

Year 4 Maths, 8th June 2020

LO: Understand that line graphs represent continuous data

- ▶ SOME WILL EVEN use the vocabulary of discrete and continuous data to explain when line graphs are suitable to show data (DD2)
- ▶ SOME will match a line graph to a set of data (DD1)
- ▶ MOST will read data from line graphs (chilli 2 / 3)
- ▶ ALL will know how to read information in a line graph (chilli 1)

RECALL (to practise your number skills)

▶ A: $564 + 458$

▶ B: $4766 - 3029$

▶ C: 21×16

▶ D: $635 \div 5$

RECALL answers

- ▶ A: $564 + 458 = 1,022$
 - ▶ B: $4766 - 3029 = 1,737$
 - ▶ C: $21 \times 16 = 336$
 - ▶ D: $635 \div 5 = 127$
- ▶ It doesn't matter which methods you used, as long as you got the right answers. If you made a mistake, look carefully at your calculation to see if you can find out why.

Guided practice: discrete and continuous data

- ▶ Data can be **discrete** or **continuous**.

Discrete data

- Can be counted
- Can only take certain values. For example, the number of children in a class can **ONLY** be counted in whole numbers. You can't have 22 and a half children!
- Another example: when you roll a dice, the number shown can only be 1,2,3,4,5 or 6.

Continuous data

- Can be measured
- Can take any value. For example, the weight of a person, or the time it takes to finish a race.

▶ Can you sort these into **discrete** or **continuous** data?

- ▶ - the height of a person
- ▶ - the number of books in a classroom
- ▶ - how much rain falls each month
- ▶ - the number of biscuits in a tin
- ▶ - the length of a leaf

