

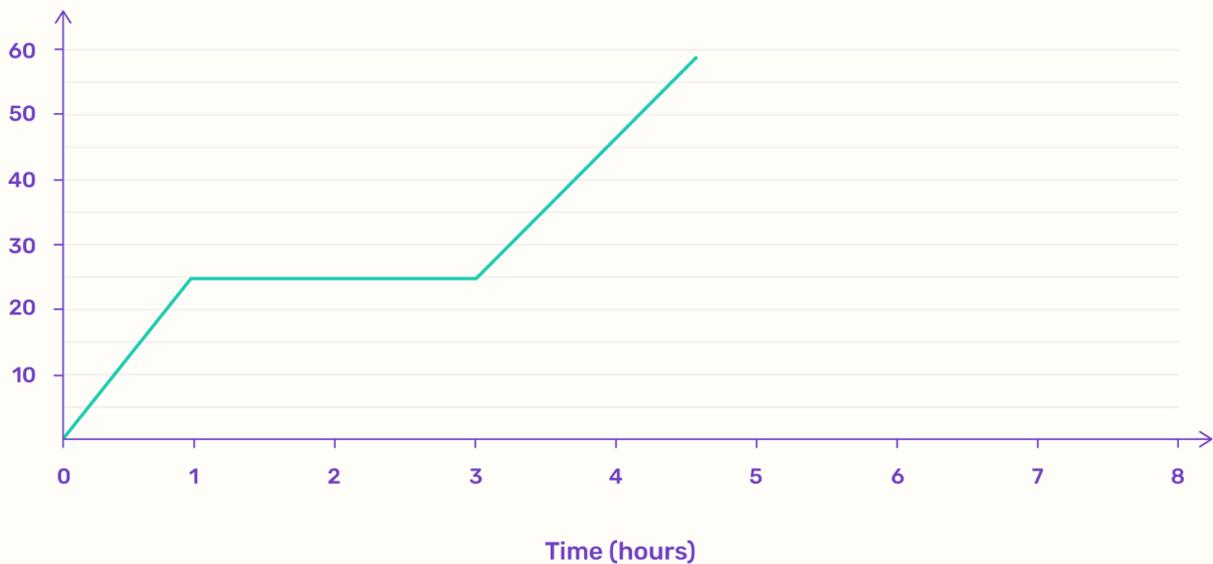


Science lesson 2 – Answer sheet

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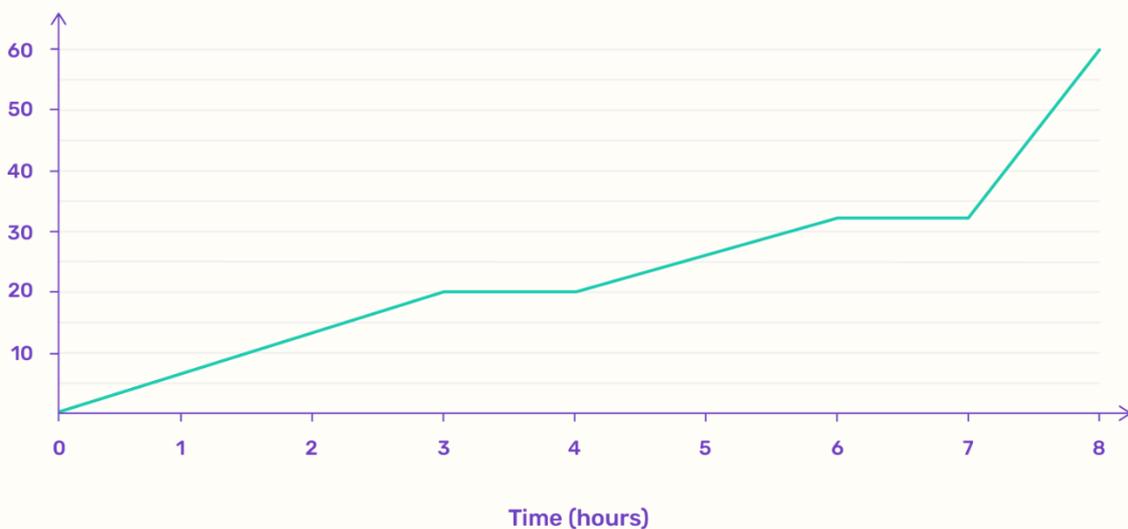
Graph 1 is Birmingham as it stops for 2 hours BUT only has 1 stop on the journey, not 2.

