Name _____ Date _____

A.P. Environmental Science Mr. Romano

TERRESTRIAL BIOME CLIMATOGRAPHS

So here's the time to connect the dots … We just finished our mini-topic on climate and relived the glory days of Earth Science. This allows for a smoother transition into our next wonderful APES journey: terrestrial biomes and aquatic life zones (can you feel the excitement brewing?) So do you remember how climate is mainly determined by the average temperatures, temperature range, and the amount of precipitation a location receives? Well of course you do! And because of that, I know you are going to get question #29 correct on the climate test tomorrow (Did he just say test? I thought it was a quiz? Oh wait, a quiz is a test. This is so confusing …) Okay, back to connecting the dots… It just so happens that just like climate, biomes are also determined by the average temperatures, temperature range, and the amount of precipitation a location receives. Go figure! A coincidence? I think not… The climate of a location has a ginormous (love that word) effect on the types of organisms that can inhabit an area. So let me introduce some of the definitions from the next topic … Brace yourself...

Biomes are large-scale ecosystems with specific climate characteristics that are inhabited by specific types of plants (**flora**) and animals (**fauna**). Biomes are **climax communities**; biological communities that take a very long time to establish themselves to exist in a balanced state (equilibrium). Now remember, individual biomes do have very clear characteristics, but rarely are their boundaries very distinct. Most biomes blend into each other through transition zones known as **ecotones**. (you should have some recollection of that term from our ecology topic)

A **climatograph**, climograph, climatogram, *or* climogram is a graphical way to illustrate the climate of a location.

To begin our journey into the realm of biomes (and also to give others the chance to catch up with soy, grasshoppers, and guinea hens …), you will create a bunch of climatographs that represent some of the major biomes that exist of the Earth. Your ultimate goal is to be able to observe and analyze the data within a climatograph, and then be able to determine what biome it is representative of.

Procedure:

You will be responsible for completing **6 climatographs**, but I have included some "choice" into this activity.

The climatographs that you must complete are as follows:

1. Singapore, Malaysia
2. Barrow, Alaska
3. Quebec, Canada
4. Hamilton, New York

For climatograph 5, you have a choice… Wichita, Kansas or Nairobi, Kenya

For climatograph 6, you also have a choice… Las Vegas, Nevada or Lima, Peru or Cairo, Egypt

Procedure (continued):

1. Average monthly temperatures have been provided in the data charts.
   Use a red colored pencil to plot the data that represents these temperature values.
   Connect the points with a smooth line.

2. Monthly precipitation totals have also been provided. Usually precipitation is plotted as a bar graph. In this activity, use a blue colored pencil to plot the points and then connect with a smooth line. After connecting the points plotted, shade under the line with the same color blue.

Steps 3-9 will be completed on the Data Chart shown below.

3. Make sure to indicate the locations you chose for climatographs 5 and 6.

4. Calculate the average annual temperature for each location.

5. Calculate the total annual precipitation for each location.

6. Determine the annual temperature range – represent on chart as low temperature to high temperature (do not subtract low from high).

7. Briefly summarize the general temperature and moisture conditions of each location.
   Use words like hot, cold, moderate, average, wet, dry

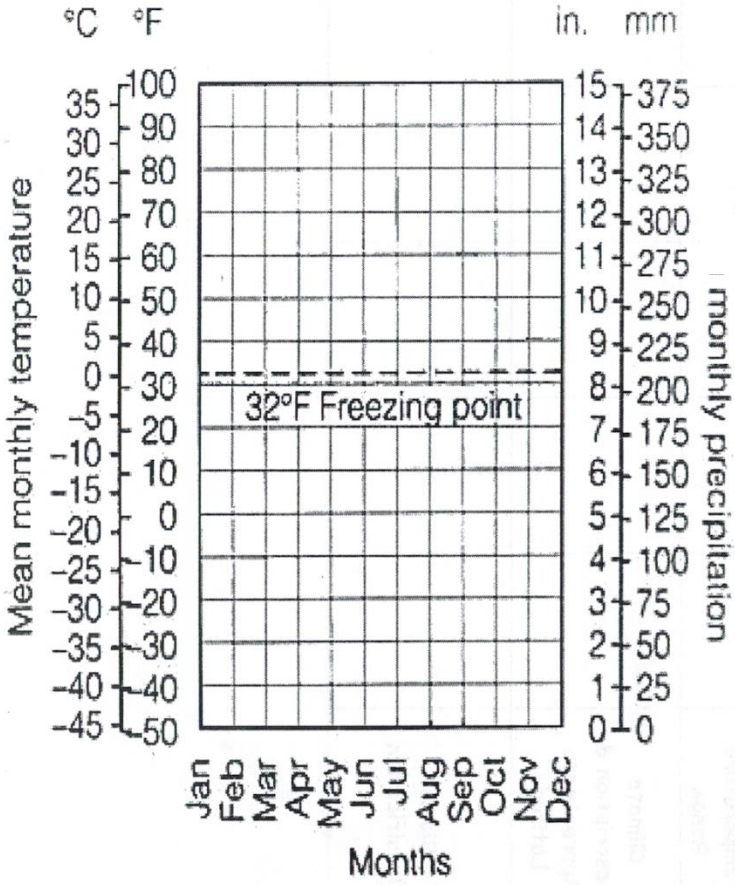
8. Research to find the latitudes of each of the locations.