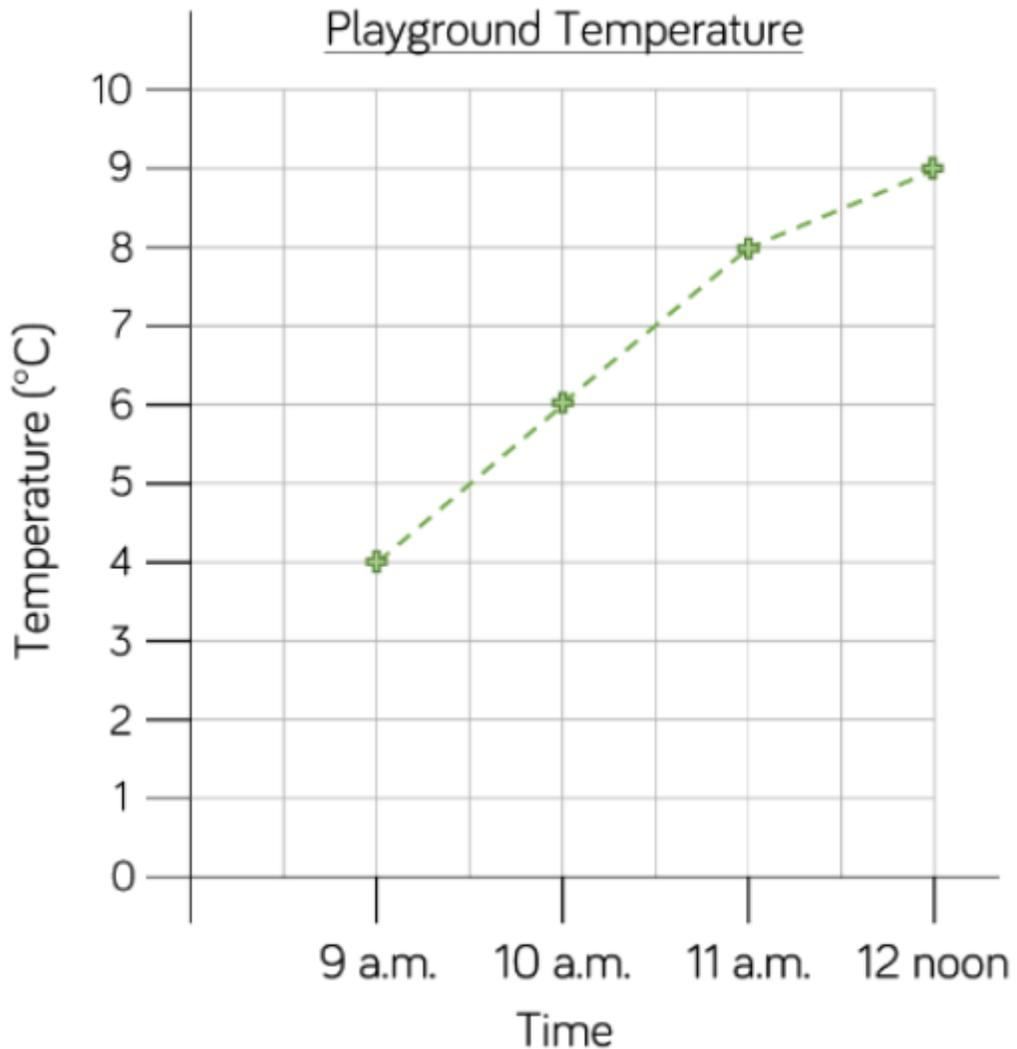
► **Answers:**

Discrete data	Continuous data
The number of books in a classroom	The height of a person
The number of biscuits in a tin	How much rain falls each month
	The length of a leaf

Discrete data is often shown in a bar chart.

Continuous data is often shown in a line graph.

- ▶ Here's an example of a line graph showing continuous data.



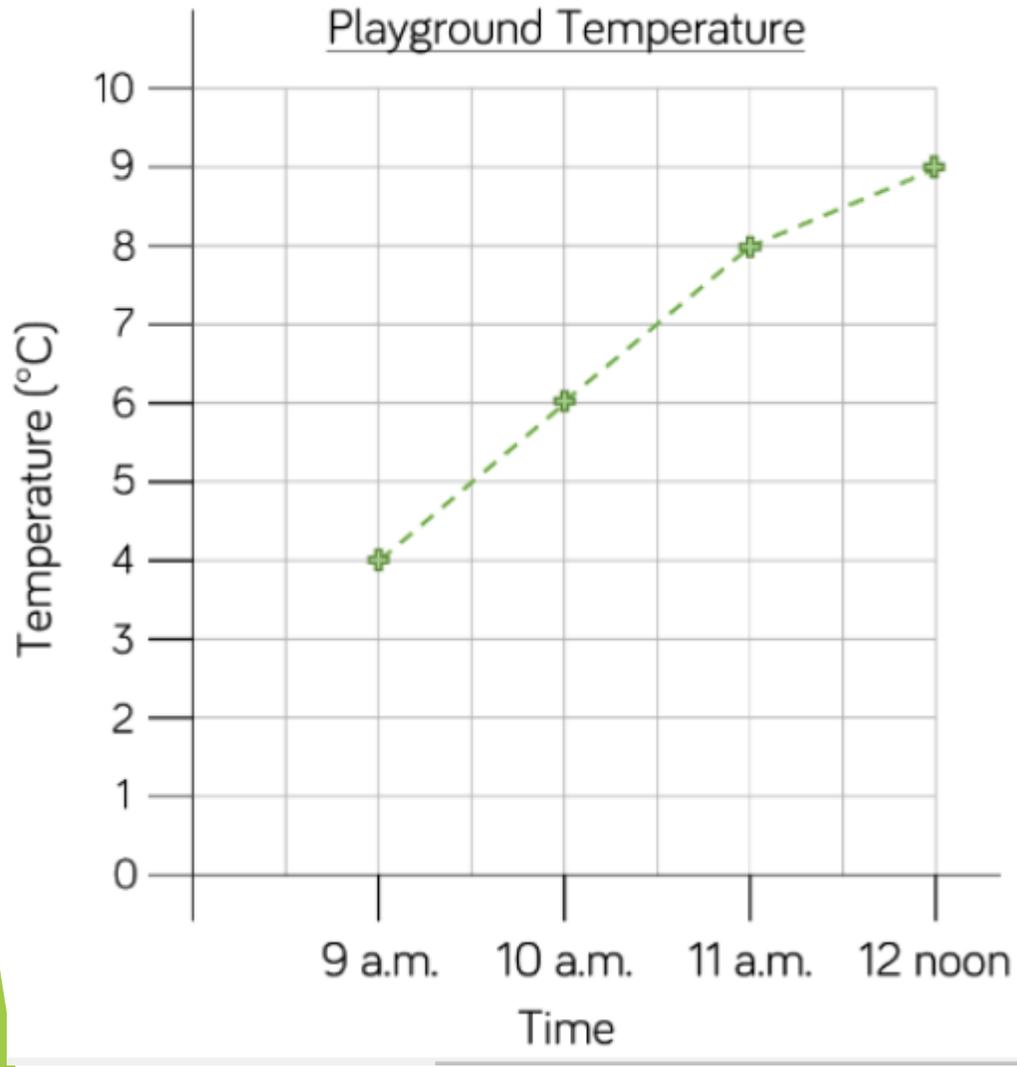
How is the line graph different to a bar chart?

