“Plan your Vacation” Activity

Step 1 – Play the “Continent Lottery.”

Use a random number generator to select a number 1-8.

1- Continental United States

2- Central America

3 - Canada, Hawaii or Alaska

4 - South America

5 - Europe

6 - Asia

7 - Africa

8 - Australia

Step 2 – Pick your Vacation Destination.

Your destination must be in your randomly-selected “continent” and can not be in the same country as any of your classmates’ destinations. Tell us your country and nearest city and explain why you chose this location. (3-5 sentences)

Step 3 – Find hottest & coldest days of the year (at your destination).

Go to weatherspark.com and find the date and average temperature of the hottest day of the year at your location. Also, write down the date and average temperature of the coldest day of the year at your location.

The Weather Year Round Anywhere on Earth - Weather Spark

Step 4 – Create a “Sinusoidal” function to estimate the average daily temperature ‘d’ days after the hottest day of the year. (You can use the video below to guide you through the process. Just remember to use “degrees fahrenheit” rather than “degrees celsius”)

Trig word problem: modeling annual temperature (video) | Khan Academy

Write your equation here:

Step 5 - Create a Data Table & Graph (and take a screen-shot)

Type your equation into Desmos.com. Don't forget to adjust your window to make your graph visible. Once you enter your equation, create your data table for the following x (# of days) values: 30, 61, 91, 122, 152, 183, 213, 243, 274, 304, 335, 365. **Once you have created your data table & graph, cut & paste a screenshot below.**

Step 6 - Answer each of these questions:

a) **What do you notice about the shape of your graph? Why do you think it's that shape?**

b) **Check your estimated temperature for the coldest day of the year. Did that temperature fall on the actual coldest day of the year? Why do you think it did or didn't?**

c) **Pick 2 other random dates (at least a month away from the hottest and coldest days). Does your equation correctly predict the average temperatures for those days? Why do you think it does or doesn't?**

Step 7 – Reflection

What time of year would you most like to visit your "vacation destination?" Is weather the biggest factor in your decision? What other factors will you consider when you decide when to go? (5-7 sentences)

Honors Section (Extra-Credit for everyone else)

Select a city in another continent (not the same as any of your classmates' cities) and follow the same process.

Step 1 – Pick your alternative Vacation Destination.

Your destination must be in your randomly-selected "continent" and can not be in the same country as any of your classmates' destinations. Tell us your country and nearest city and explain why you chose this location. (3-5 sentences)

Step 2 – Find hottest & coldest days of the year (at your destination).

Go to weatherspark.com and find the date and average temperature of the hottest day of the year at your location. Also, write down the date and average temperature of the coldest day of the year at your location.

The Weather Year Round Anywhere on Earth - Weather Spark

Step 3 – Create a "Sinusoidal" function to estimate the average daily temperature 'd' days after the hottest day of the year. (You can use the video below to guide you through the process. Just remember to use "degrees fahrenheit" rather than "degrees celsius")

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Step 5 - Answer each of these questions:

d) **What do you notice about the shape of your graph? Why do you think it's that shape?**

e) **Check your estimated temperature for the coldest day of the year. Did that temperature fall on the actual coldest day of the year? Why do you think it did or didn't?**

f) **Pick 2 other random dates (at least a month away from the hottest and coldest days). Does your equation correctly predict the average temperatures for those days? Why do you think it does or doesn't?**

Step 6 – Reflection

What time of year would you most like to visit your "vacation destination?" Is weather the biggest factor in your decision? What other factors will you consider when you decide when to go? (5-7 sentences)

Step 7 - Compare your potential Vacation Destinations:

1) Which of these destinations would you prefer if weather was the only thing that you were considering? Explain in 2-3 sentences.

2) Which of these destinations would you prefer if you were not considering the weather at all? (In other words, which destination would you prefer if you could assume that the weather was exactly the same) Explain in 3-5 sentences.

3) Which destination would you choose and what time of year would you choose to go on your vacation? Explain in 2-3 sentences.