9. Research to find the name of the biome that each location would be classified as.

	1 Singapore, Malaysia	2 Barrow, Alaska	3 Quebec, Canada	4 Hamilton, New York	5	6
Average Annual Temperature (^oF)						
Total Annual Precipitation (inches)						
Annual Temperature Range						
General Climate Description						
Latitude						
Biome Classification						

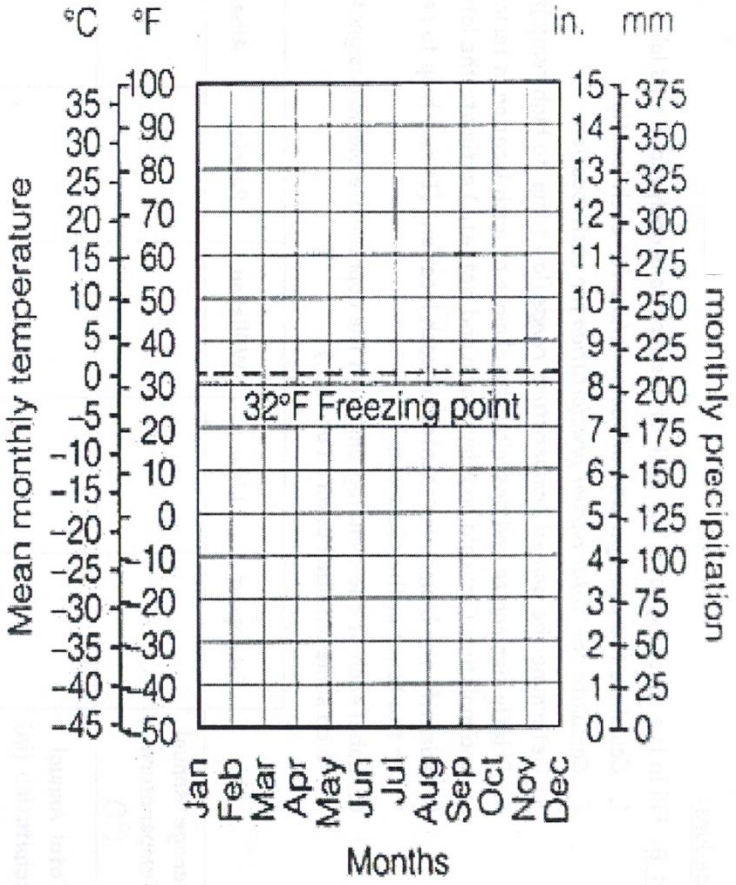
1

Singapore, Malaysia



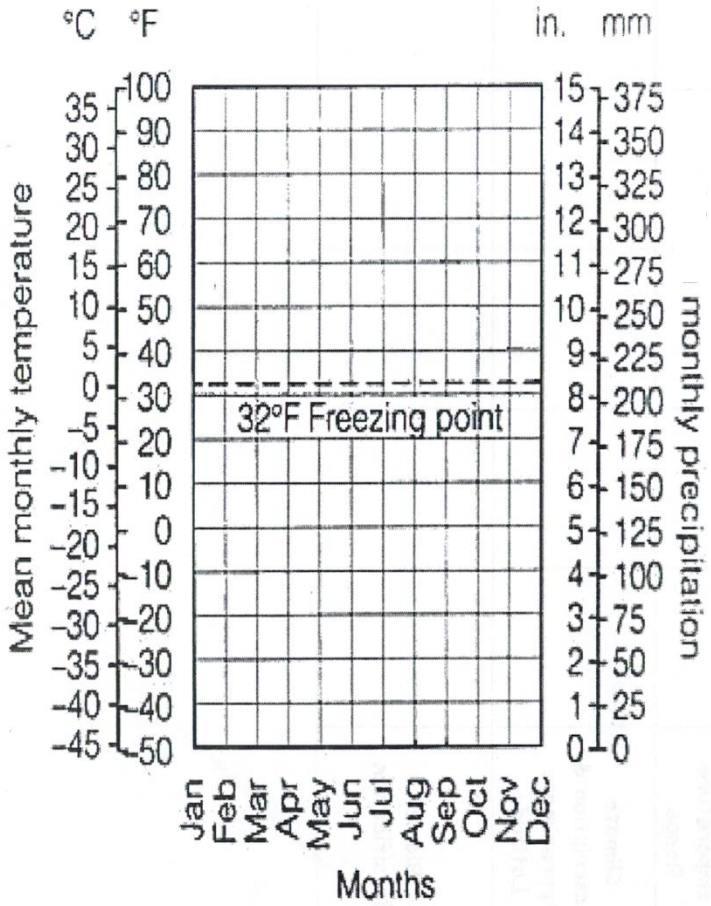
2

Barrow, Alaska



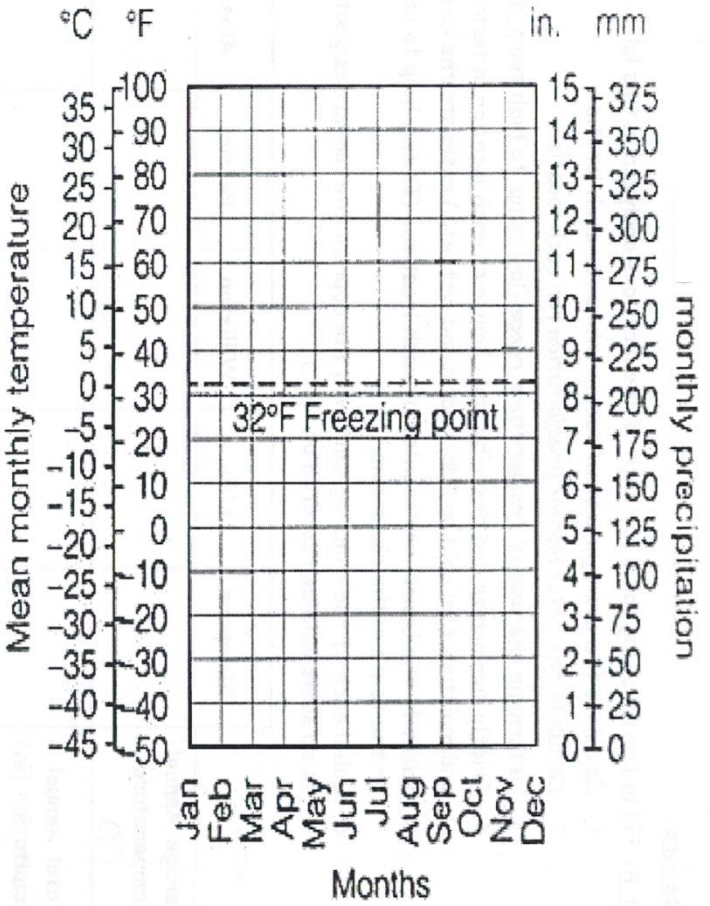
3

Quebec, Canada

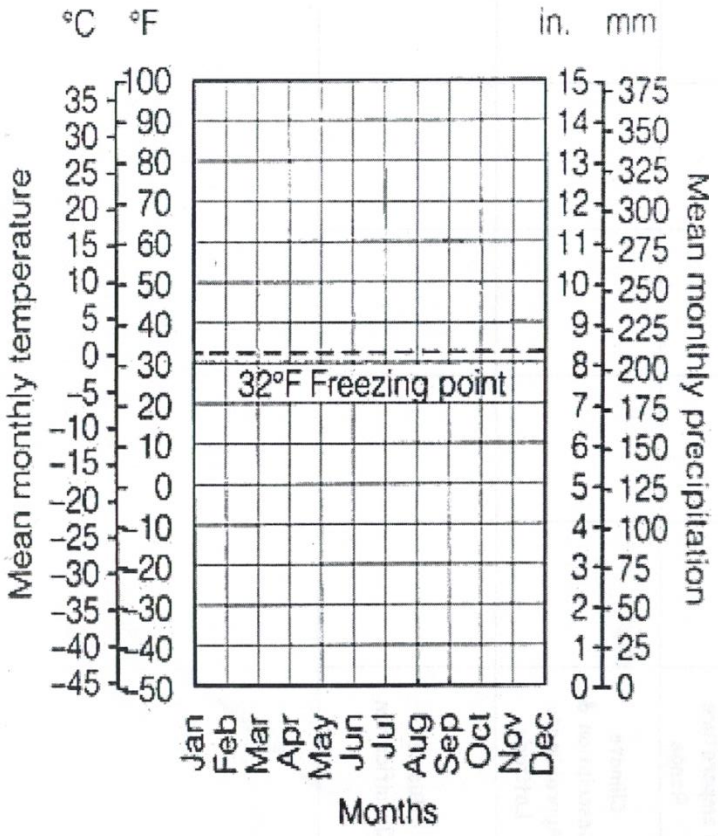


4

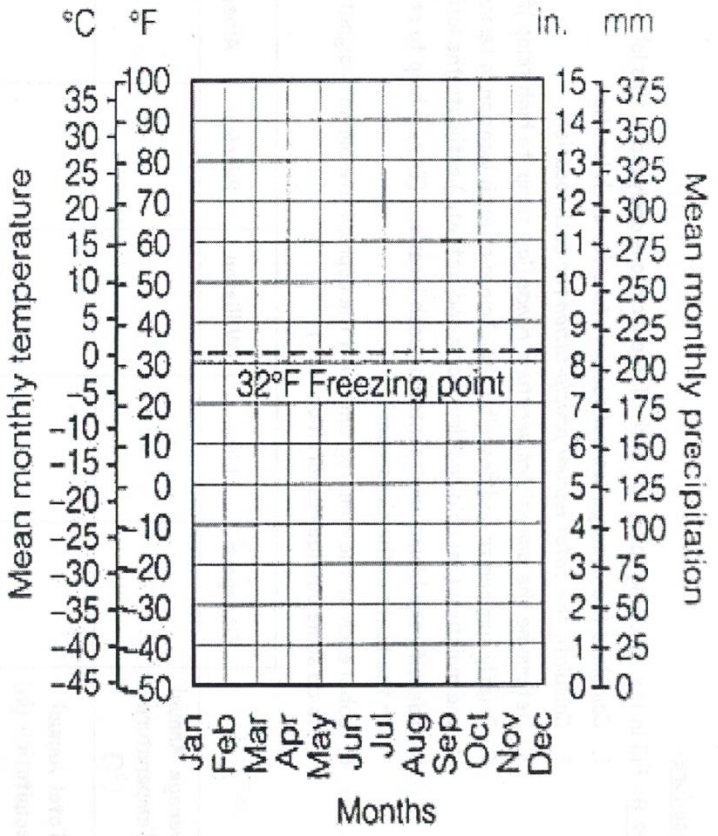
Hamilton, New York



5


°C °F
in. mm
Mean monthly temperature
Mean monthly precipitation
32°F Freezing point
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Months

6


°C °F
in. mm
Mean monthly temperature
Mean monthly precipitation
32°F Freezing point
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Months

