

# Reasoning and Problem Solving – Use Line Graphs to Solve Problems

## 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 (Problem Solving)

**Developing** Find the variation in values with two sets of data.

**Expected** Find the variation in values with three sets of data.

**Greater Depth** Find the variation in values with two sets of data.

Questions 2, 5 and 8 (Reasoning)

**Developing** Describe the similarities and differences in sets of data on a line graph. 2 sets of data.

**Expected** Describe the similarities and differences in sets of data on a line graph. 3 sets of data.

**Greater Depth** Describe the similarities and differences in sets of data on a line graph. 4 sets of data.

Questions 3, 6 and 9 (Problem Solving)

**Developing** Decide what an unlabelled graph could be displaying. Label the title and axes. 2 sets of data.

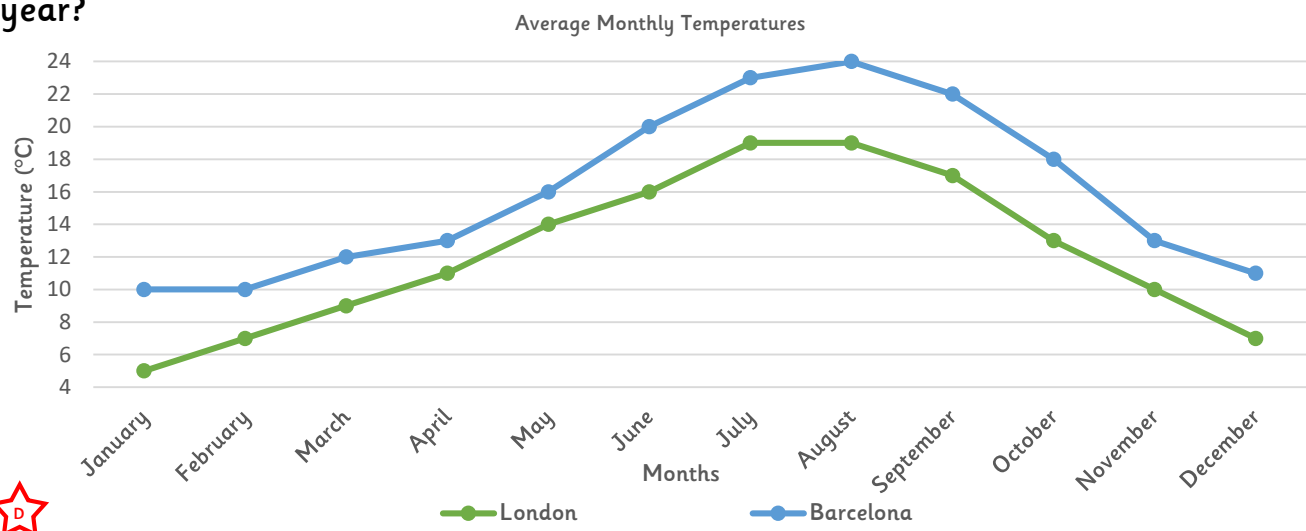
**Expected** Decide what an unlabelled graph could be displaying. Label the title and axes. 3 sets of data.

**Greater Depth** Decide what an unlabelled graph could be displaying. Label the title and axes. 4 sets of data.

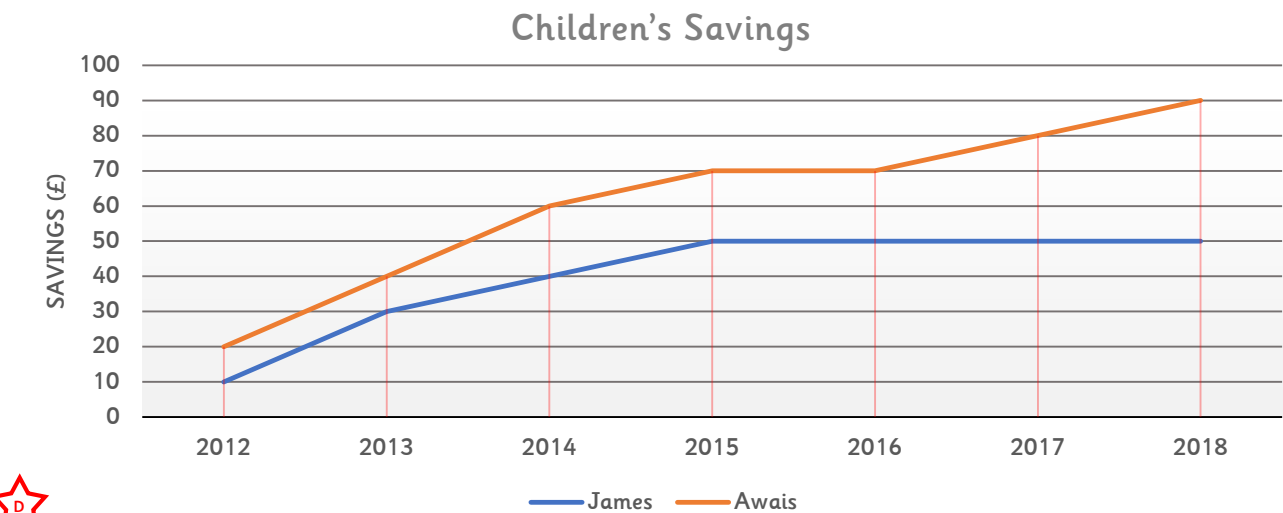
[More resources](#) which follow the same small steps as White Rose.

Did you like this resource? Don't forget to [review](#) it on our website.