Where are the x and y axes? What do they represent?

How would you estimate the temperature at 9:30am?

How would you estimate the time it was when the temperature was 7 degrees?

- ▶ Here's an example of a line graph showing continuous data.



How is the line graph different to a bar chart?
It shows points joined by a line instead of bars. It shows continuous data instead of discrete data.

Where are the x and y axes? What do they represent?

The x axis is horizontal. It shows the time.
The y axis is vertical it shows the temperature in degrees.

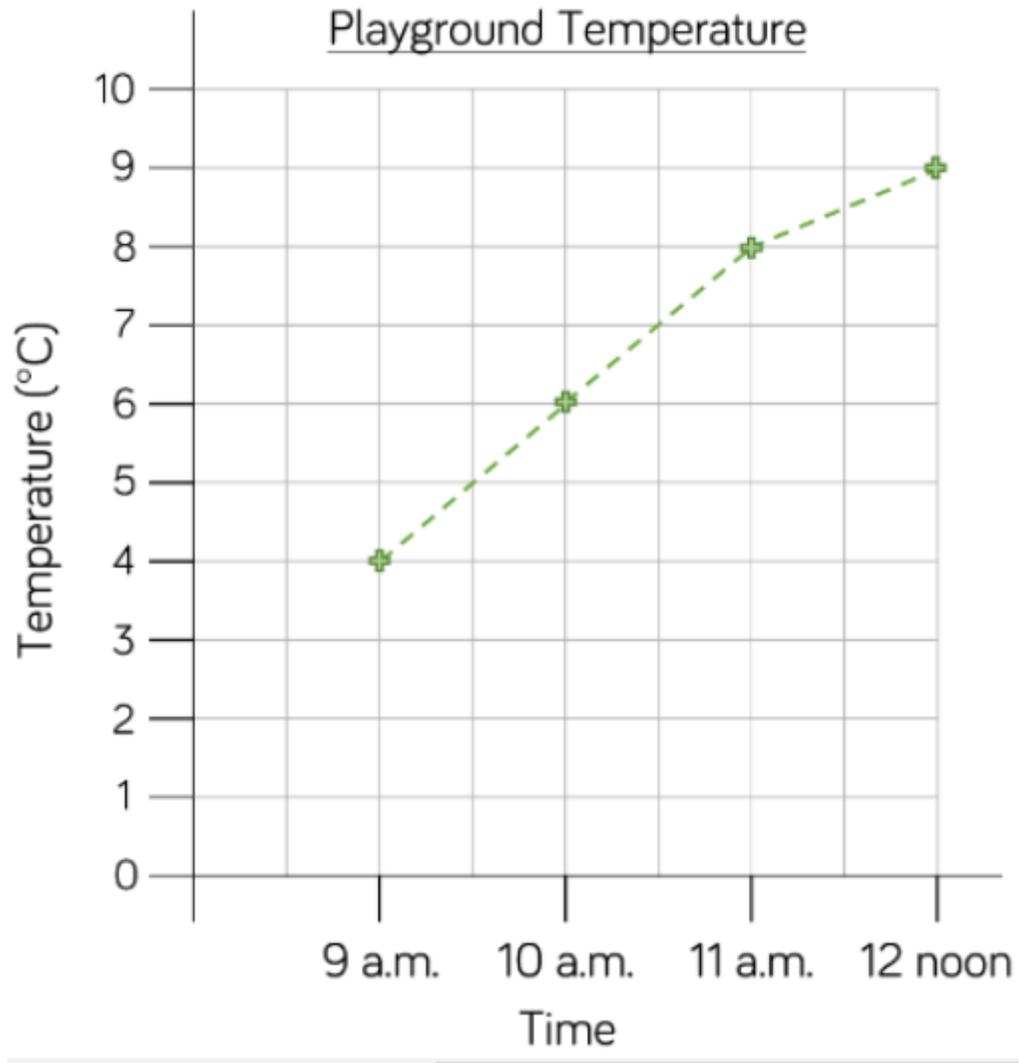
How would you estimate the temperature at 9:30am?

