

Water's Climate Cushion

How lakes and oceans soften temperature changes

6.6.e "large bodies of water moderate climate; and"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each sentence that explains how water changes nearby temperatures. Circle words or phrases that compare places near water with inland places, so you can trace how large bodies of water moderate climate.

Near Water, Less Extreme

- ① Cities beside large lakes and oceans often have milder climates than places farther inland at the same latitude. Climate describes usual weather patterns over many years, not one unusual day. Water changes temperature more slowly than land. During a sunny day, land can heat quickly, while nearby water absorbs energy and warms gradually. Air above the cooler water can move toward shore. This helps keep coastal summer days from becoming as hot as inland days nearby.
- ② After sunset, the pattern can reverse. Land loses heat rapidly, but a large body of water releases stored heat slowly. The water is then warmer than the land, so air near the shore is less likely to cool as sharply. This can make nighttime temperatures higher near the water. Across seasons, the same slow warming and cooling can reduce the difference between summer and winter temperatures. Inland areas usually have bigger temperature swings because land heats and cools faster.
- ③ Moderation does not mean every coastal day is mild. Storms, wind direction, clouds, ocean currents, and elevation can affect local temperatures. Also, the effect is strongest close to a large body of water and may weaken farther inland. Think of two towns at similar latitudes, one on an ocean shore and one far from the coast. Over many years, the shore town is likely to have cooler summers, warmer winters, and a smaller yearly temperature range than the nearby inland town.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Why can a place near a large body of water be cooler than an inland place during a sunny summer day?

2 What happens after sunset that can keep nighttime temperatures higher near water?

3 How can a large body of water affect the difference between summer and winter temperatures?

4 Where is the moderating effect of a large body of water strongest, and what happens to the effect farther inland?

3 YOUR TURN _____ Your own words

Imagine two towns at the same latitude. One is beside a large lake, and the other is far inland. Write three or four sentences predicting how their usual summer and winter temperatures would differ. Explain your prediction using how land and water warm and cool.

PART 1 • READ AND MARK

Underline each sentence that explains how water changes nearby temperatures. Circle words or phrases that compare places near water with inland places, so you can trace how large bodies of water moderate climate. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Why can a place near a large body of water be cooler than an inland place during a sunny summer day?	Water absorbs energy and warms gradually, while land heats quickly. Cooler air above the water can move toward shore.
2	What happens after sunset that can keep nighttime temperatures higher near water?	Land loses heat rapidly, but water releases stored heat slowly. The water is warmer than the land, so nearby air does not cool as sharply.
3	How can a large body of water affect the difference between summer and winter temperatures?	Its slow warming and cooling reduce the difference between summer and winter temperatures, creating a smaller yearly temperature range.
4	Where is the moderating effect of a large body of water strongest, and what happens to the effect farther inland?	The effect is strongest close to the water, and it may weaken farther inland.

PART 3 • YOUR TURN (SAMPLE ANSWER)

The lake town would usually have a cooler summer and a warmer winter than the inland town. Lake water warms and cools slowly, while land changes temperature faster. Because of this, the lake town would have a smaller yearly temperature range. The difference would be strongest near the lake.

Accept responses that correctly state that large bodies of water warm and cool more slowly than land, reducing nearby temperature extremes. For the open response, accept equivalent predictions if the student connects them to slower temperature change in water.