

2.1 Climate and Weather

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Main Idea Climate and weather are different, but they both influence life on Earth.

People who live in Sacramento, California, have mild winters. When they go skiing in the nearby Sierra Nevada Mountains, they wear parkas to protect themselves from the colder temperatures. They have adapted to a different climate.

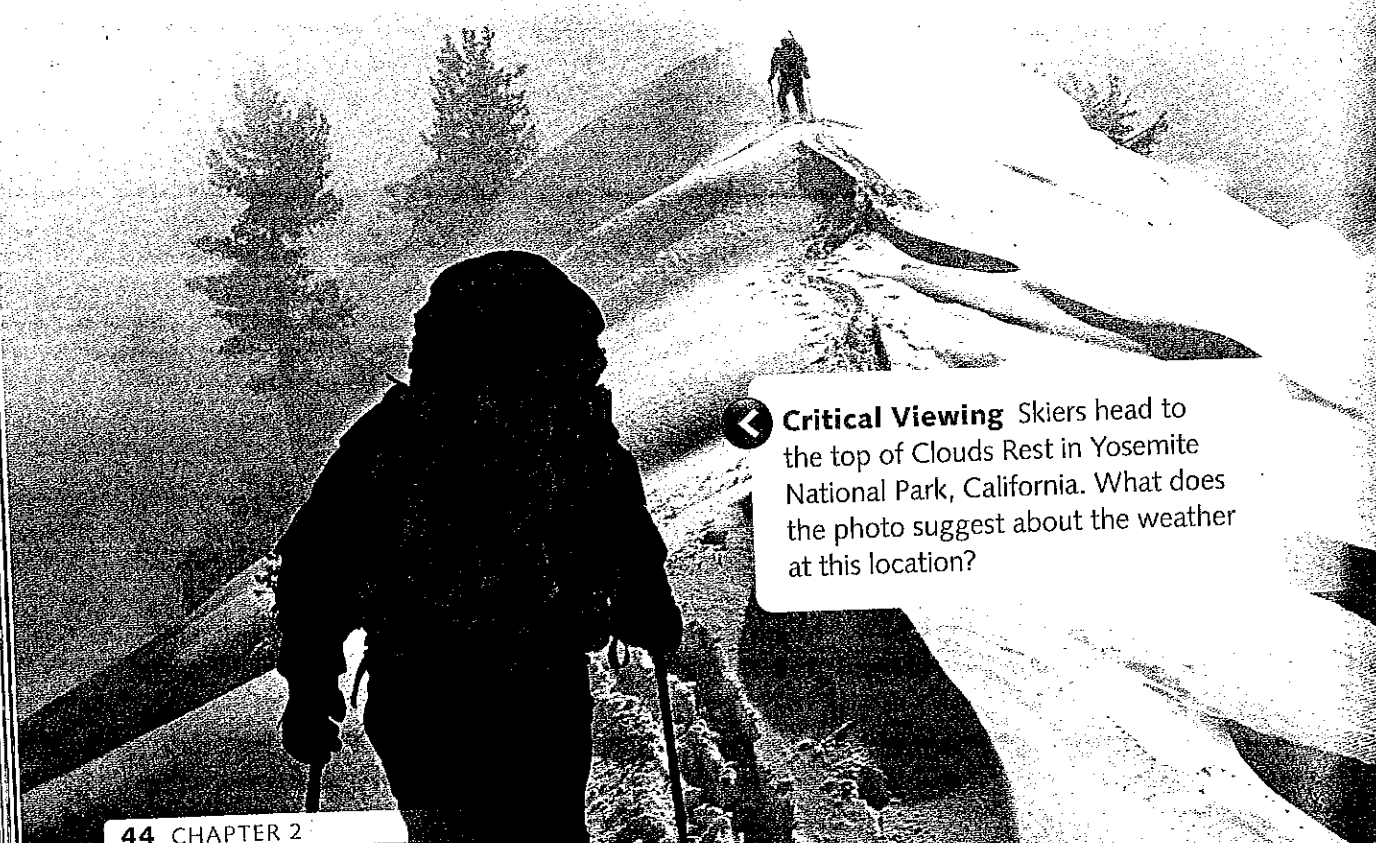
Climate Elements

Climate is the average condition of the atmosphere over a long period of time. It includes average temperature, average precipitation, and the amount of change from one season to another. For example, Fairbanks, Alaska, has a cold climate. In the winter, the temperature can reach -8°F . Yet the temperature can rise to 90°F in the summer. The city goes through changes from one season to another.

