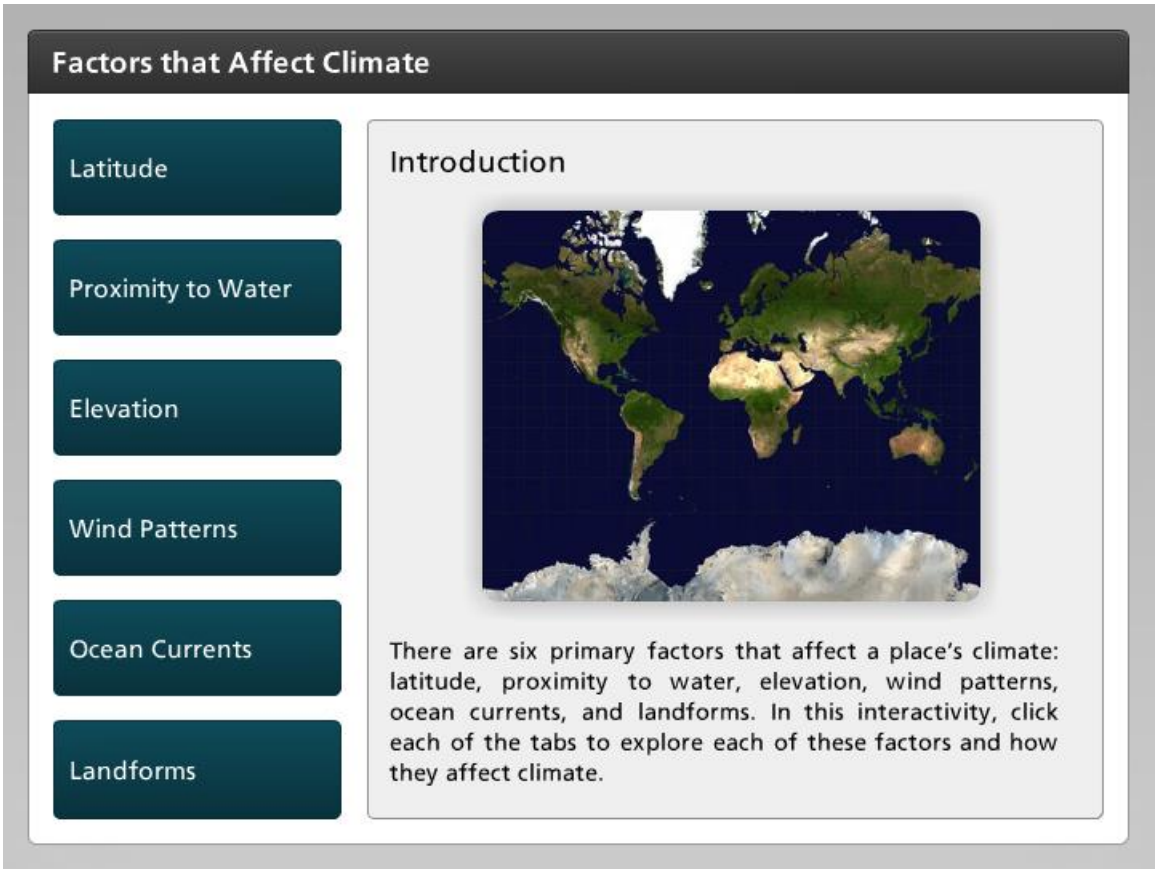
Module 11: Meteorology
Topic 3 Content: Factors that Affect Climate Notes

