

Reasoning and Problem Solving

Step 1: Read and Interpret Line Graphs

National Curriculum Objectives:

Mathematics Year 5: (5S2) [Solve comparison, sum and difference problems using information presented in a line graph](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Given a scenario, use the line graph to interpret the data. Using no more than five categories on the x axis, with intervals of 15 minutes.

Expected Given a scenario, use the line graph to interpret the data. Using up to ten categories on the x axis, with intervals of 10 minutes.

Greater Depth Given a scenario, use the line graph to interpret the data. Using up to ten categories on the x axis, with intervals of 5 minutes.

Questions 2, 5 and 8 (Reasoning)

Developing True or false statements about reading a set of data.

Expected True or false statements about reading two sets of data.

Greater Depth True or false statements about reading more than two sets of data.

Questions 3, 6 and 9 (Reasoning)

Developing Explain whether an interpretation about a line graph is correct. Using no more than five categories on the x axis, with intervals of 1 second.

Expected Explain whether an interpretation about a line graph is correct. Using up to ten categories on the x axis, with intervals of 2 seconds.

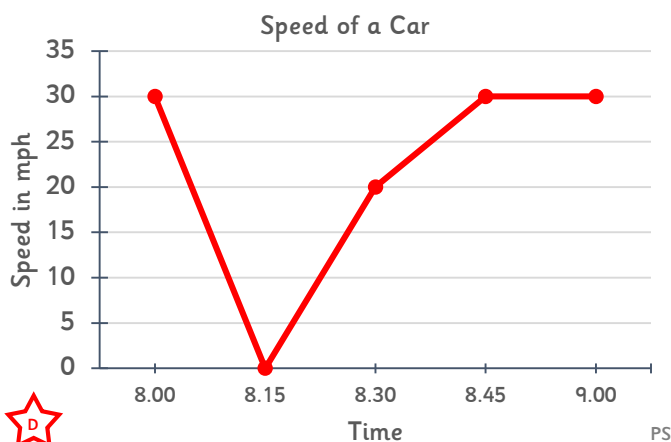
Greater Depth Explain whether an interpretation about a line graph is correct. Using up to ten categories on the x axis, with intervals of 0.5 seconds.

More [Year 5 Statistics](#) Resources.

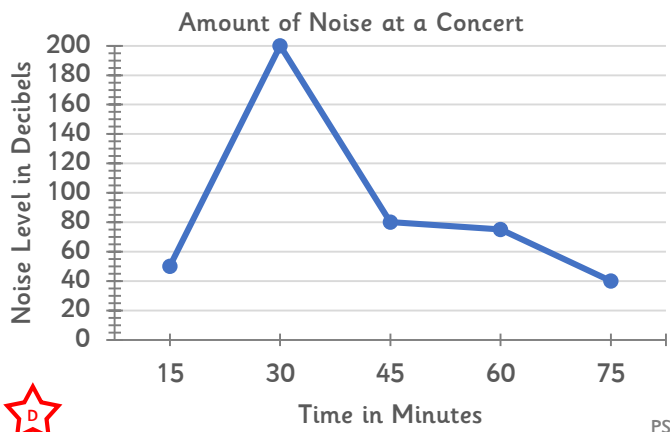
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Reasoning and Problem Solving – Read and Interpret Line Graphs

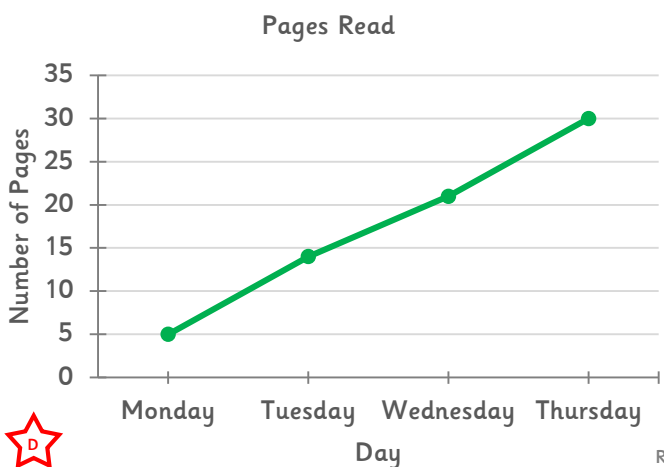
1a. What could have happened at 8:15? Write a story to match the data.



