

2.1.1 Bell Work Teacher Guide

Student Conceptions of Weather and Climate

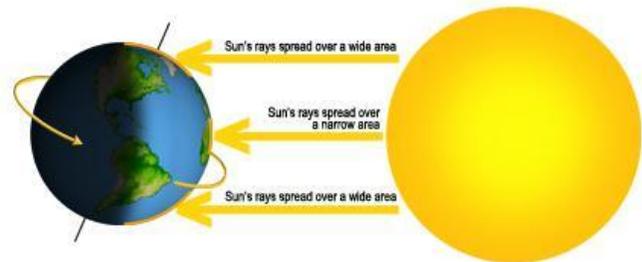
Students are not expected to have all of the following answers for bell work, but they should have an understanding of a few variables that affect climate and weather and how these differ.

Bell Work Question:

Why does someone in Brazil experience different climate than someone in the Bay Area?

Correct Answers:

1. The Earth is relatively the same distance from the Sun all year, but the tilt and curvature of the Earth is responsible for the differences between the two locations. Brazil is close to the equator and receives the direct rays of the Sun whereas the Bay Area is at higher latitudes and receives indirect rays (See Figure).



- The tilt of the axis causes the seasons in places like the Bay Area.
2. The Bay Area and parts of Brazil may have different altitudes. The climate changes as one gets higher or lower in the atmosphere.
3. The ocean currents bring cold water from the north that affects the climate in the Bay Area whereas the water that reaches the Brazilian coast has traveled across the Atlantic at the equator and is much warmer. Water temperature has an effect on land temperatures as well.

Common Misconception:

The seasonal or regional differences in climate are based on how close the Earth is to the Sun at any given point. When the Earth is close to the Sun it is summer and hottest and when it is furthest from the Sun it is coldest. (See Correct Answer 1 for a proper explanation).