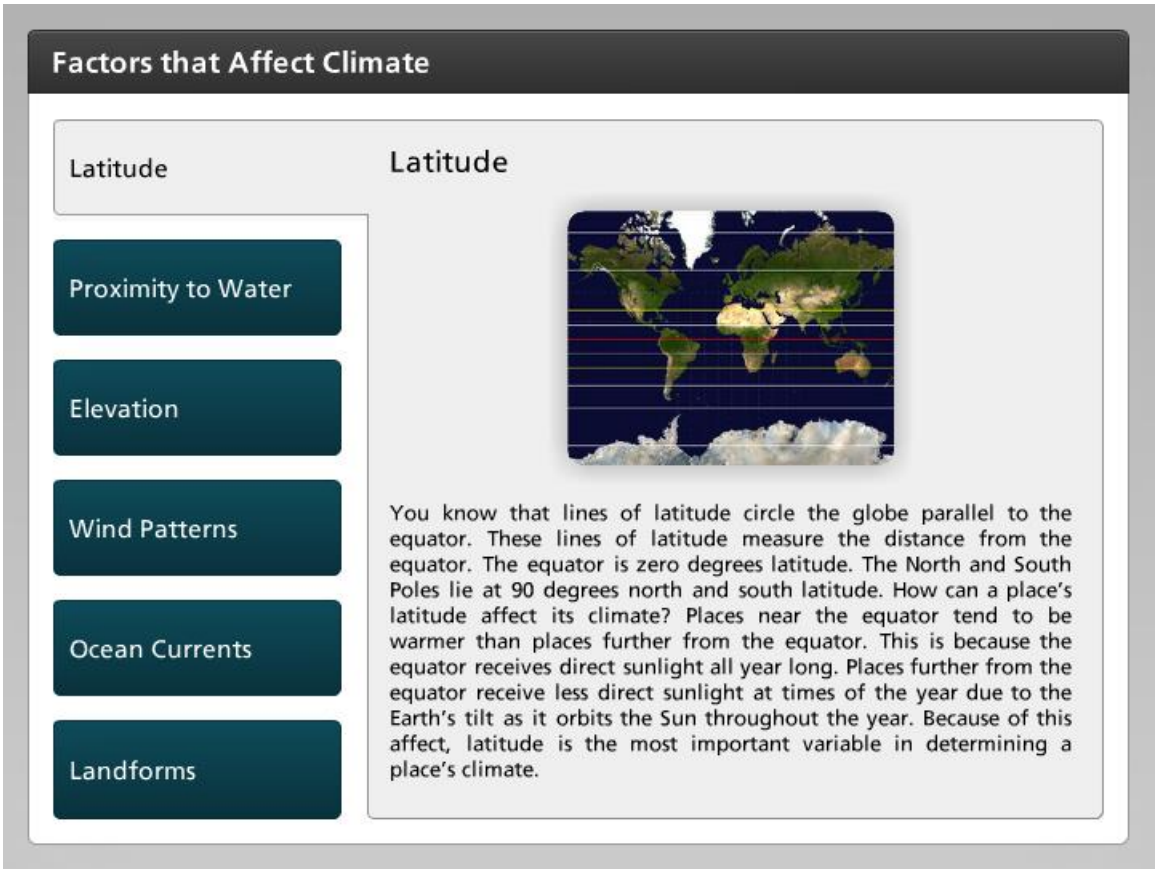
Introduction



There are six primary factors that affect a place's climate: latitude, proximity to water, elevation, wind patterns, ocean currents, and landforms. In this interactivity, click each of the tabs to explore each of these factors and how they affect climate.