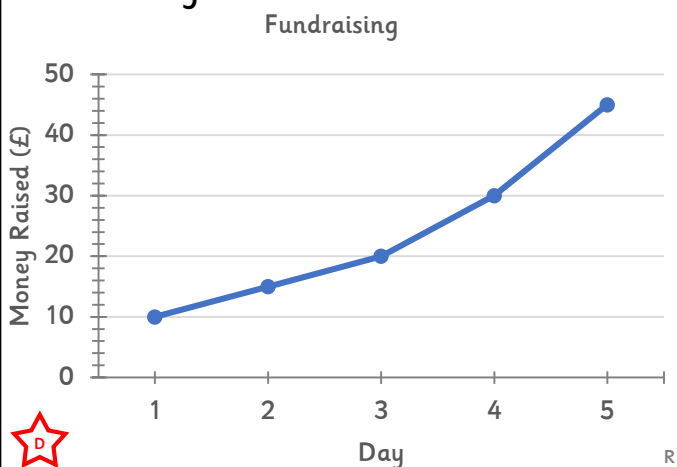
1b. What could have happened at 30 minutes? Write a story to match the data.



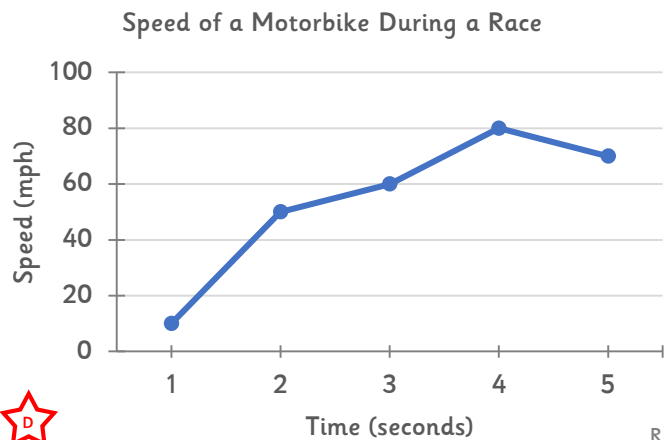
2a. True or false? Jen is half way through her 90 page book on Thursday.



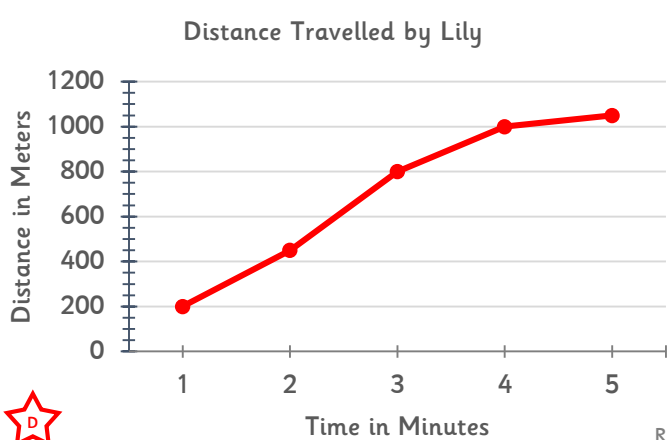
2b. True or false? Ruby has raised a total of £40 on the 5th day of fundraising.



3a. Freddie said that the motorbike took 5 seconds to reach its top speed. Is he correct? Explain why.

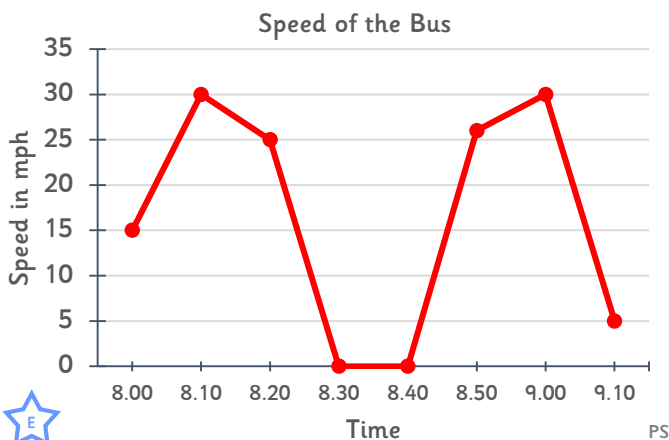


3b. Lily said that the speed of the car decreased after 4 minutes. Is she correct? Explain why.



