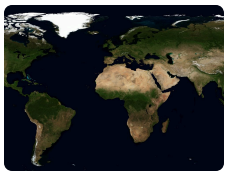
Climate Draws the Map Lab

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. Numbers only are fine. For Grid says, write the first 4 letters.

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

2. Pick **Satellite** . The grid says tundra, but the photo shows dark forest at place ☐ A ☐ D ☐ G

3. Pick **Sea** . Reef dots in the orange sea: _____ of 20. In the orange sea, the coldest month is at least ☐ 32 °F ☐ 64 °F ☐ 90 °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. The grid got that place wrong because a yearly average hides ☐ warm summers ☐ the ocean ☐ the sun

6. Model check. The grid uses only two numbers. It leaves out ☐ soil ☐ fire ☐ people ☐ seasons (tick one or more)

This could change the map because _____

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. Example: 50 inches falls to 10 inches. (50 – 10) ÷ 50 × 100 = 80% less. From the coast to the dry side: _____ % less rain.

Subtract. 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. Word bank: rises, sinks, rain, dry, cold, snow. Near the Equator, warm wet air _____ and drops its _____. Near 25° north and south, that _____ air _____ back down. So both deserts are dry.

12. Ireland is warmer than Labrador at the same latitude because
☐ an ocean current brings heat ☐ it is closer to the sun ☐ it has more mountains

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. Example: a biome falls from 20 to 15. It lost 5 points. 5 ÷ 20 × 100 = 25% of it. From +0 to +8 °F, tundra lost _____ points. That is about _____ % of the tundra.

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

16. Tundra has the least room to move because it is already
☐ at the top of the world ☐ at the Equator ☐ in the sea

17. Model check. In the real world, a forest would move ☐ in one click ☐ over many years ☐ never

18. Argue it. Claim: "*Latitude alone decides what grows in a place.*" I ☐ agree ☐ disagree

Evidence 1: Ireland is _____ °F and Labrador is _____ °F at the same latitude.

Evidence 2: the Oregon coast gets _____ inches and the dry side gets _____ inches at the same latitude.

So _____