Engaging with Data Visualizations - Air Temperatures from Different Locations Activity

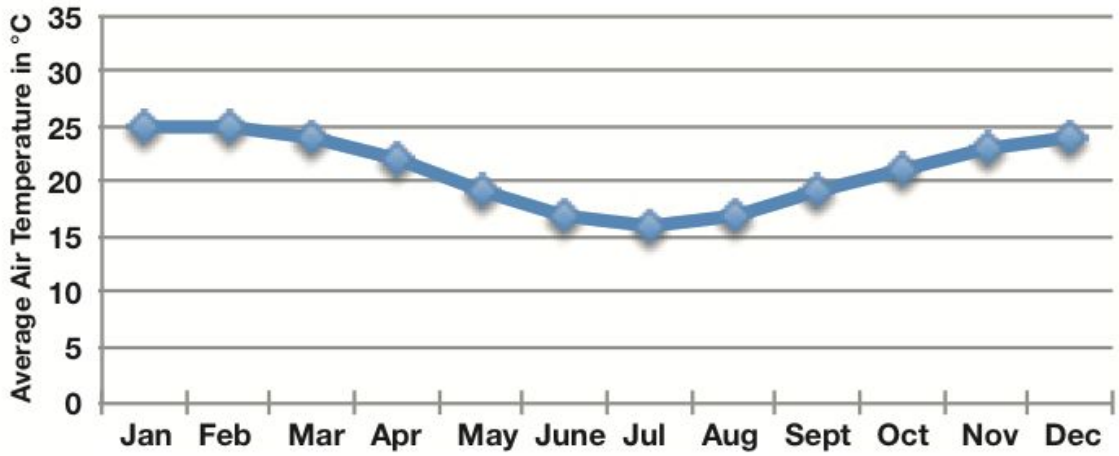
Procedure

1. Interpret the air temperature data plots to determine where they are from in the world.
2. Answer the questions on each handout.

Data Graph

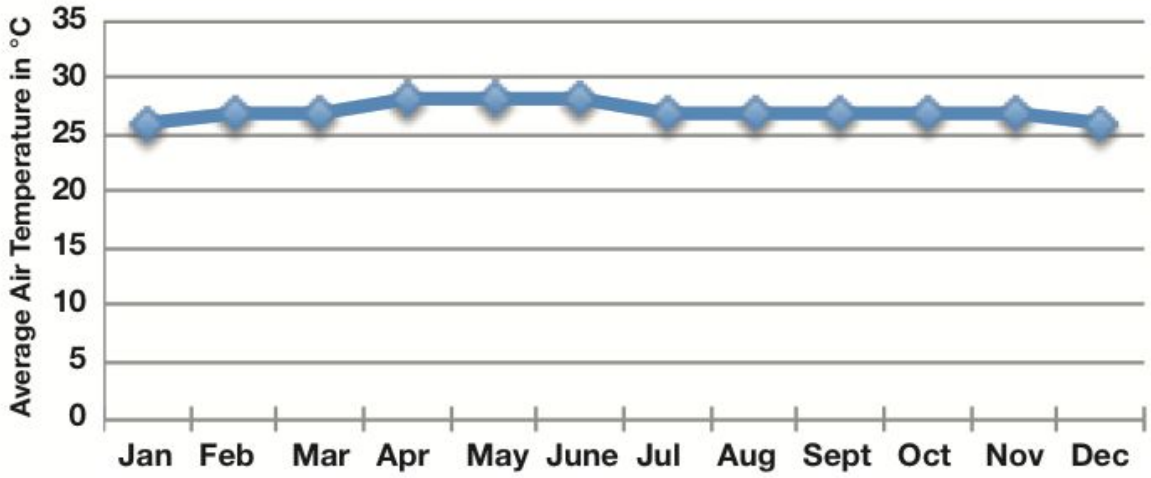
Air Temperature (°C) Over Time for Location Y

Location Y is _____



Air Temperature (°C) Over Time for Location Z

Location Z is _____



Handout A: Orientation

Questions:

1. How do you think the air temperature data were collected? What equipment do you think they used?

2. What variables are you looking at in this data visualization?
    a. Independent Variable:

    b. Dependent Variable:

3. What variable is plotted on the x-axis (horizontal)?

4. What variable is plotted on the y-axis (vertical)?

5. What kind of graph was used to plot the data?

6. Why did you think that kind of graph was chosen to plot the data?

Handout B: Interpretation

Questions:

1. Which graph shows generally warmer average temperatures?

2. What was the range/variation in air temperature for each location:

Location Y: FROM _____ TO _____

Location Z: FROM _____ TO _____

3. Which graph shows a bigger change in temperature over time?

4. Compare the air temperatures over time for the both locations. Is there a pattern? If so, what is the pattern?

5. Are there any outliers in the data? Explain why or why not.

6. Do you think these data are reliable? Explain why or why not.

Handout C: Synthesis

Questions:

1. Explain how the relationship between air temperature and time differs between the two locations.

2. Can you think of an explanation for why this difference exists between the locations?

3. What months are in winter at each of these locations? What months are in summer at each of these locations? Use your data to support your answer.

4. Where do you think each location exists in the world? Use your data to support your answer.

5. What can these data and the patterns tell you about the relationship between air temperature and time in terms of the uneven heating of the Earth by the sun?