Module 11: Meteorology
Topic 3 Content: Factors that Affect Climate Notes

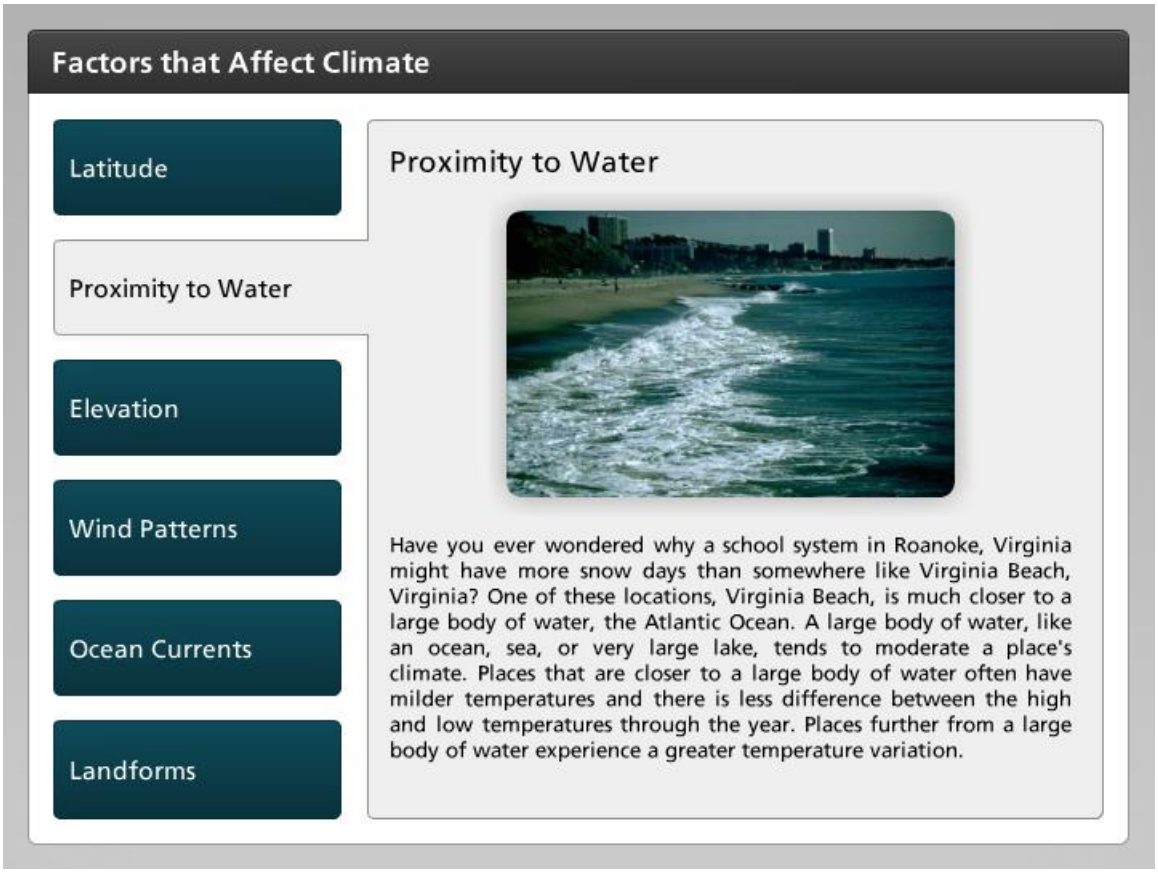
Latitude



You know that lines of latitude circle the globe parallel to the equator. These lines of latitude measure the distance from the equator. The equator is zero degrees latitude. The North and South Poles lie at 90 degrees north and south latitude. How can a place's latitude affect its climate? Places near the equator tend to be warmer than places further from the equator. This is because the equator receives direct sunlight all year long. Places further from the equator receive less direct sunlight at times of the year due to the Earth's tilt as it orbits the Sun throughout the year. Because of this affect, latitude is the most important variable in determining a place's climate.