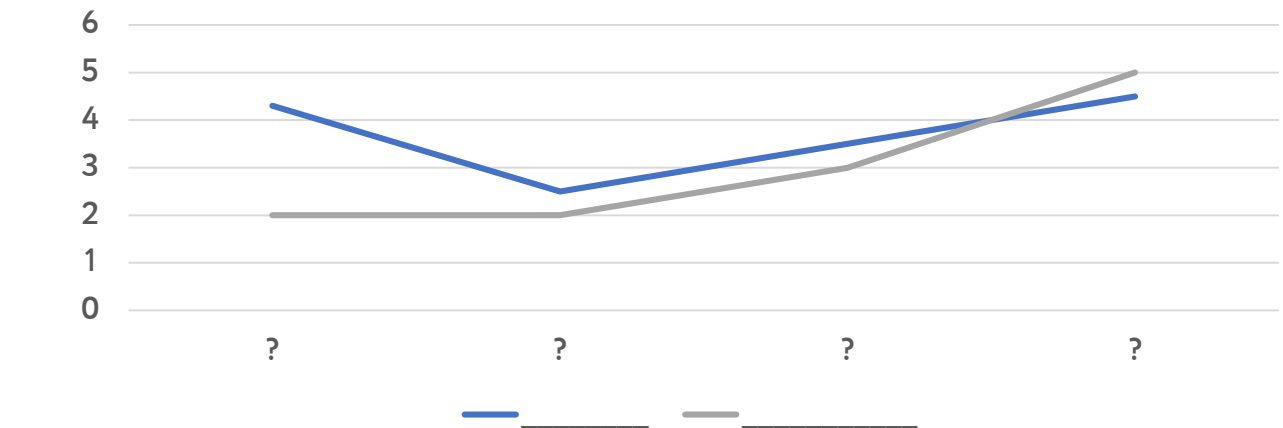
1a. Which place has the widest variation in temperature over the course of the year?



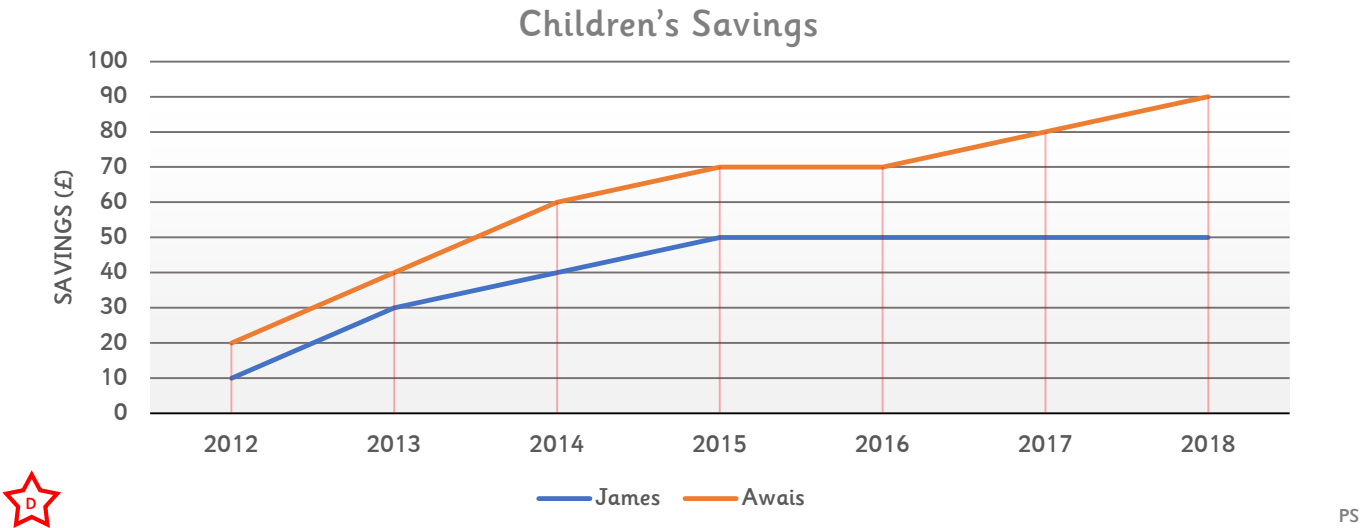
2a. What is the same about these children's savings and what is different?



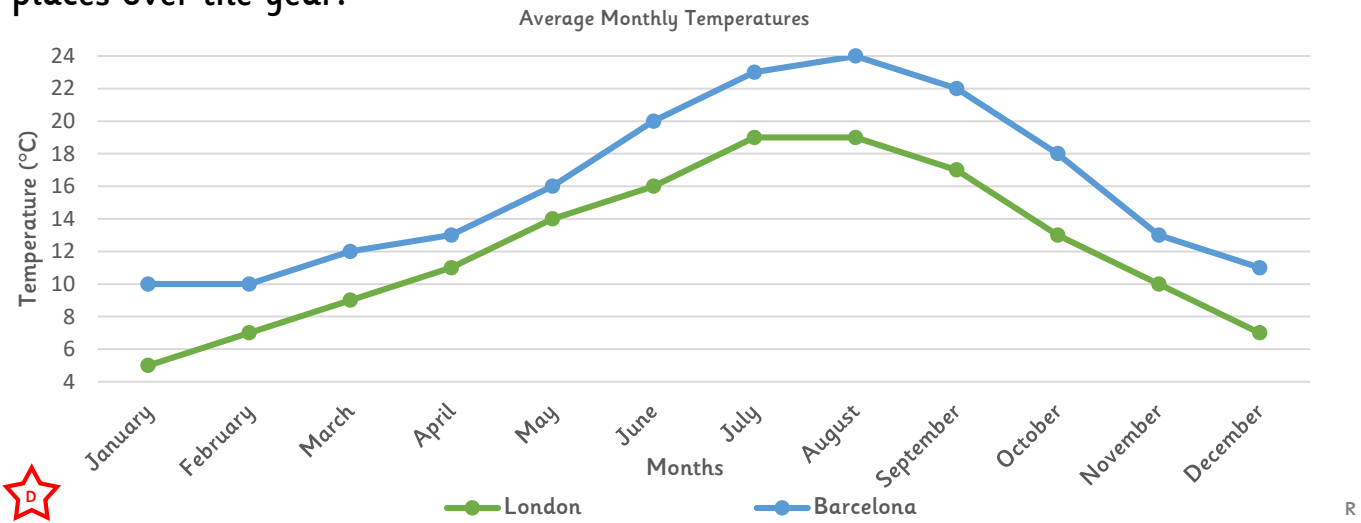
3a. What could this graph be showing? Label the graph to show what you think it could be about.