Use the x axis to find 9.30am. It is halfway between 9am and 10am. Next, follow that vertical line upwards until it reaches the dotted line. At that point, go horizontally along to the left and read the temperature on the y axis. It is 5 degrees centigrade.

How would you estimate the time it was when the temperature was 7 degrees?

Use the y axis to find 7 degrees. Look at where the dotted line touches 7 degrees. At that point, go down and read the time on the x axis. It is 10:30am.

INTELLIGENT PRACTICE



1 CHILLI:

What was the temperature at 9am?

What time was it when the temperature was 8 degrees?

2 CHILLIS:

What was the warmest time of the morning?

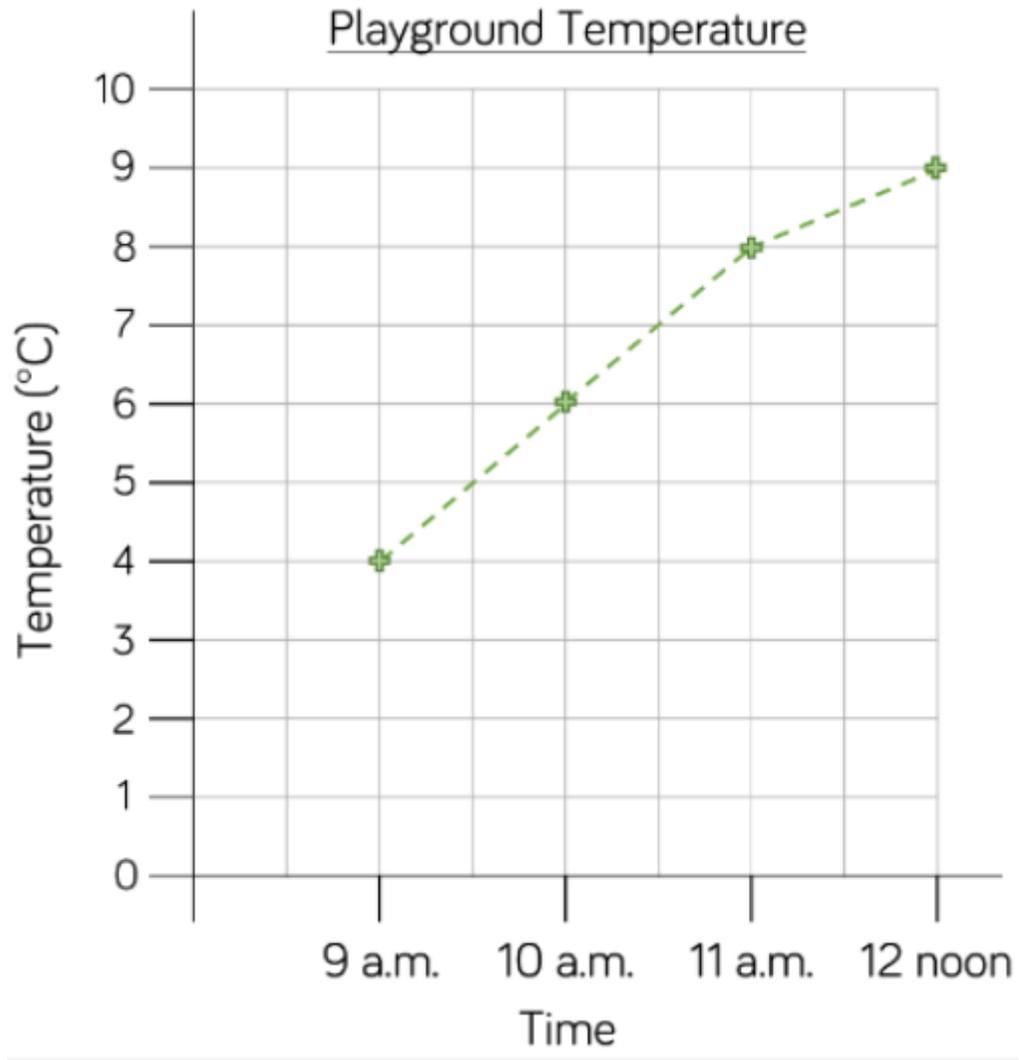
How long did it take for the temperature to rise from 6 degrees to 7 degrees?