Module 11: Meteorology
Topic 3 Content: Factors that Affect Climate Notes

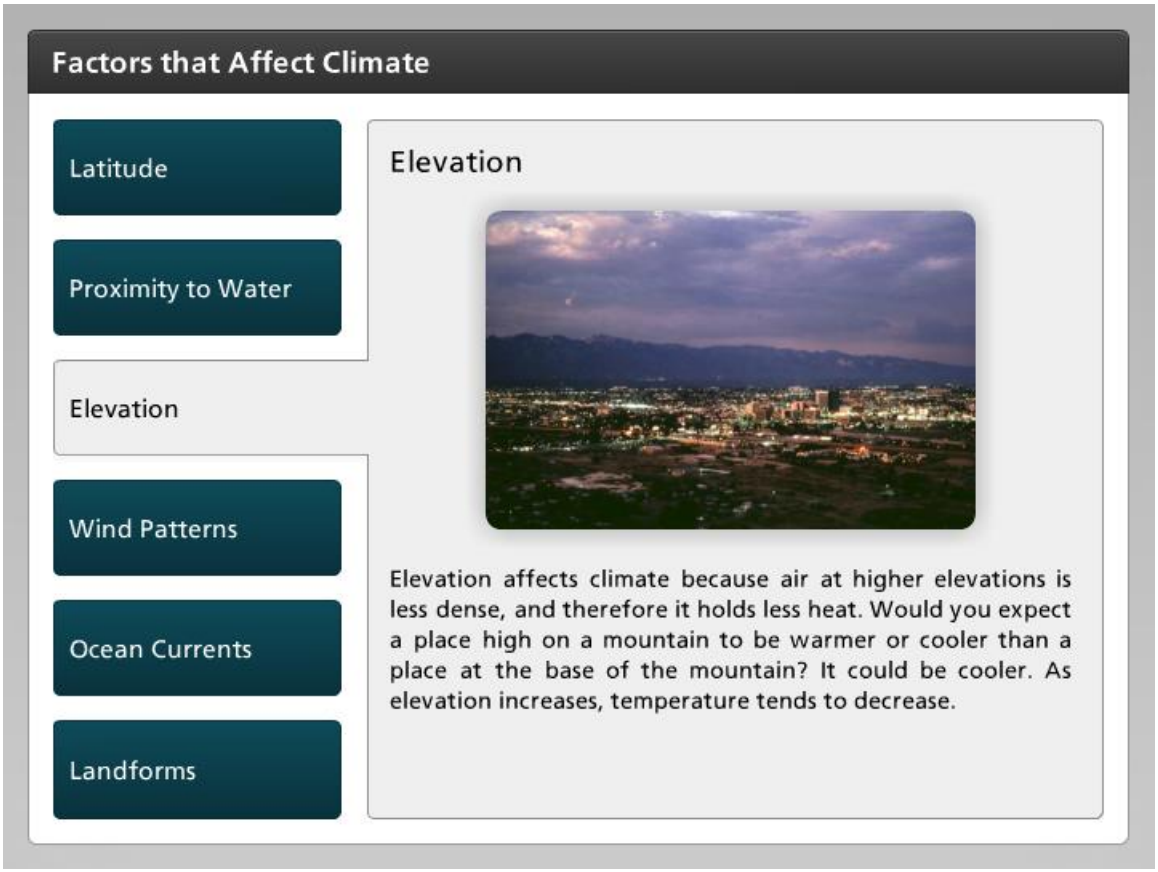
Proximity to Water



Have you ever wondered why a school system in Roanoke, Virginia might have more snow days than somewhere like Virginia Beach, Virginia? One of these locations, Virginia Beach, is much closer to a large body of water, the Atlantic Ocean. A large body of water, like an ocean, sea, or very large lake, tends to moderate a place's climate. Places that are closer to a large body of water often have milder temperatures and there is less difference between the high and low temperatures through the year. Places further from a large body of water experience a greater temperature variation.