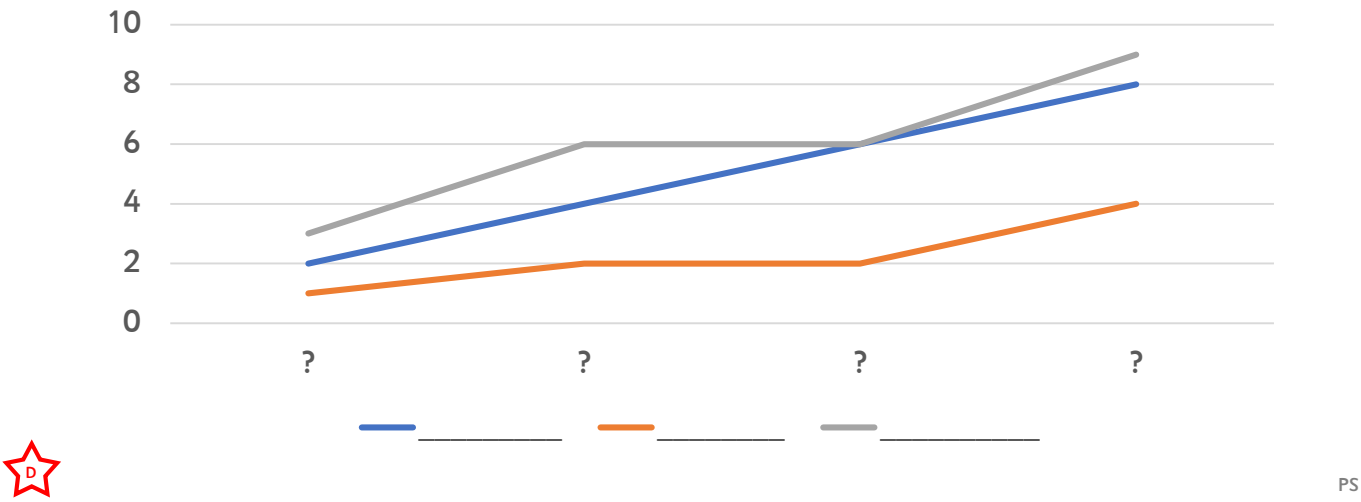
1b. Which child has the widest variation in savings from 2012 to 2015?



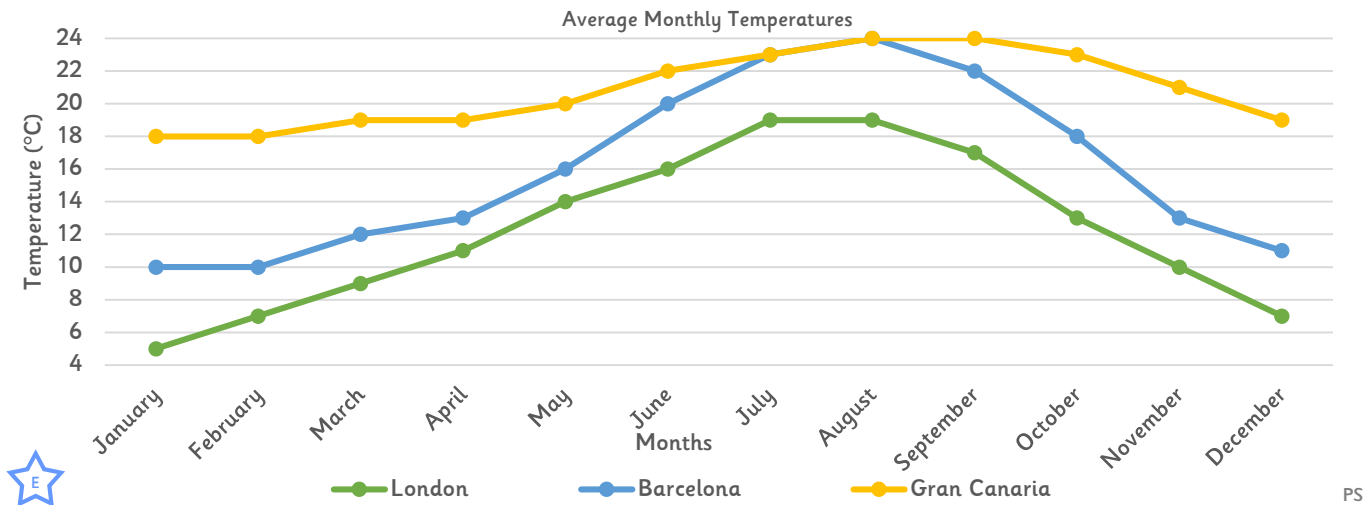
2b. What similarities and differences can you see in the temperatures of these places over the year?