Distance (miles)



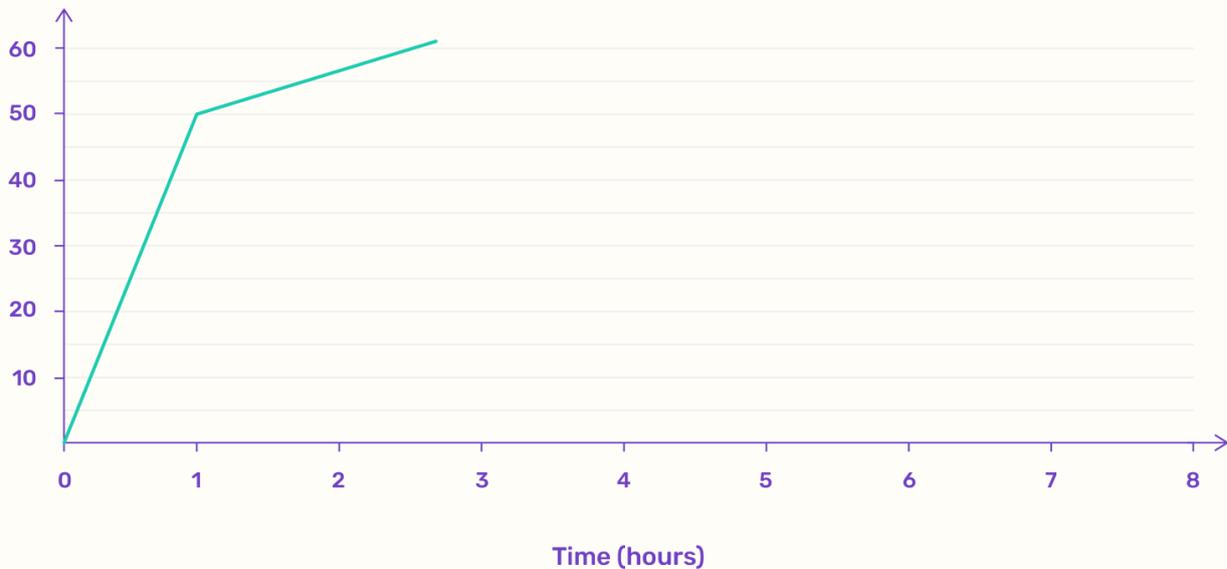
Graph 2 Ladychester as it has 2 stops during its journey at 2 separate points between 3-4 hours and 6-7 hours. Also, it travels the fastest during the last hour of its route.

Distance (miles)



Graph 3 Liverpool as, during the first hour of the journey, it travels at 50mph so travels 50 miles.

Distance (miles)



Answers

Question 2

Graph 1 calculations

Aliyah has calculated:

- 1) The total journey was about 4 and a half hours.

Correct as end of graph is at 4.5 hours.

- 2) The average speed was 30mph

No, as it takes 4.5 hours to do 60 miles so $60/4.5 = 13.3$ mph

- 3) Between 3 hours and 4.5 hours the train travelled at a speed of 20mph.

Correct as it did 30 miles in 1.5 hours SO $30/1.5 = 20\text{mph}$

- 4) This graph shows the shortest journey time compared to the other 2 graphs.

No, as it takes 4.5 hours to reach 60 miles, graph 3 is the fastest as it only takes just under 3 hours to do 60 miles.

- 5) The train did not stop at any time on the journey.

No, as between 1 and 3 hours the graph is a flat line showing the train was not moving/stopped.

Graph 2 calculations

Aliyah has calculated:

- 1) The train stopped once during the journey.

No, it stopped twice as between 3 and 4 hours and 6 and 7 hours the graph is a flat line showing the train was not moving/stopped.

- 2) The total journey was about 6 hours.

No, it was 8 hours as the graph ends at 8 hours.

- 3) The average speed was 7.5mph.

Correct – it took 8 hours to do 60 miles so $60/8 = 7.5\text{mph}$.

4) Between 0 hours and 6 hours the train travelled at a speed of 10mph.

No, it travelled 30 miles in 6 hours so $30/6 = 5\text{mph}$.

5) This graph shows the shortest journey time compared to the other 2 graphs.

No, as it takes 8 hours to reach 60 miles. Graph 3 is the fastest as it only takes just under 3 hours.

Graph 3 calculations

Aliyah has calculated:

1) The train stopped once during the journey.

No, it did not stop at any point as there are no flat parts on the graph.

2) The speed during the first hour was 50mph.

Correct – it took 1 hour to do 50 miles so $50/1 = 50\text{mph}$.

3) The train was travelling at its fastest during the first hour.

Correct – it took 1 hour to do 50 miles so $50/1 = 50\text{mph}$.

4) This graph shows the longest journey time compared to the other 2 graphs.

No, it shows the shortest as it only takes 3 hours to do 60 miles. Graph 1 takes 4.5 hours and graph 2 takes 8 hours.

5) The train was travelling fastest AFTER the first hour.

No – it took 1 hour to do 50 miles so $50/1 = 50\text{mph}$, then 2 hours to do 10 miles (so was at 5mph after the first hour) so was slowest after the first hour.

Feedback to Aliyah is that the best route to start first is Crewston to Liverpool – as shown in graph 3. It is the quickest, so the class vote should reflect this. (Sketch of the graph for the extension activity below.)

Distance (miles)