Module 11: Meteorology
Topic 3 Content: Factors that Affect Climate Notes

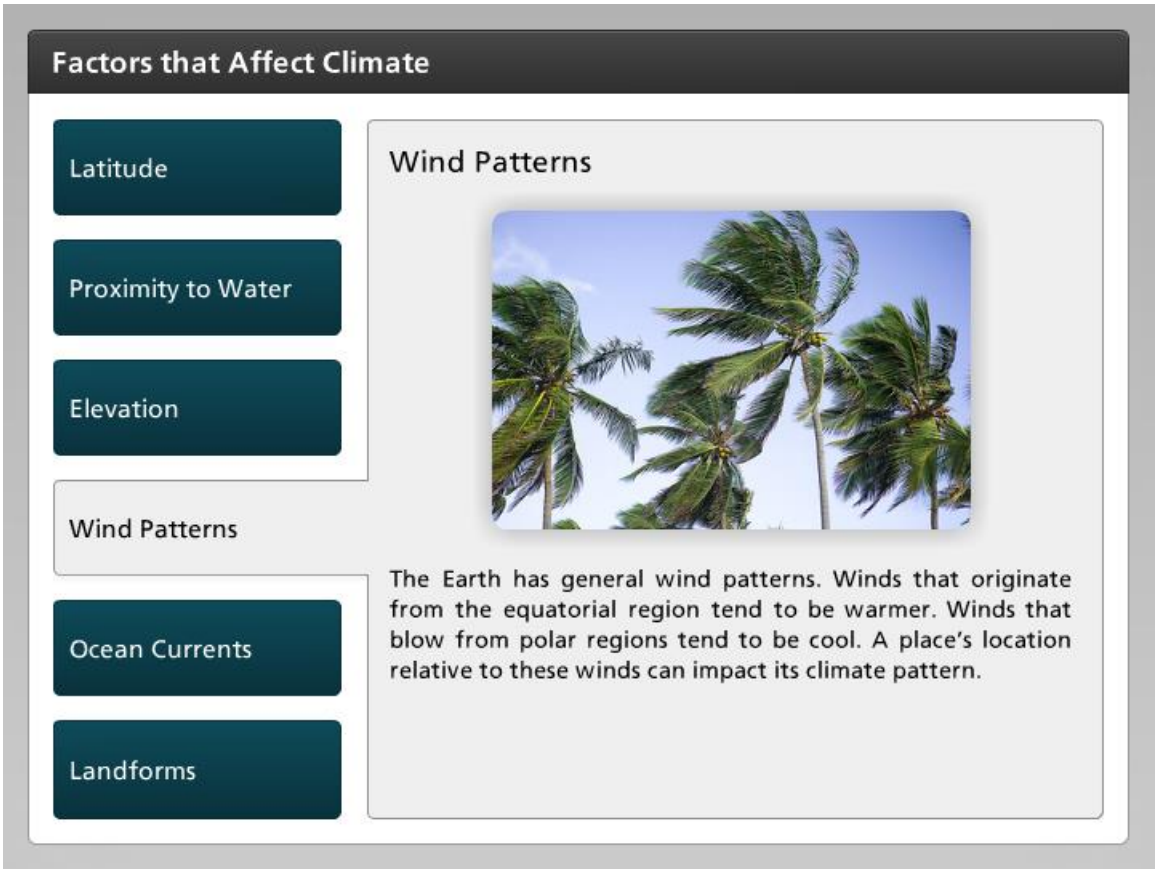
Elevation



Elevation affects climate because air at higher elevations is less dense, and therefore it holds less heat. Would you expect a place high on a mountain to be warmer or cooler than a place at the base of the mountain? It could be cooler. As elevation increases, temperature tends to decrease.

Module 11: Meteorology
Topic 3 Content: Factors that Affect Climate Notes

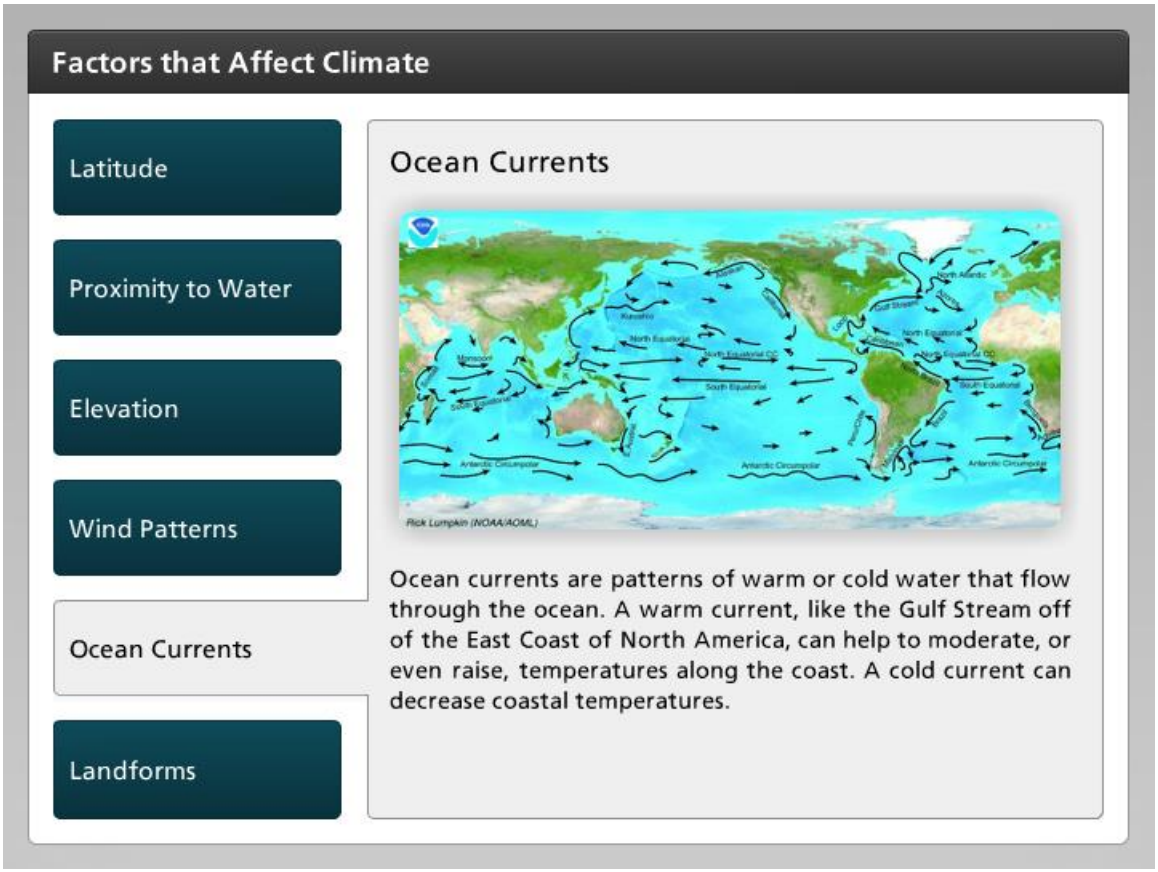
Wind Patterns



The Earth has general wind patterns. Winds that originate from the equatorial region tend to be warmer. Winds that blow from polar regions tend to be cool. A place's location relative to these winds can impact its climate pattern.