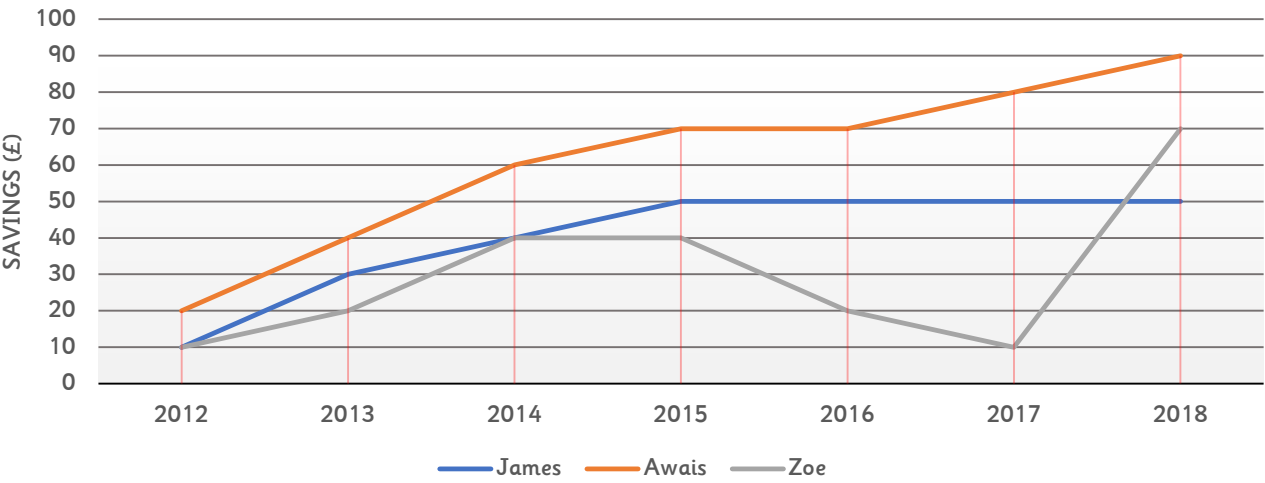
3b. What could this graph be showing? Label the graph to show what you think it could be about.



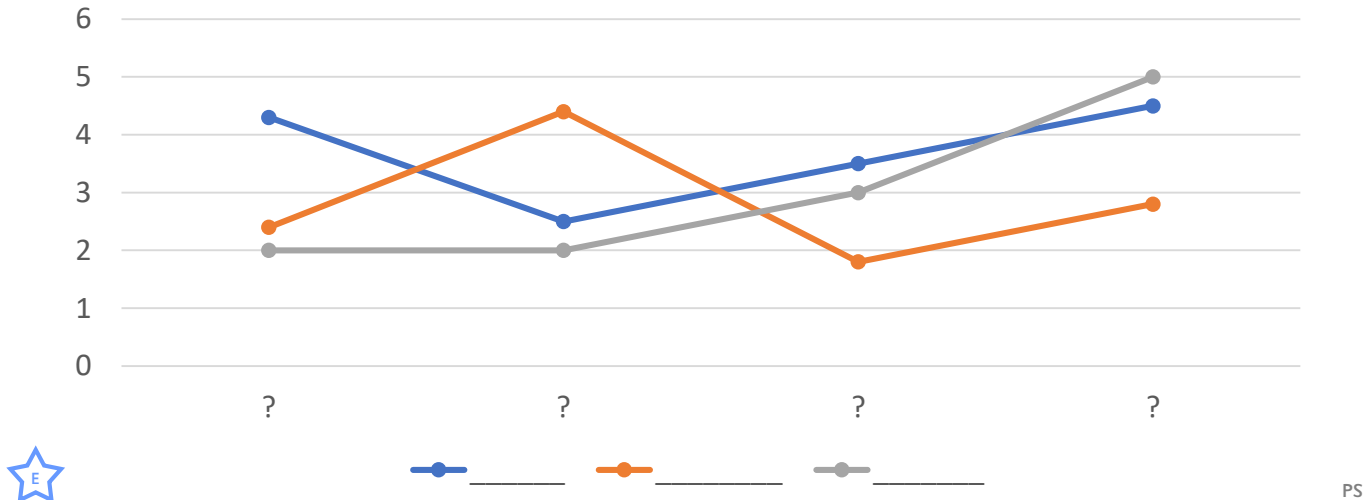
4a. Which place has the least variation in temperature over the course of the year?