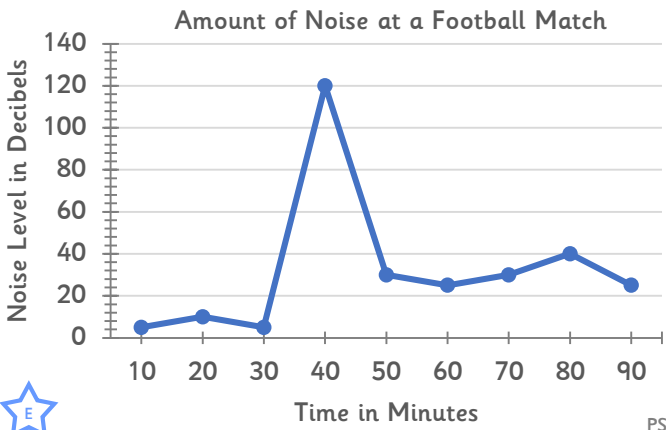
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4a. What could have happened between 8:30 and 8:40? Write a story to match the data.



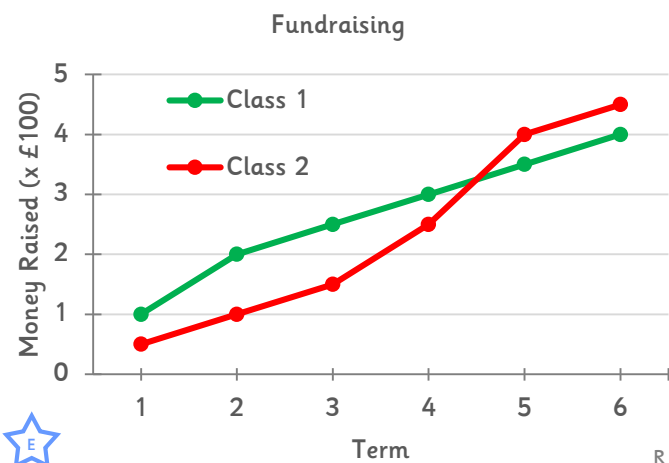
PS

4b. What could have happened 40 minutes into the match? Write a story to match the data.



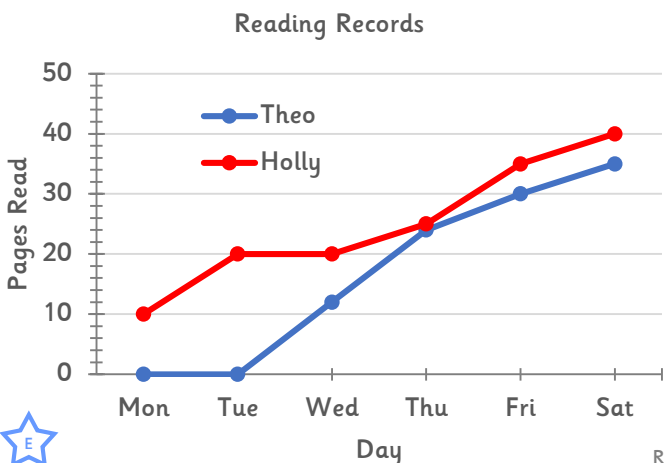
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5a. True or false. The difference in totals between each class is £5.



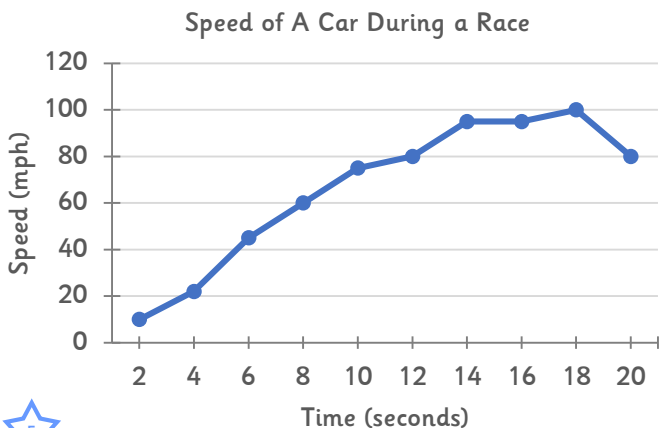
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5b. True or false? Holly read more than Theo every day.



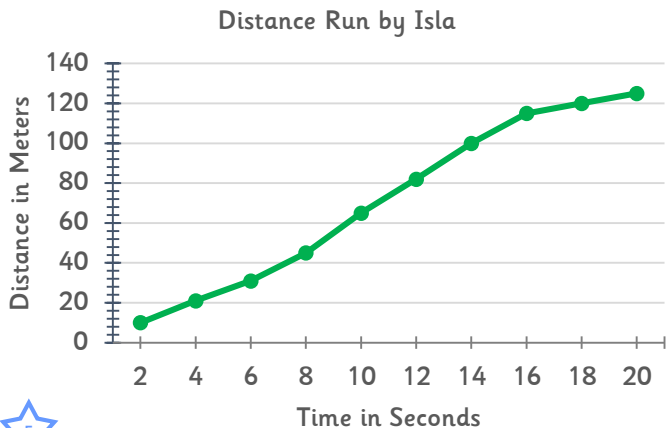
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6a. Peter said that his car took 14 seconds to reach its top speed. Is he correct? Explain why.



