Name: _____   Date: _____   Period: _____

Geographical Influences on Climate – Student Capture Sheet

Objective: *Compare temperature and precipitation data to determine the effects of geography on climate.*

Name some geographic features you know. Can you think of any ways they might affect temperature or precipitation?_____

_____

_____

What is the difference between **weather** and **climate**?_____

_____

Refer to the map and climatogram given to you to fill out the information below.

Location: _____

Latitude: _____ Longitude: _____

Elevation of location: _____ (in meters)
Using the guidelines below, how would you describe this elevation? _____

• Close to sea level – up to 35 meters   • High elevation – 1001 to 2000 meters
• Low elevation – 36 to 250 meters   • Very high elev. – 2001 meters or higher
• Medium elevation – 251 to 1000 meters

Is your location near <u>large</u> lakes or oceans? _____

If yes, look at the prevailing wind arrows and describe whether the wind would blow across the water or across land to get to your city. **Note any differences for different seasons.**

_____

_____

_____

_____

Is your location near mountains? _____

If yes, look at the prevailing wind arrows. Would the wind hit the mountains first, then your location, or the reverse? **Note differences for different seasons.___**

_____

_____

_____

Calculate the **mean** precipitation over the entire year: _____ (mm/month)
→ Convert that to inches/month: _____
(1 mm = 0.04 in)

Do you notice any patterns in precipitation? (For example, months or seasons that are rainier or drier than others.) _____

_____

_____

Calculate the **mean** temperature over the entire year: _____ (in ˚C)
→Convert that to ˚F _____
(formula is: °*C* x 9/5 - 32 = °F)

Calculate the **range** of temperatures during the year (subtract highest from lowest – don't forget the math rules for subtracting a negative!): _____(in ˚C)
Do you notice any patterns in temperature? (For example, months or seasons that are warmer or cooler than others, or a generally flat line showing little variation in temperature.) _____

_____

_____

After you have completed the comparison activity, finding patterns in temperature and precipitation in places with similar geographic characteristics, summarize the main points about the impact of geographic features in the boxes below.

Summary of Geographical Influences on Climate

Effect of being **inland/away from water** on temperature and precipitation: _____

_____

_____

_____

_____

_____

Effect of being **coastal/near water** on temperature and precipitation: _____

_____

_____

_____

_____

_____

Effect of **elevation** on temperature and precipitation: _____

_____

_____

_____

_____

_____
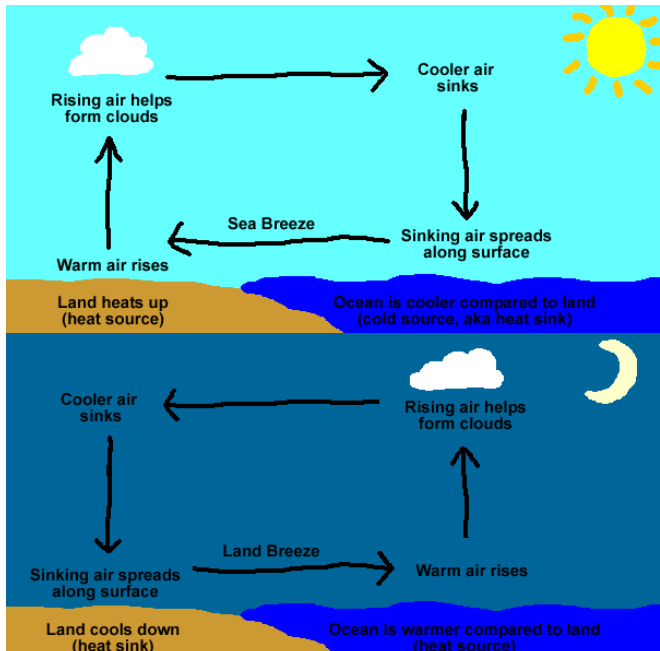
Effect of being **near mountains** on temperature and precipitation: _____
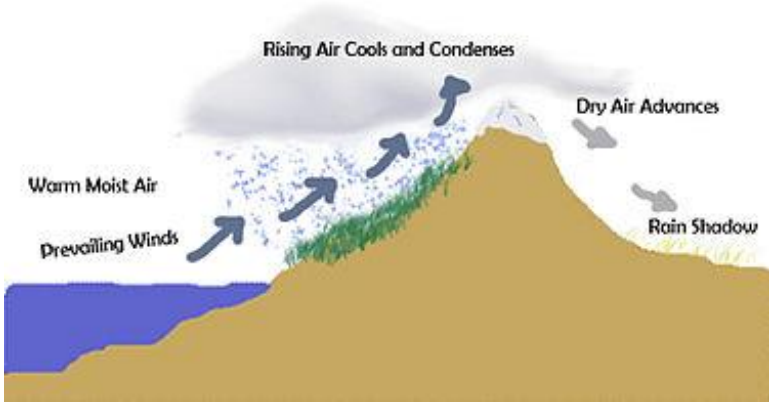
_____

_____

_____

_____

_____

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Name: _____ Date: _____ Pd: _____

Create Your Own Climatogram
DATA COLLECTION – Average Temperature and Precipitation

Refer to the Sources for Climate Data and instructions to collect the data below.