5a. What is the same about these children's savings and what is different?  
Children's Savings

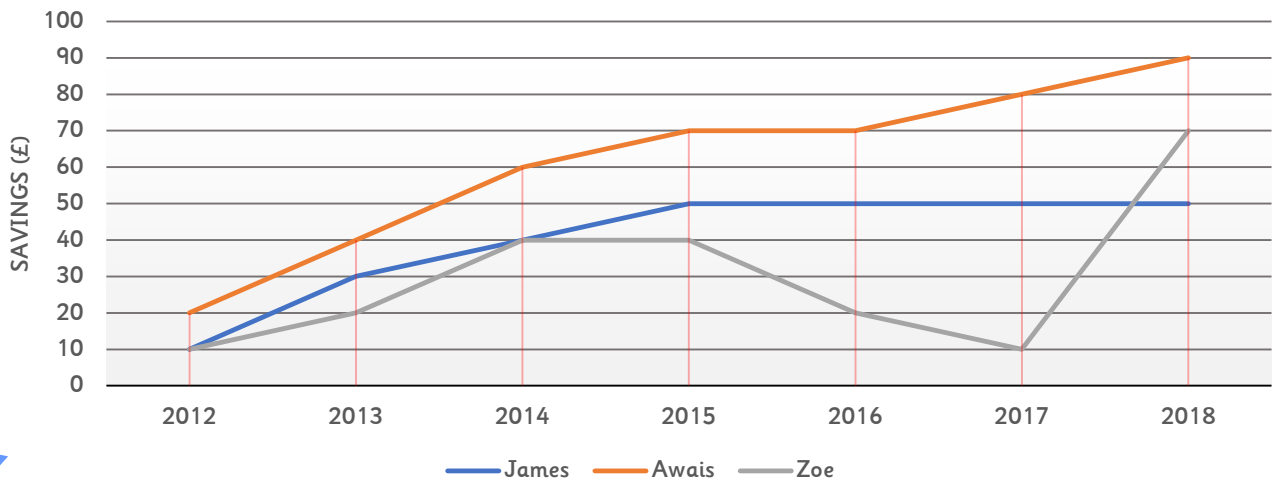


6a. What could this graph be showing? Label the graph to show what you think it could be about.

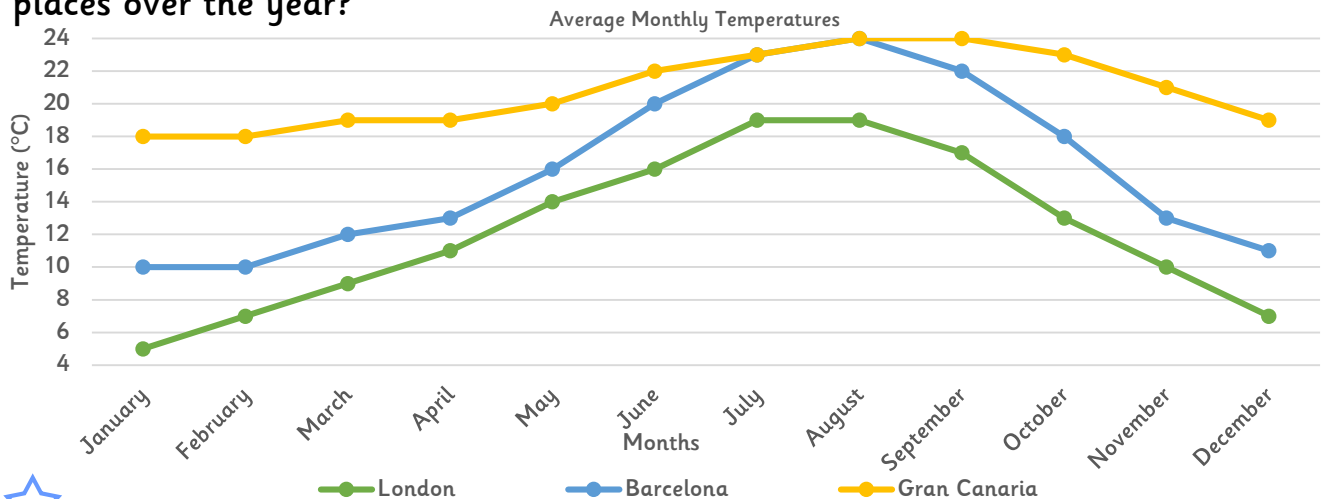


4b. Which child has the smallest variation in savings from 2012 to 2015?

