

# Study Guide for Unit 1 Geography Test

**Geography Is** a spatial study that examines the links that places and people have to one another because of their locations.

## Five Pillars of Geography

**Location:** The exact spot where something exists (an address, GPS coordinates, latitude/longitude)

**Place:** What a spot or area is like (what it looks like, feels like, smells like, etc.)

**Movement:** The ongoing process of travelling (people, goods, ideas, weather, etc.)

**Region:** Places united by specific similar characteristics

**Human/Environment Interaction:** How people affect the environment and how the environment affects the people.

## Categories of Geography

**Physical Geography:** The study of Earth's physical features (landforms, plate tectonics, weather, climate, the water cycle, etc.)

**Cultural/Human Geography:** The study of human activities and their relationship to the cultural and physical environments (government, religion, economy, etc.)

## The Water Cycle

*Refer to the picture of the Water Cycle on Edmodo*

**1. EVAPORATION:** The heat of the sun causes water from lakes, rivers, streams, and oceans to heat up and change from liquid to gas. This process is called **evaporation**. The **transpiration** of plants (plant sweat, given off as a byproduct of photosynthesis), also adds to the evaporation process.

**2. CONDENSATION:** As this water vapor rises into the atmosphere, the temperature drops and the water vapor becomes sluggish, causing the particles to run into each other and bond together. This process of the continual cooling and bonding of water molecules is **condensation**. As more and more water condenses, clouds are formed and become a type of container for the water droplets.

**3. PRECIPITATION:** However, when enough water condenses, the cloud becomes heavy, meaning it has reached its *level of saturation* and the cloud releases the water it has held. This release of water can be in the form of rain, snow, sleet, or hail, depending on the atmospheric conditions, and is called **precipitation**. Once the precipitation has left the cloud, it can take many paths. Some of it falls in the mountains and joins snow packs or streams that turn into *run-off*. Some of it falls back into water receptacles, like lakes, rivers, or oceans. Some of it falls onto dry ground, where it can be absorbed by the soil and evaporated again, absorbed into the roots of plants for continued transpiration, or absorbed into the *ground water*, which eventually joins with a larger water receptacle (lake, spring, ocean).

**4. BEGIN AGAIN:** Once the precipitated water finds a home on Earth, the evaporation process begins again and the Water Cycle continues.

# Climate

The two distinct factors that determine climate are **water and sun**. Latitude and elevation also play a big role in determining climate, but ultimately, what latitude and elevation generally indicate is how much water and how much sun a location receives. Climate, in the most basic understanding, comes down to water and sun.

## Relationship Between the Earth and the Sun

The Earth is tilted on an **axis** and spins counter-clockwise in an **elliptical** path around the Sun. It takes 24 hours for the Earth to make one full rotation on its axis and 365.24 days to make one full revolution around the Sun.

The Earth is closest to the sun in March and September, but due to the tilt of the Earth on its axis, March 21<sup>st</sup> and September 21<sup>st</sup> are the Spring (or Vernal) and Fall (or Autumnal) Equinoxes. An **equinox** occurs when there is the same amount of daylight and darkness in a day.

The Earth is furthest from the Sun in June and December, during the Solstices. The **Summer Solstice**, on June 21<sup>st</sup>, is the longest day of the year, meaning it is the day when we have the most amount of daylight hours in the day. The **Winter Solstice**, on December 21<sup>st</sup>, is the shortest day of the year, meaning we have the least amount of daylight hours in the day. The solstices are also when we, in the Northern Hemisphere, have the most variance in our temperatures. Because of the tilt of the earth on its axis, the Summer Solstice is when the Northern Hemisphere is tilted directly toward the sun, receiving extended daylight and hotter temperatures. During the Winter Solstice, the Northern Hemisphere is tilted completely away from the sun, receiving shortened daylight and much cooler temperatures. *Both the **tilt of the Earth on its axis** and the **latitude of a location** (how far North or South a location is from the Equator) determine the fluctuations in temperatures and the absence or presence of seasons.*

The **Tropic of Cancer** is located at 23.5°N Latitude and the **Tropic of Capricorn** is located at 23.5° South Latitude, with the Equator being in the middle at 0° Latitude. The band of Earth between the Tropics is special because this area always receives direct sunlight from the Sun, no matter the time of year or tilt of the Earth on its axis. Because this area always receives direct sunlight, there are only very minor shifts in day length, only very mild temperature changes, and an absence of traditional seasons.

## Reference Points

As a reminder, **latitude lines run horizontal** (LAT = FLAT), extending North and South from their middle reference point, the Equator (0° Latitude). **Longitude lines run vertical** (think LONG legs, that run up and down), extending East and West from their original reference point, the Prime Meridian (0° Longitude), which runs through Greenwich, England, and meet on the other side of the Earth at the International Date Line (180° Longitude).

A **great circle** is a circle that runs through the very middle of the Earth. There is only one latitude line that is a great circle, the Equator, but there are an infinite number of longitude lines that are great circles. As latitude lines move further and further away from the Equator, their circles shrink in size and no longer go through the middle of Earth. These are called **small circles**.