Data Charts:

1. Singapore, Malaysia

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	79.0	79.9	80.4	81.0	81.3	81.1	80.8	80.4	80.4	80.6	79.9	79.0
Precipitation (inches)	9.8	6.5	7.1	7.3	6.5	6.5	7.1	6.4	6.5	7.7	10.3	11.7

2. Barrow, Alaska

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	-13.9	-17.5	-14.3	-0.4	19.8	34.5	39.7	38.1	30.9	14.7	-0.4	-11.2
Precipitation (inches)	0.1	0.1	0.1	0.2	0.1	0.3	0.9	1.0	0.6	0.4	0.2	0.1

3. Quebec, Canada

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	12.0	14.5	25.2	39.4	52.2	61.9	67.8	64.4	55.9	45.1	32.9	17.4
Precipitation (inches)	3.3	2.8	2.8	2.8	3.1	4.5	4.6	4.2	4.1	3.3	3.7	4.6

4. Hamilton, New York

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	20.1	21.6	30.7	43.2	54.1	63.0	67.3	65.5	58.5	47.7	37.2	25.3
Precipitation (inches)	2.6	2.5	3.0	3.3	3.7	4.0	3.6	3.7	3.9	3.4	3.7	3.2

CHOOSE ONE:

5. Wichita, Kansas

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	30.4	35.8	44.4	56.5	66.0	75.2	81.0	79.2	70.3	59.0	44.6	34.3
Precipitation (inches)	0.7	1.0	2.1	2.7	4.2	4.5	3.6	3.2	3.6	2.7	1.5	1.1

Or

5. Nairobi, Kenya

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	67.5	68.4	69.3	68.4	66.4	64.0	62.1	63.0	65.5	67.6	66.7	66.6
Precipitation (inches)	1.9	2.0	3.6	7.5	5.7	1.4	0.6	0.8	0.8	2.0	5.0	3.1

CHOOSE ONE:

6. Las Vegas, Nevada

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	44.8	50.0	55.8	63.9	73.2	82.8	88.9	87.3	79.2	66.9	53.6	45.0
Precipitation (inches)	0.5	0.5	0.4	0.2	0.2	0.1	0.4	0.5	0.4	0.4	0.5	0.3

Or

6. Lima, Peru

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	72.0	73.4	72.5	69.6	65.3	61.5	60.3	59.5	60.3	62.1	64.4	67.3
Precipitation (inches)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0

Or

6. Cairo, Egypt

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	55.6	57.4	63.3	69.3	75.4	80.6	81.7	82.0	79.4	75.3	66.6	59.2
Precipitation (inches)	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2