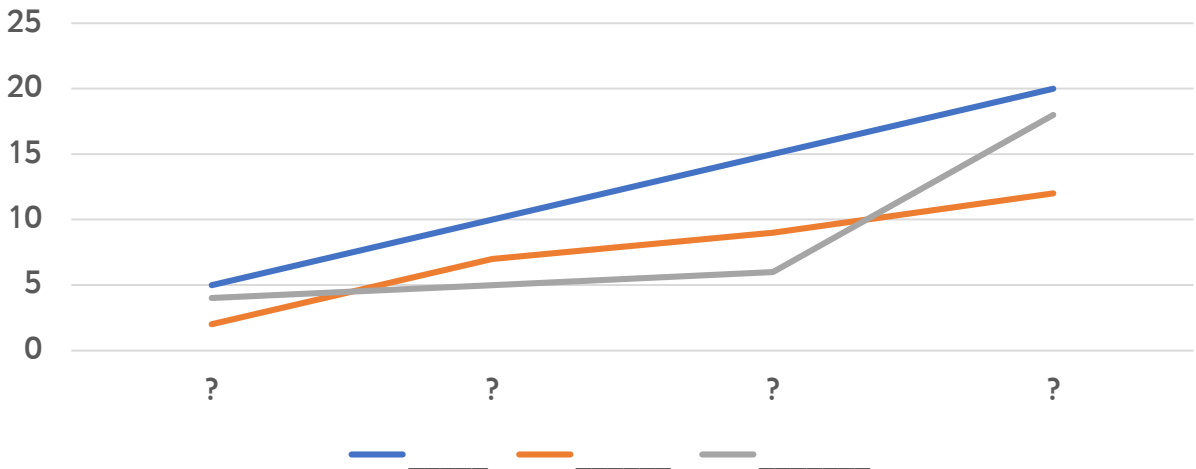
Children’s Savings



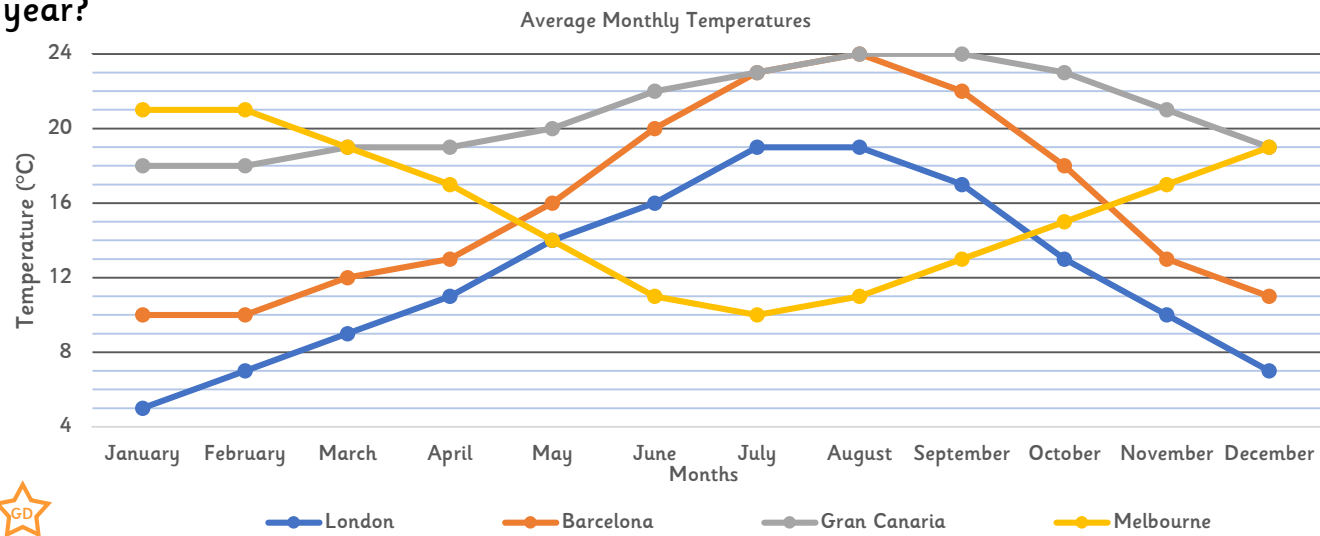
5b. What similarities and differences can you see in the temperatures of these places over the year?



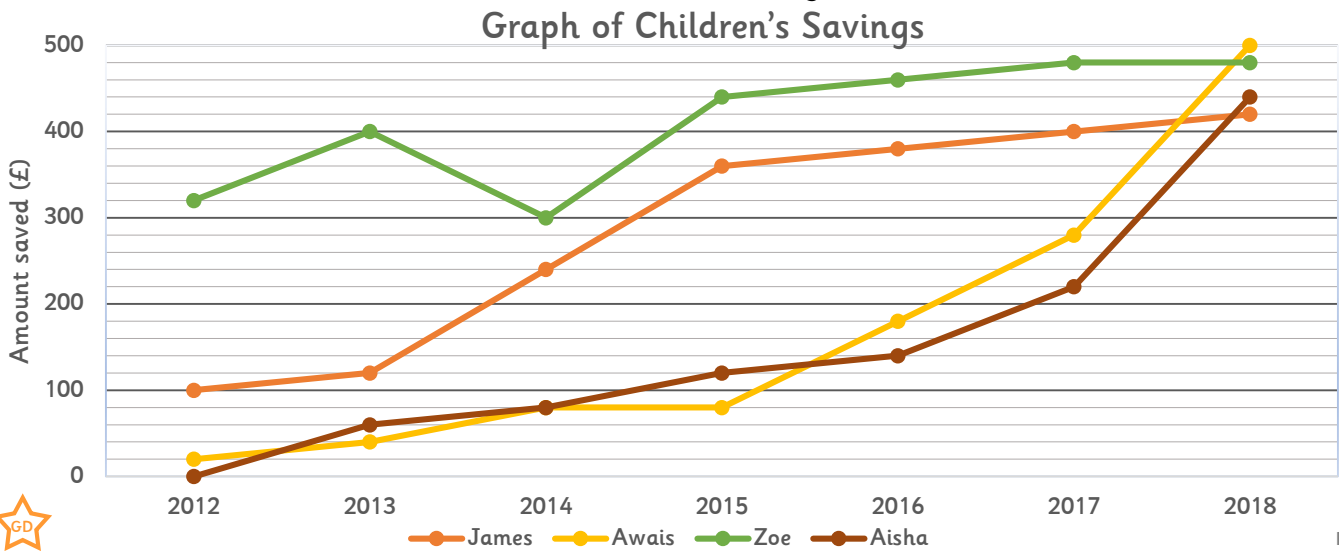
6b. What could this graph be showing? Label the graph to show what you think it could be about.



