Name_____ per_____

Seasons and the Sun - distance inquiry - due Wednesday 2/7

Essential Question:

1. **What effect does the <u>distance</u> between the Earth and the Sun have on the seasons?**

Thinking before

1. If the distance between the Earth and the Sun determined the seasons, when would you expect the Earth to be the closest to the sun?

Month	Earth-Sun distance in AU
Jan	0.9840
Feb	0.9888
Mar	0.9962
Apr	1.0050
May	1.0122
Jun	1.0163
Jul	1.0161
Aug	1.0116
Sep	1.0039
Oct	0.9954
Nov	0.9878
Dec	0.9837

Graphing: create a double-y axis graph using the information in the tables.

Data Analysis - <u>Distance Between the Earth and the Sun</u> graph

Answer the following questions

1. Choose one: The high point in the distance graph shows:
   - ❑ the closest distance between the sun and the Earth.
   - ❑ the farthest distance between the sun and the Earth.
2. Contrast the difference in distance between June and December.

MONTH	PDX AVERAGE LOW TEMPERATURE (°F)	PDX AVERAGE HIGH TEMPERATURE (°F)
Jan	36	47
Feb	36	51
Mar	40	57
Apr	43	61
May	49	68
Jun	54	74
Jul	58	81
Aug	58	81
Sep	53	76
Oct	46	64
Nov	40	53
Dec	35	46

Data Analysis - <u>Average Temperature</u> in Portland, OR.

Answer the following questions

3. Choose one: The high points in the temp. graphs shows:
   - ❑ the warmest temperatures during the year.
   - ❑ the coolest temperatures during the year.
4. The graph shows that <u>distance</u> between the Earth and Sun:
   - ❑ affects the seasons.
   - ❑ does not affect the seasons.

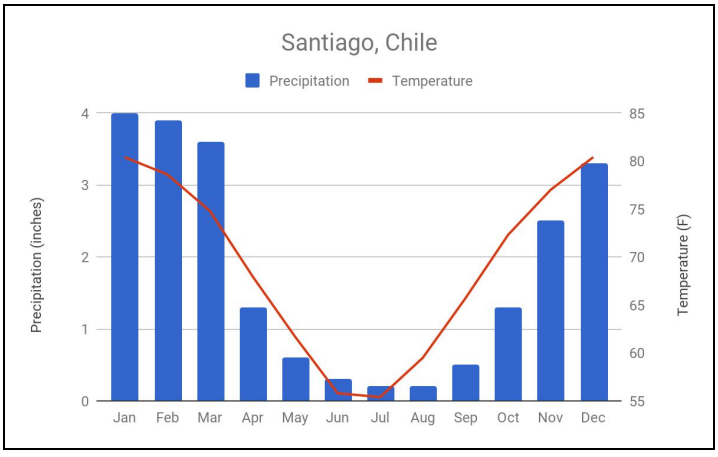
Analysis Questions

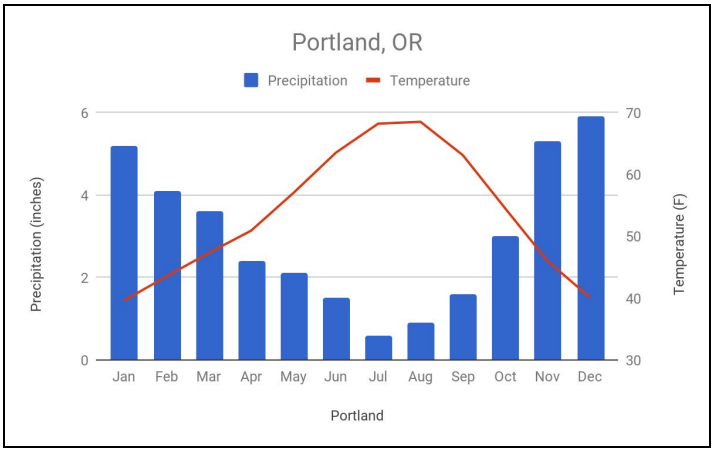
1. Explain your answer to Question #4.

2. Compare and contrast the <u>climographs</u> of Portland (northern hemisphere) and Santiago, Chile (southern hemisphere) on the next page.

3. How are the seasons different in these two places?

4. If you were living in Santiago, Chile, would you have the same conclusion for Question #4 above? Why or why not? Use evidence from all of the graphs.





Science Practices: Science Inquiry

Highly Proficient (4)	Proficient (3)	Close to Proficient (2)	Developing (1)
Proficient, plus: ❏ all answers have evidence and detail. ❏ graphs represent the data at a high level. ❏ The differences between the northern and southern hemisphere is shown	❏ analysis questions are complete and show thought. ❏ Graph is complete, labeled and mostly correct.	❏ Some questions are answered ❏ Answers need more detail for higher level ❏ Some information is incorrect ❏ Graph is attempted.	❏ no graph ❏ questions are mostly incomplete.