3 CHILLIS:

Do you think the temperature would continue to rise for the remainder of the day?

Why does the temperature scale only go up to 10 degrees?

INTELLIGENT PRACTICE - answers



1 CHILLI:

What was the temperature at 9am?

4 degrees

What time was it when the temperature was 8 degrees?

11am

2 CHILLIS:

What was the warmest time of the morning?

12 noon (12pm / 12:00)

How long did it take for the temperature to rise from 6 degrees to 7 degrees?

30 minutes (from 10am to 10:30)

3 CHILLIS:

Do you think the temperature would continue to rise for the remainder of the day?

No - mid day is usually the warmest time of day, so the line would begin to fall in the afternoon.

Why does the temperature scale only go up to 10 degrees?

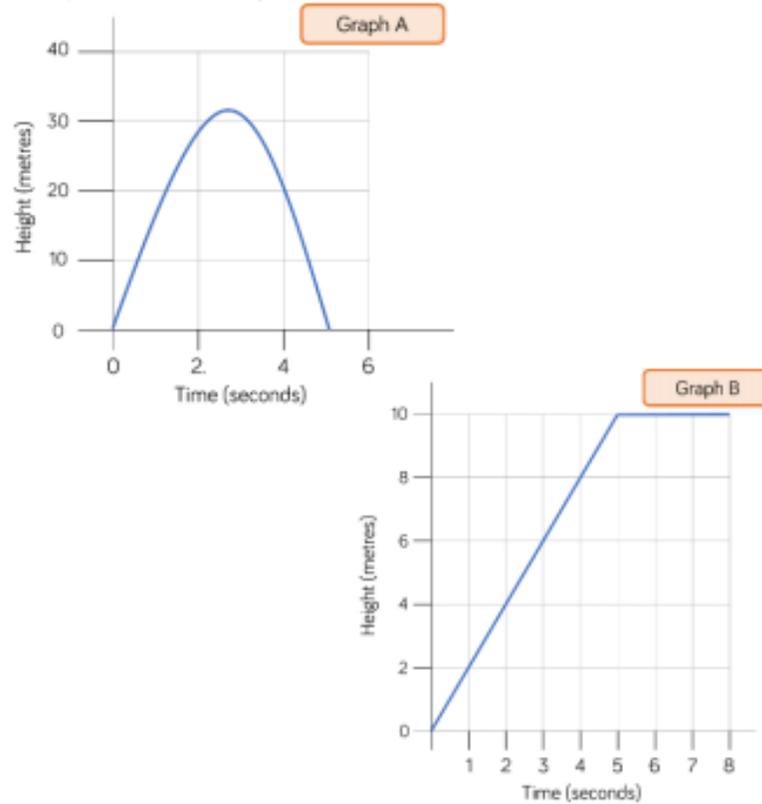
The temperature didn't go above 10 degrees during the day. There is no need for higher numbers on the scale.

DIVE DEEPER 1

Jack launched a toy rocket into the sky.
After 5 seconds the rocket fell to the
ground.

Which graph shows this?

Explain how you know.