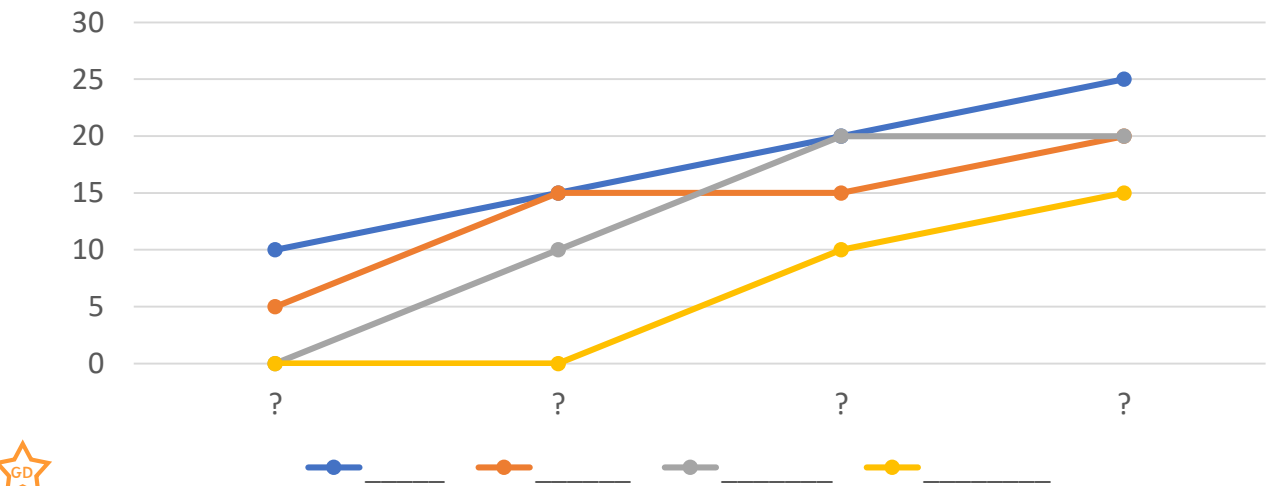
7a. Which country has the widest variation in temperature over the course of the year?



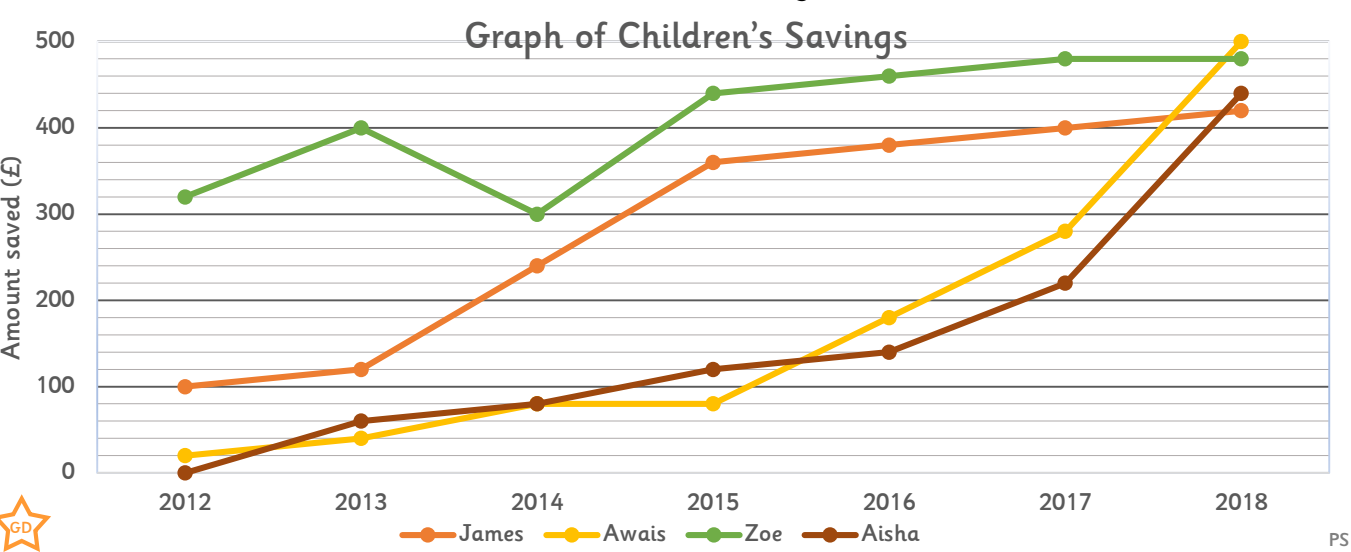
8a. What is the same about these children's savings and what is different?



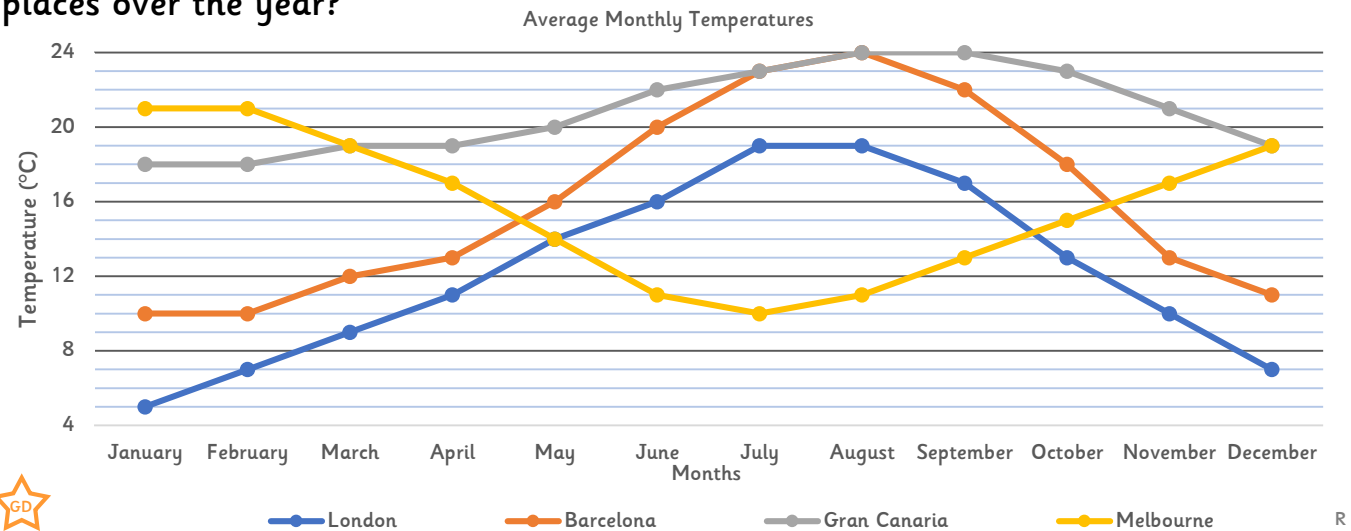
9a. What could this graph be showing? Label the graph to show what you think it could be about.