City: _____

Latitude: _____ Longitude: _____

Elevation: _____

Month	Mean Temperature (in ˚C)	Mean Precipitation (in mm)
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		
YEARLY AVERAGE		
RANGE		

To calculate yearly average: add all data points and divide by the number of data points there are (in this case, it is 12 months). To calculate the range: subtract the LARGEST – SMALLEST number in the data set. Remember negatives: 10 - (-2) = 10 + 2 = 12 (NOT 8)

Prevailing wind direction: (make notes if the directions changes during different months)

_____

Use this data to create a climatogram (see separate instructions). You will also need to find your location on a map, and note if it is near mountains, large lakes or oceans. Use the checklist on the top of the rubric (back of this paper) to make sure you have included all details on your map and climatogram, and the rubric itself to make sure everything is included in your description of the geographic effects on the climate of your location.

Name: _____   Date: _____   Period: _____

Checklist and Rubric for Final Product: Climatogram, Map, and Descriptions

Climatogram:

Overall graph
__ Data is accurate and entered correctly *[3 points]*
__ Title (location name and description, ex: "Rockville, MD Climatogram")
__ Key (both precipitation and temperature data)

Axis labels
__ Temperature (including units, ˚C)
__ Precipitation (including units, mm)
__ Months (correctly marked)

Axis formatting
__ Temperature axis is from -15 to 40
__ Precipitation axis is from 0 to 300 mm

Data labels
__ Precipitation – present and readable
__ Temperature – present and readable

Map:

__ Location correctly marked and labeled on map
__ Latitude listed
__ Longitude listed
__ Prevailing winds marked with arrow(s) *[2 points]*
__ Features (mountains, lakes, oceans etc.) drawn or labeled correctly. *[3 points]*
__ Elevation listed

Overall Score:
Climatogram: ____ / 12
Map: ____ / 9
Descriptions: ____ / 24
        Total: ____ / 35
                _____ %

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Descriptions:

Points	Precipitation	Temperature	Elevation	Geographic Effects of Water	Geographic Effects of Mountains	Overall Effect
4 (100%)	Description includes **yearly average** and **range** and **clearly** and **accurately** describes patterns in the data.	Description includes **yearly average** and **range** and **clearly** and **accurately** describes patterns in the data.	**Elevation data** is given, and the effect of that on temperature is **described clearly and accurately**.	Location of city in **relation to lakes and oceans** is described accurately, and the **effect of bodies of water on temperature and precipitation** is clearly explained.	Where the city is in **relation to mountains** is described, **prevailing wind direction** given, and the **effect of these on temperature and precipitation** is clearly explained.	**Excellent,** with very **clear description**, excellent use of **vocabulary**, and attention to correct **grammar and spelling**.
3.4 (85%)	Missing overall statistics, or with minor errors or lack of clarity.	Missing overall statistics, or with minor errors or lack of clarity	Missing elevation data, but description is accurate.	Overall good, but with minor errors in accuracy, or slight lack of clarity in description.	Overall good, but with minor errors in accuracy, or slight lack of clarity in description.	Good description, some use of science vocabulary, only minor errors in grammar and spelling.
3 (75%)	Some data is missing or inaccurate, or descriptions unclear, but the basic ideas come across.	Some data is missing or inaccurate, or descriptions unclear, but the basic ideas come across.	Some data is missing or inaccurate, or descriptions unclear, but the basic ideas come across.	Some data is missing or inaccurate, or descriptions unclear, but the basic ideas come across.	Some data is missing or inaccurate, or descriptions unclear, but the basic ideas come across.	Fair description, but minimal use of science vocabulary, and noticeable errors in grammar and spelling.
2.6 (65%)	Very unclear or confusing, or with major errors in content.	Very unclear or confusing, or with major errors in content.	Very unclear or confusing, or with major errors in content.	Very unclear or confusing, or with major errors in content.	Very unclear or confusing, or with major errors in content.	Poor description, no use of science vocabulary, and significant errors in grammar and spelling.
0	Not included	Not included	Not included	Not included	Not included	Incomprehensible