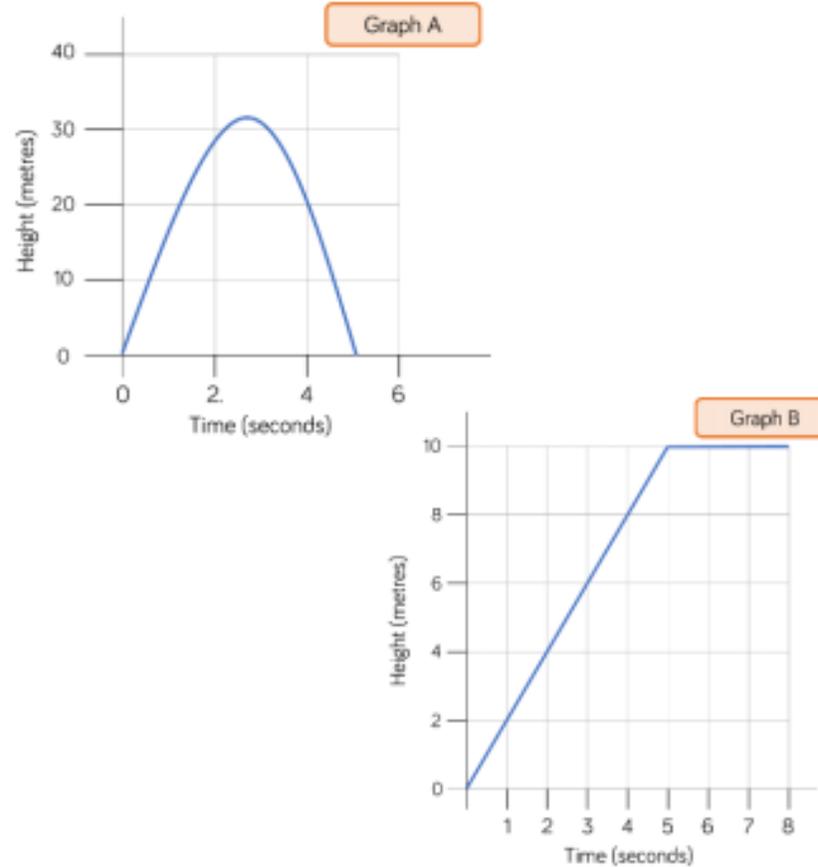
Make up your own story for the other
graph.

DIVE DEEPER 1

answers

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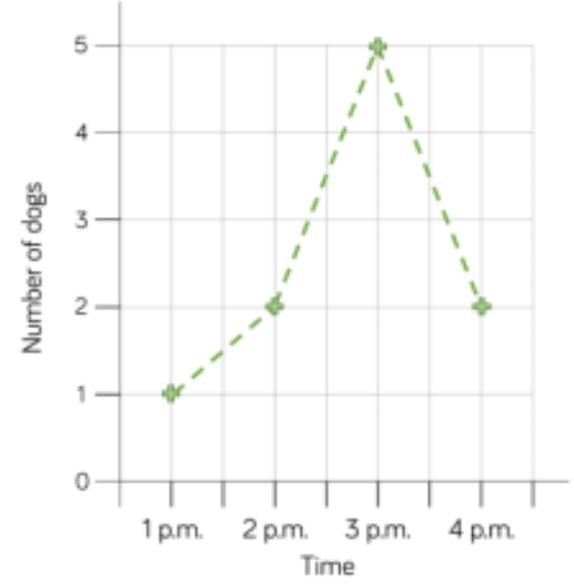
Make up your own story for the other graph.

Graph A
The height of the rocket increases then decreases quickly again, returning to a height of 0 at 5 seconds.

Example story:
A bird flew up from the ground. It continued to fly upwards for 5 seconds then flew at the same height for another 3 seconds.

► DIVE DEEPER 2

Tommy created a line graph to show the number of dogs walking in the park one afternoon.



Tommy says,



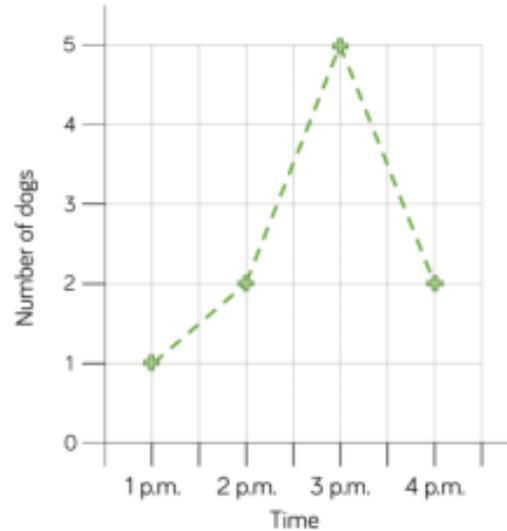
At half past one there are 1.5 dogs in the park.

Why is Tommy incorrect?

What would be a better way of presenting this data?

- ▶ DIVE DEEPER 2
- ▶ answers

Tommy created a line graph to show the number of dogs walking in the park one afternoon.



Tommy says,



At half past one there are 1.5 dogs in the park.

Why is Tommy incorrect?

What would be a better way of presenting this data?

Tommy is incorrect because you cannot have 1.5 dogs.

A better way of presenting this data would be using a bar chart, pictogram or table because the data is discrete.

Self assessment - how did you do?

- ▶ SOME WILL EVEN use the vocabulary of discrete and continuous data to explain when line graphs are suitable to show data (DD2)
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