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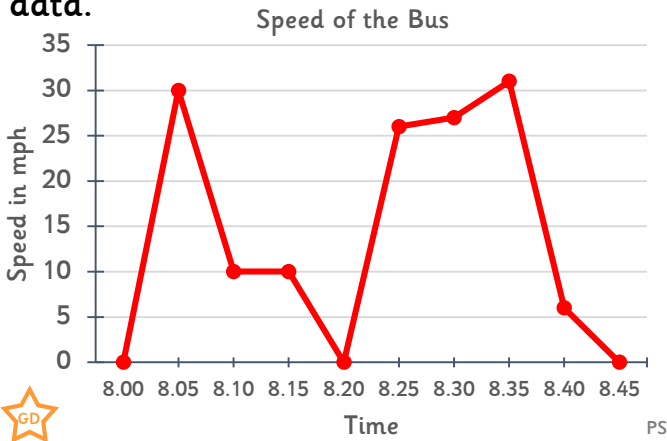
6b. Isla said that her speed decreased after 16 seconds. Is she correct? Explain why.



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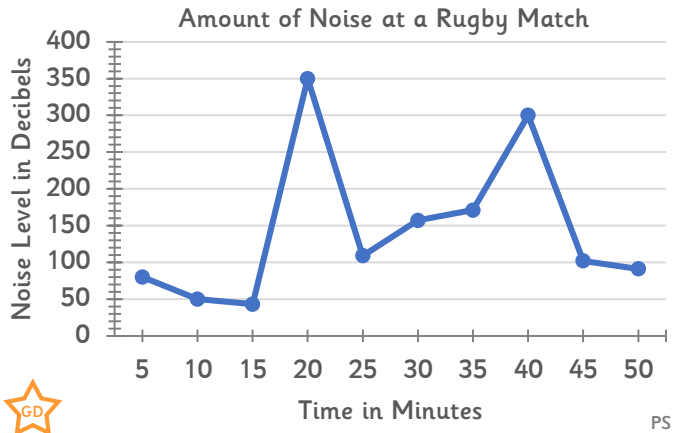
Reasoning and Problem Solving – Read and Interpret Line Graphs

7a. Jack recorded the speed he travelled during his journey to school every 5 minutes. Write a story to match the data.



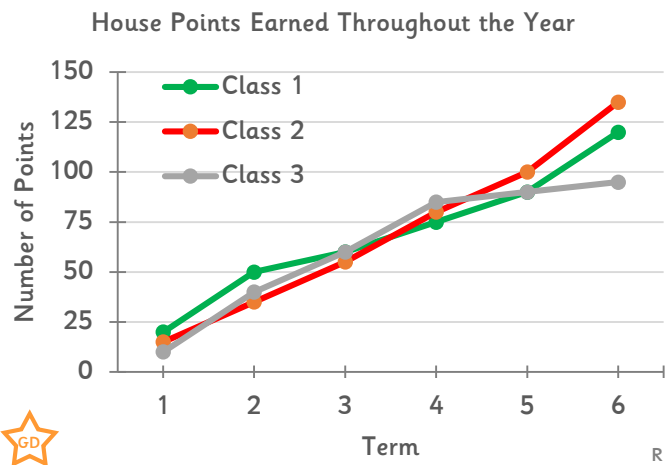
PS

7b. What could have happened at 20 minutes and 40 minutes? Write a story to match the data.



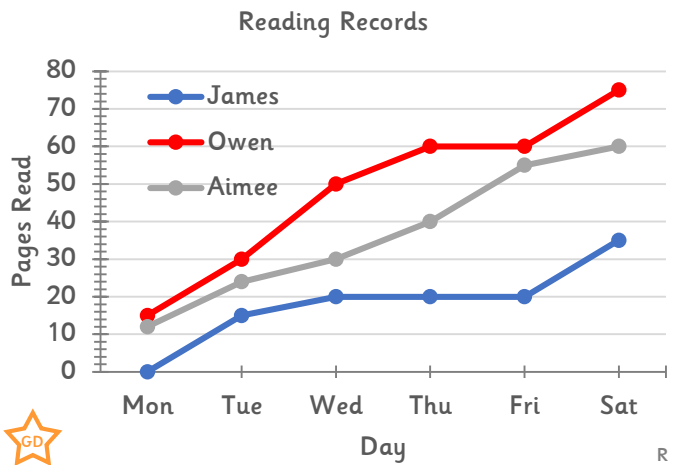
PS

8a. True or false? Class 2 earned more house points than Class 1 and Class 3 combined.



