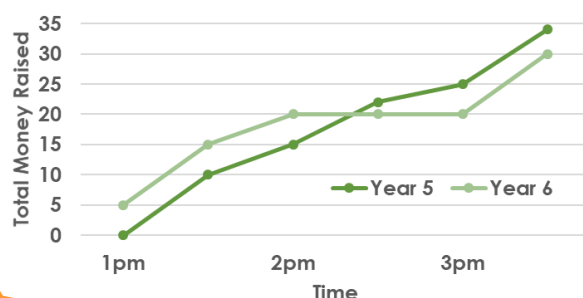## Read and Interpret Graphs

Developing

1a. B shows her data, because the amount of milk would decrease throughout the week.

2a. Anton is correct. The graph does not show that the family stopped hiking after 3 hours.

3a. They made £2,300 profit on cards. Sales dropped because Mother's Day happened on Sunday, and not as many people needed to buy cards after Mother's Day.

Expected

4a. A shows her data because the twins would gain in height but at slightly different rates. B suggests that the height of one twin decreases over time.

5a. Yulia is correct because the blue boat stopped travelling on Day 5. The red boat travelled 100km in total, not in one day.

6a. Ian gets the most stickers. Ian read more pages in total (looking at Saturday and Sunday). Uma could have finished her book on Friday.

Greater Depth

7a. Various answers, for example:
A = Two runners travelling the same route and over the same terrain but one is faster than the other.
B = The temperature of two cities in the UK recorded from Summer to Autumn.

8a. Fazir is correct. The Dragon also goes 20km/hour faster than The Twister, so it is the fastest ride.

9a. The shop is closed on Christmas Day. The biggest profit was made in 2018 (£12,200).

Developing

1b. B shows his data, because sales for Easter related gifts would not continue increasing after Easter weekend.

2b. Nora is correct. The graph shows that Ronald did not travel between 3 and 4pm.

3b. She will drink 3 bottles of water (1 between 12pm – 1pm, 1 between 1pm – 2pm and 1 between 2pm – 3pm). She may start another at 3pm as the temperature is still 24˚C at 3pm.

Expected

4b. B shows his data because the temperature in London will be getting colder over those months, whilst it will be getting warmer in Sydney.

5b. Harriet is correct, that is one reason why Jana travelled a much shorter distance in the same amount of time. Nico has misinterpreted what the graph is showing; the incline of the hike is not related to the angle of the line.

6b. Joyce will earn 3 points and Patrick will earn 4 points this half term. Patrick has shown steady improvement in his quizzes, while Joyce's scores keep going down.

Greater Depth

7b. Various answers, for example:
A = Two vehicles starting off and travelling the same distance but at different speeds before slowing down again.
B = Two plants growing over the same time period. One plant continues to grow, whilst the other stops get any taller.

8b. Quinn is correct. The second trek started at 10am.

9b. Year 5 raised £34 and Year 6 raised £30. With the school's contribution, Year 5 raised £102 and Year 6 raised £90.

classroomsecrets.co.uk