Island Climate Clues

Trace how moving water, mountain height, and underground heat shape climate.

6.10.c "Construct an explanation of how altitude, geothermal activity, and oceanic distribution of heat produce typical regional climate patterns."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline a cause and its climate effect for each of ocean heat, altitude, and geothermal heat, then number your three matched pairs 1, 2, and 3.

Three Patterns on One Island

1. Imagine an island where a fishing town sits beside a warm ocean current and a village stands high on a mountain. Both places lie at the same latitude, yet they need different jackets. Sunlight warms the ocean, and moving water carries some of that heat toward the island. Air above the warm water gains heat and moisture. Winds carry that air ashore, so the coast often has milder temperatures and more chances for rain than a place far inland. The ocean also heats and cools slowly, which limits sharp temperature changes near shore.

2. As air moves up the mountain, it expands and cools. The high village is usually cooler than the fishing town, even on the same sunny day. Rising air may drop rain on the slope facing the wind. After crossing the peak, the air sinks and warms, leaving the opposite slope drier. Height above sea level, called altitude, therefore helps explain a cool mountain climate. The mountain can also create a wet side and a dry side. The warm ocean current does not erase these differences in height and rainfall.

3. Near the mountain's base, cracks in the rock release heat from underground. Warm springs and steaming ground show geothermal activity. This heat can warm the ground and nearby air, so plants beside the springs may grow where nearby soil stays too cold. However, a few warm springs do not heat the whole island. Ocean water affects a wide coastal area, altitude shapes conditions across the mountain, and underground heat makes smaller warm spots. To explain the island's climate patterns, compare where each source of heat acts and how far its effects reach.

2 ANSWER WITH EVIDENCE

Use the passage

1. Why does the fishing town have milder temperatures than a place far inland?

2. The high village and fishing town are at the same latitude. Why is the high village usually cooler?

3. How can the same mountain have a wetter slope and a drier slope?

4. Why can plants grow beside the warm springs without the whole island becoming warmer?

3 YOUR TURN

Your own words

A different island has a cool ocean current along its coast, a high plateau inland, and several hot springs beside one town. In four or five sentences, explain likely temperature patterns in these places and identify which influence reaches a wide area and which stays most local.

ANSWER KEY

Island Climate Clues

GRADE 6 · 6.10.c

PART 1 · READ AND MARK

Underline a cause and its climate effect for each of ocean heat, altitude, and geothermal heat, then number your three matched pairs 1, 2, and 3. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Why does the fishing town have milder temperatures than a place far inland?	**A warm current brings ocean heat toward the island, and winds carry warmed air ashore. The ocean also changes temperature slowly, limiting sharp temperature changes near shore.**
2	The high village and fishing town are at the same latitude. Why is the high village usually cooler?	**The village is at a higher altitude. Air expands and cools as it rises up the mountain.**
3	How can the same mountain have a wetter slope and a drier slope?	**Air rises and may drop rain on the slope facing the wind. After crossing the peak, it sinks and warms, leaving the opposite slope drier.**
4	Why can plants grow beside the warm springs without the whole island becoming warmer?	**Geothermal heat warms the ground and air near the springs, but a few springs do not heat the whole island.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The cool ocean current could keep the coast cooler than a coast beside a warm current. The high plateau would usually be cooler than lower land because air cools as it rises. Ground and air close to the hot springs could be warmer than nearby places. Ocean water could affect a wide stretch of coast, and altitude could affect the plateau. Heat from the springs would stay most local.

Accept explanations that connect each climate pattern to a cause, even if students use different wording. For the open task, students should not claim that a few hot springs warm the entire island.