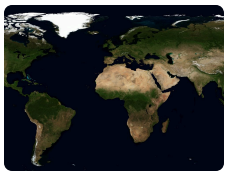
Climate Draws the Map Lab

Name _____

Date _____

Period _____

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Do Now This is all of Earth's land in July, made from many satellite photos. Find the Equator, across the middle of Africa and South America. 2 minutes, before you open the lab

A. Start at the Equator in Africa and go north. Which colors do you pass, in order?

☐ Green, then tan, then green ☐ Tan, then green, then tan ☐ All one color

B. Name one thing that could make a place green or tan.

_____

☐ I can use temperature and rain to place a biome.

☐ I can name the climate factor behind a pattern on the map.

☐ I can use a model to predict how biomes move, and say what it leaves out.

Part 1. Draw the map (Tab 1)

SEP 4 Analyzing Data · SEP 2 Models · CCC Patterns

Tap all eight places, **A** to **H**. Copy each one from **Your place log**. Then try the **Satellite** and **Sea** layers.

1. Your place log.

Place	A	B	C	D	E	F	G	H
Temp (°F)								
Rain, snow (in)								
Grid says								

2. Pick **Satellite** . At one place the grid says tundra, but the photo shows dark forest. Which place? _____

3. Pick **Sea** . Reef dots in the orange sea: _____ of 20. In the orange sea, the coldest month is at least _____ °F.

READ FIRST. In the lab, find the green **Learn It** box and read it. Then answer 4 to 6.

4. Which biome is each plant built for? Tick one box in each row.

Plant part	Biome
A thick, waxy skin with spines	☐ boreal forest ☐ desert ☐ deciduous forest
Thin, waxy needles, green all year	☐ boreal forest ☐ desert ☐ deciduous forest
Broad, thin leaves that fall in autumn	☐ boreal forest ☐ desert ☐ deciduous forest

5. Why did the grid get that one place wrong? Use the word **average** or **seasons** .

_____

6. Model check. The grid uses only two numbers. Name one thing real plants depend on that it leaves out. How could that change the map?

_____

Part 2. Why there? (Tab 2)

SEP 4 Analyzing Data · SEP 5 Mathematics · CCC Cause and Effect

Pick each cut. Tap its three stops. Copy them from **Your cut log**.

7. Your cut log. °F is temperature. in is inches of rain and snow in a year.

Cut	Stop 1	°F	in	Stop 2	°F	in	Stop 3	°F	in
Down Africa	Sahara			Congo			Kalahari		
Over the mountains	Coast			Crest			Dry side		
Across the Atlantic	Labrador			Ireland			Russia		
Up the Andes	Pacific			Andes			Amazon		

8. Percent less rain = (first − last) ÷ first × 100. From the coast to the dry side: _____ % less rain.

Pacific side to the top of the Andes: _____ °F cooler. Labrador to Ireland: _____ °F warmer.

9. Down Africa, the rain is heaviest at the ☐ Sahara ☐ Congo ☐ Kalahari The two dry stops are both near ☐ 0° ☐ 25° ☐ 50° latitude.

READ FIRST. In the lab, find the green **Learn It** box and read it. Then answer 10 to 12.

10. Which climate factor explains each cut best? Tick one box in each row.

Cut	Main climate factor
Over the mountains	☐ sun and moving air ☐ mountains ☐ ocean current ☐ height
Up the Andes	☐ sun and moving air ☐ mountains ☐ ocean current ☐ height
Down Africa	☐ sun and moving air ☐ mountains ☐ ocean current ☐ height
Across the Atlantic	☐ sun and moving air ☐ mountains ☐ ocean current ☐ height

11. The Sahara and the Kalahari are on opposite sides of the Equator, yet both are dry. Explain why, using the words **rises** and **sinks** .

12. Ireland and Labrador are at the same latitude. Why is Ireland warmer?

Part 3. Change the climate (Tab 3)

SEP 3 · SEP 5 · SEP 7 · CCC Stability and Change

Set each row below. Copy it from **Your run log**. Bright squares on the map changed biome.

13. Your run log.

Warmer	Rain and snow	Tundra (%)	Boreal (%)	Desert (%)	Land that changed (%)
+0 °F	0%				
+4 °F	0%				
+8 °F	0%				
+0 °F	-20%				
+0 °F	+20%				
+4 °F	-20%				

14. Plan check. To see what warming alone does, compare the rows +0, +4 and +8 °F at 0%. Tick one box in each row.

In this test	Job
The tundra's share of land	☐ changed ☐ measured ☐ kept the same
Rain and snow	☐ changed ☐ measured ☐ kept the same
Degrees of warming	☐ changed ☐ measured ☐ kept the same

15. From +0 to +8 °F, tundra lost _____ percentage points of the world's land. That is about _____ % of the tundra. (lost ÷ first × 100)

READ FIRST. In the lab, find the green **Learn It** box and read it. Then answer 16 to 18.

16. Warming moves biomes toward the poles. Why is tundra the biome with the least room to move?

17. Model check. The map changes in one click. Name one way the real world would be different.

18. Argue it. Claim: "*Latitude alone decides what grows in a place.*" Agree or disagree. Give two pieces of evidence with numbers from Parts 1 and 2, and your reasoning.