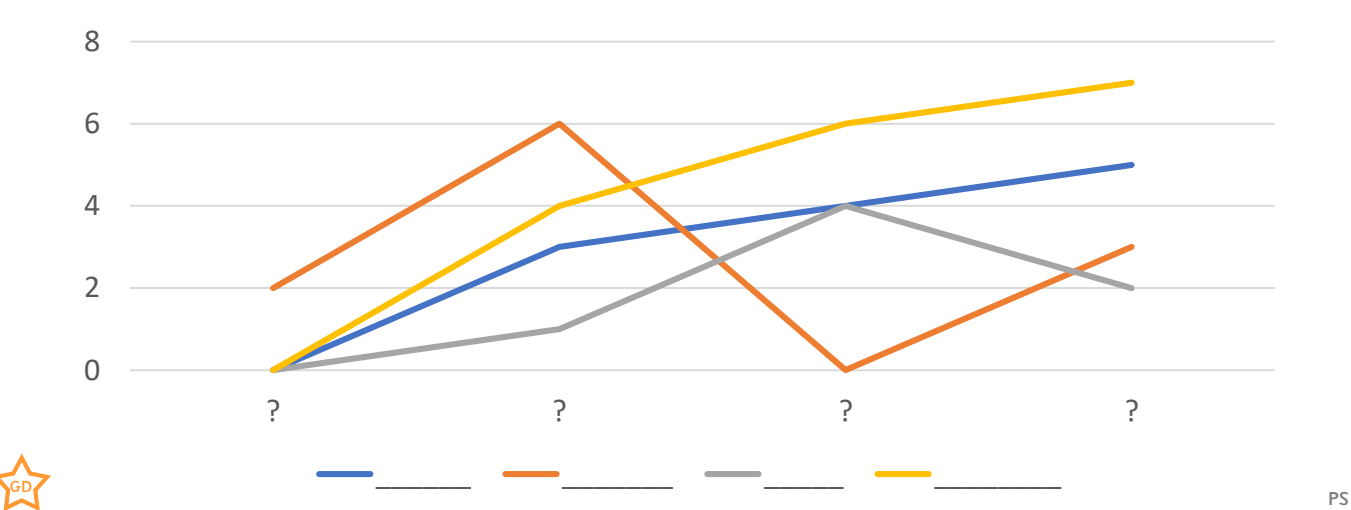
7b. Which child has the widest variation in savings from 2012 to 2015?



8b. What similarities and differences can you see in the temperatures of these places over the year?



9b. What could this graph be showing? Label the graph to show what you think it could be about.



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## Developing

- 1a. They have the same variation of  $14^{\circ}\text{C}$ .
- 1b. Awais has the widest variation from 2012 to 2015.
- 2a. Various answers; for example, they both increase over time. One child starts with more than the other.
- 2b. Various answers; for example, they are both hotter in summer and colder in winter. Barcelona is hotter all year.
- 3a. Various answers; for example, it could show temperature change over time as the lines increase and decrease. With labels to match this.
- 3b. Various answers; for example, it could show miles walked over time as the lines only increase. With labels to match this.

## Expected

- 4a. Gran Canaria has a variation of  $6^{\circ}\text{C}$ .
- 4b. Zoe has the smallest variation between 2012 and 2015.
- 5a. Various answers; for example, they all end with more money than they started with. Zoe's savings decrease from 2015-17; no one else's savings decrease.
- 5b. Various answers; for example, all the places are hottest in the summer and coolest in the winter. Only Barcelona and Gran Canaria go over  $20^{\circ}\text{C}$  while London only reaches  $19^{\circ}\text{C}$ .
- 6a. Various answers; for example, it could show temperature change over time as the lines increase and decrease. With labels to match this.
- 6b. Various answers; for example, it could show miles walked over time as the lines only increase. With labels to match this.

## Greater Depth

- 7a. Barcelona and London have the same variation of  $14^{\circ}\text{C}$ .
- 7b. James has a variation of £260.
- 8a. Various answers; for example, they all end with more money than they started with. Zoe's savings decrease from 2013-14; no one else's saving decrease.
- 8b. Various answers; for example, London, Barcelona and Gran Canaria have a similarity in their seasons. Melbourne is different because its temperature decreases in summer months and increases in winter months.
- 9a. Various answers; for example, it could show miles walked over time as the lines only increase. With labels to match this.
- 9b. Various answers; for example, it could show temperature change over time as the lines increase and decrease. With labels to match this.