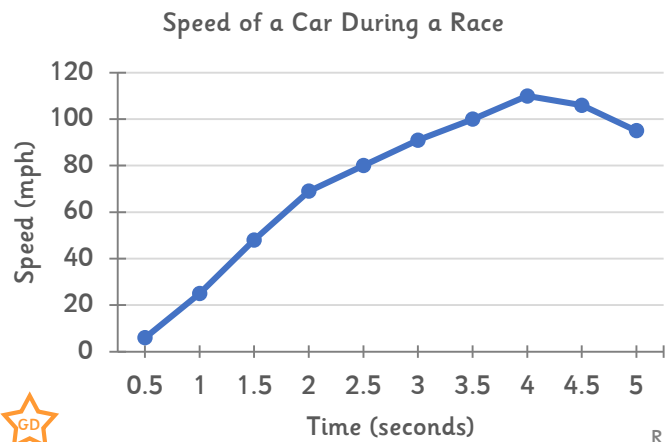
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8b. True or false? All three children have had a day off from reading.



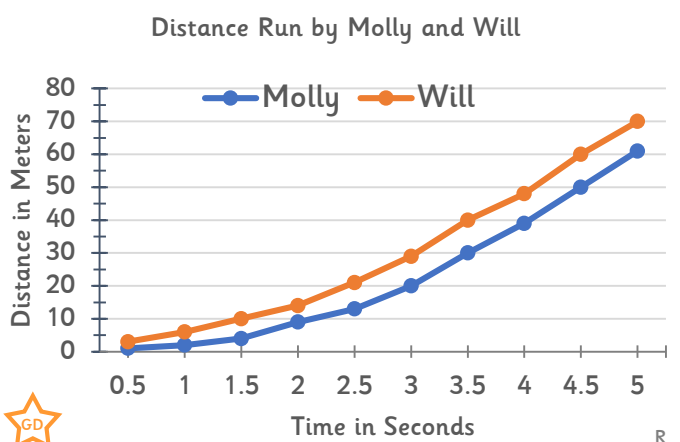
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9a. Isaac said that the car took 4.5 seconds to reach its top speed. Is he correct? Explain why.



R

9b. Molly thinks she was quicker than Will in the first 2.5 seconds of the race. Is she correct? Explain why.



R

Reasoning and Problem Solving – Read and Interpret Line Graphs

Developing

- 1a. Example answer: After 15 minutes the car stopped at traffic lights. It then travelled slowly in traffic.
- 1b. Example answer: The crowd cheered loudly because the singer came on the stage.
- 2a. False. Jen was one third of the way (30 pages) through the book on Thursday.
- 2b. False. Ruby raised a total of about £45 on day 5.
- 3a. No. The top speed was 80mph and it reached that speed at 4 seconds.
- 3b. Yes. The incline of the line is not as severe which suggests that the car wasn't travelling as quickly.

Expected

- 4a. Example answer: The bus was waiting at a bus stop.
- 4b. Example answer: One of the teams scored a goal.
- 5a. False. £450 (Class 2) – £400 (Class 1) = a difference of £50.
- 5b. True, Holly's line is always above Theo's line on the graph.
- 6a. No. The car reached its top speed of 100mph by 18 seconds.
- 6b. Yes. The incline of the line is not as severe which suggests that her speed decreased.

Greater Depth

- 7a. Example answer: After reaching a top speed of 30mph, the traffic became heavier and eventually he had to stop at traffic lights. He quickly got back to his top speed after the lights changed to green. As he arrived at school he began to slow down.
- 7b. Example answer: At 20 minutes, a try was scored and the crowd went wild. At 35 minutes, a team came close to scoring a try but missed. At 40 minutes, the team regained control of the ball and scored again, causing the crowd to cheer.
- 8a. False. Class 2 earned 135; Class 1 earned 120; Class 3 earned 95. Combined, they earned 215 which is more than Class 2.
- 8b. False. Owen didn't read between Thursday and Friday. James didn't read between Wednesday and Friday. Aimee read every day of the week.
- 9a. No. Top speed of 110mph was reached after 4 seconds.
- 9b. No. Will reached 20m after 2.5 seconds and Molly only reached 12m so Will was quicker.