Module 11: Meteorology
Topic 3 Content: Factors that Affect Climate Notes

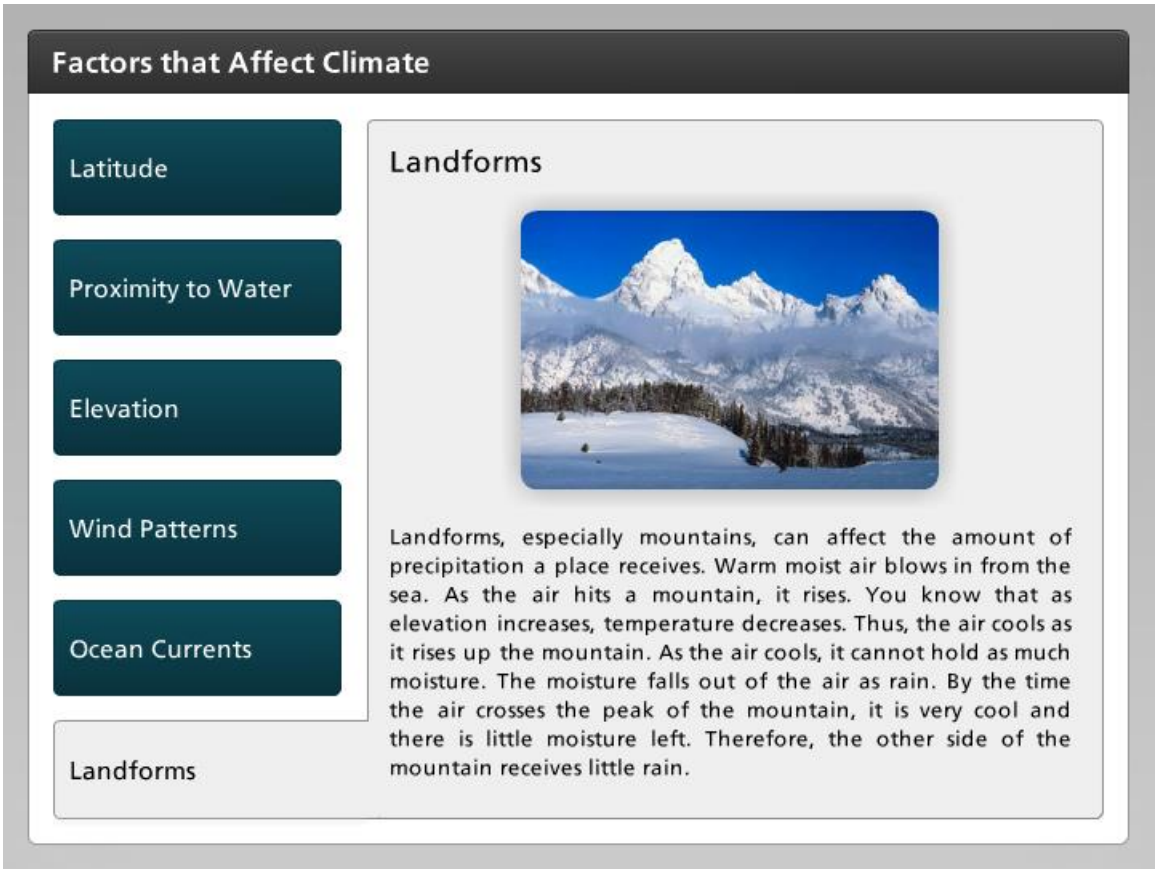
Ocean Currents



Ocean currents are patterns of warm or cold water that flow through the ocean. A warm current, like the Gulf Stream off of the East Coast of North America, can help to moderate, or even raise, temperatures along the coast. A cold current can decrease coastal temperatures.

Module 11: Meteorology
Topic 3 Content: Factors that Affect Climate Notes

Landforms



Landforms, especially mountains, can affect the amount of precipitation a place receives. Warm moist air blows in from the sea. As the air hits a mountain, it rises. You know that as elevation increases, temperature decreases. Thus, the air cools as it rises up the mountain. As the air cools, it cannot hold as much moisture. The moisture falls out of the air as rain. By the time the air crosses the peak of the mountain, it is very cool and there is little moisture left. Therefore, the other side of the mountain receives little rain.