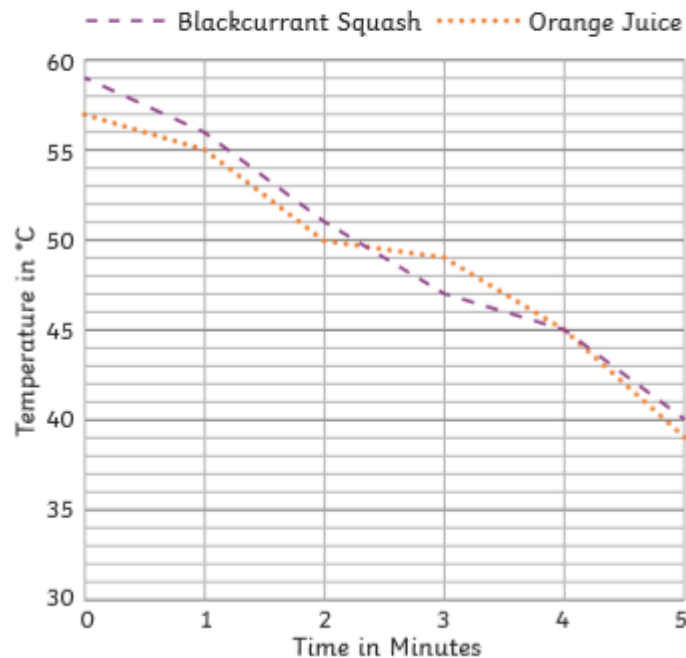


Class 5 are investigating how quickly two different liquids cool over five minutes. They start their investigation by warming the two liquids in the microwave and then measure the temperature of each liquid every minute as they cool down.



- 1) What was the temperature of the orange juice after two minutes?
- 2) At which minute was the temperature of the blackcurrant squash  $47^{\circ}\text{C}$ ?
- 3) By how many degrees did the temperature of the orange juice cool from minute 1 to minute 2?
- 4) By how many degrees did the temperature of the blackcurrant squash cool from minute 3 to minute 4?
- 5) Approximately, how long did it take for the temperature of the orange juice to drop by  $10^{\circ}\text{C}$ ?
- 6) By how many degrees did the temperature of the blackcurrant squash cool altogether?



Use the line graph to decide whether each of the statements below are true or false. If you think the statement is false, explain the mistake you think the child has made when they read the line graph.



Jamal

After two minutes, the difference in temperature between the two drinks was 1°C.



Kayden

After three minutes, the orange juice was cooler than the blackcurrant squash.



Molly

The temperature of the blackcurrant squash dropped by 5°C between minute 2 and 3.

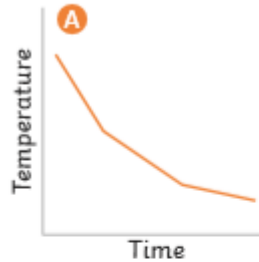


Isha

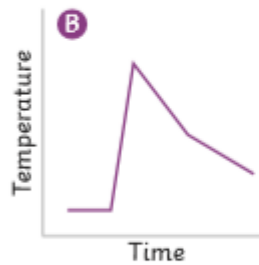
There was never more than a difference of 2°C between the temperatures of the two drinks.



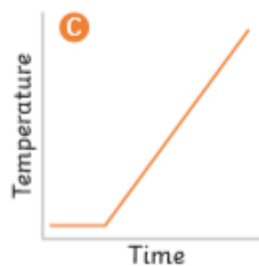
- 1) Match each graph to the correct story and explain your reasoning.



- a) Zoe takes her hot chocolate out of the microwave. She then leaves the drink on the side to cool gradually before she drinks it at a pleasant temperature.



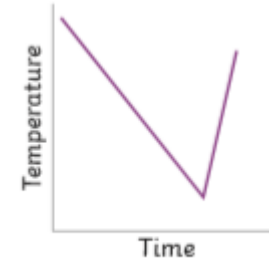
- b) Ayaan takes his soup out of the fridge. He pours it into a saucepan and heats it gradually up on the hob.



- c) Zara takes her juice out of the fridge. The drink is too cold for her, so she warms it up quickly in the microwave. She must then wait a little while for it to cool so it isn't too hot to drink. But, when she does drink it, it is just right.



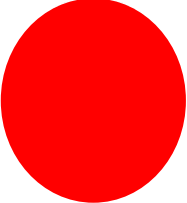
- 2) Eddie wants to eat some soup. Based on this line graph, write a story about how the temperature of the soup changed over time.



## ANSWERS

- 1)  $50^{\circ}\text{C}$
- 2) *minute 3*
- 3)  $5^{\circ}\text{C}$
- 4)  $2^{\circ}\text{C}$
- 5)  $3\frac{1}{2}$  minutes
- 6)  $19^{\circ}\text{C}$

- 1) After two minutes, the difference in temperature between the two drinks was  $1^{\circ}\text{C}$ . *True.*
- 2) After three minutes, the orange juice was cooler than the blackcurrant squash. *False. Accept any answer that explains that Kayden may have muddled up the lines for the orange juice and the blackcurrant squash. Alternatively, he may have looked at the wrong time on the graph, for example at 1 minute, 2 minutes or 5 minutes.*
- 3) The temperature of the blackcurrant squash dropped by  $5^{\circ}\text{C}$  between minute 2 and 3. *False. Accept any answer that explains that Molly has wrongly calculated the difference between  $51^{\circ}\text{C}$  and  $47^{\circ}\text{C}$ . It should be  $4^{\circ}\text{C}$ .*
- 4) There was never more than a difference of  $2^{\circ}\text{C}$  between the temperatures of the two drinks. *True.*

- 
- 1)
    - a) A – the graph shows that the hot chocolate starts off hot and cools down gradually.
    - b) C – the graph shows that the soup starts off cold, while Ayaan is pouring it into the saucepan, and then warms up gradually.
    - c) B – the graph shows that the juice starts off cold, heats up very quickly and then cools down gradually.
  - 2) Answers will vary. Accept any answer that describes the soup starting off at a high temperature, cooling down gradually and then being quickly reheated.