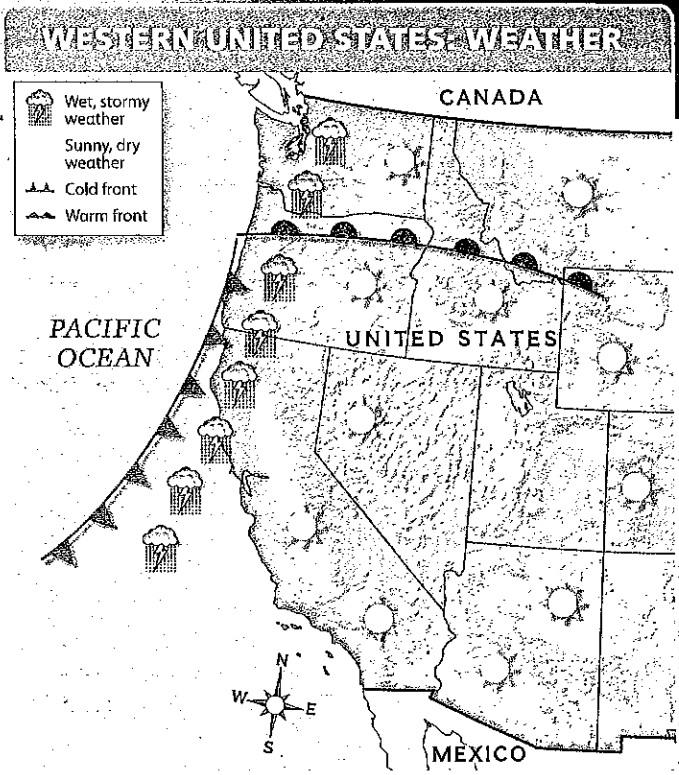
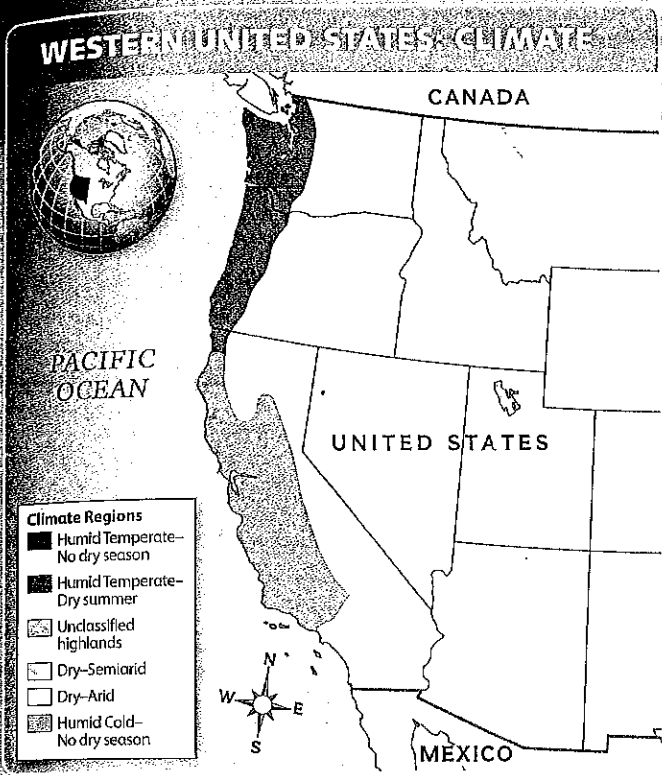
Four factors that affect a region's climate are latitude, elevation, prevailing winds, and ocean currents. Places at high latitudes, such as Fairbanks, experience more change between winter and summer. Places close to the equator have nearly the same temperature throughout the year. Places at higher elevations have generally colder temperatures than places closer to sea level.

Prevailing winds are winds coming from one direction that blow most of the time. In Florida in the summer, the prevailing winds come from the south, making a warm climate even hotter.

Ocean currents also affect climate. The Gulf Stream is a current that carries warm water from the Caribbean Sea toward Europe. Air passing over the water becomes warm and helps create a mild winter climate in England and Ireland.



Critical Viewing Skiers head to the top of Clouds Rest in Yosemite National Park, California. What does the photo suggest about the weather at this location?



Weather Conditions

Weather is the condition of the atmosphere at a particular time. It includes the temperature, precipitation, and humidity for a particular day or week. Humidity is the amount of water vapor in the air. If a weather forecaster says the humidity is at 95 percent, he or she means that the air is holding a large amount of water vapor.

Weather changes because of air masses. An air mass is a large area of air that has the same temperature and humidity. The boundary between two air masses is called a front. If a forecaster talks about a warm, humid front, he or she usually means that thunderstorms are headed toward the area.

Before You Move On

Monitor Comprehension What is the difference between climate and weather?

ONGOING ASSESSMENT MAP LAB

- 1. Interpret Maps** Compare the weather map and the climate map of the western United States. How do you think ocean currents and mountains affect the climate and the weather?
- 2. Make Inferences** How might the climate and weather of the western United States influence everyday life there?
- 3. Place** The chart shows average temperatures and rainfall for Los Angeles, California. Ask and answer questions about the data.

Los Angeles, CA	January	July	November
Temperature (°F)	57.1	69.3	61.6
Rainfall (inches)	2.98	0.03	1.13

Source: National Drought Mitigation Center