

## Earth and the sun

The cycle of seasons is caused by the Earth's tilt toward the sun. The planet rotates around an (invisible) axis. At different times during the year, the northern or southern axis is closer to the sun. During these times, the hemisphere tipped toward the star experiences summer, while the hemisphere tilted away from the sun experiences winter.

At other locations in Earth's annual journey, the axis is not tilted toward the sun but instead along the planet's path, parallel to the star. During these times of the year, the hemispheres experience spring and autumn.

The astronomical definition of the seasons relate to specific points in Earth's trip around the sun. The summer and winter solstice, the longest and shortest day of the year, occur when the axis of the Earth is either closest or farthest from the sun. The summer solstice in the northern hemisphere occurs around June 21, the same day as the winter solstice in the southern hemisphere. The south's summer solstice occurs around December 21, the winter solstice for the north. In both hemispheres, the summer solstice marks the first day of astronomical summer, while the winter solstice is considered the first day of astronomical winter.

Equinoxes are another significant day during Earth's journey around the sun. On these days, the planet's axis is pointed parallel to the sun, rather than toward or away from it. All parts of the earth receive about the same hours of sunlight. Day and night during the equinoxes are supposed to be close to equal. The spring, or vernal, equinox for the northern hemisphere takes place around March 20, the same day as the south's autumnal equinox. The vernal equinox in the southern hemisphere occurs around September 20, when people in the north celebrate the autumnal equinox. The vernal equinox marks the first day of astronomical spring for a hemisphere, while the autumnal equinox ushers in the first day of fall.

But changes in the weather often come before these significant days. The meteorological seasons focus on these changes, fitting the seasons to the three months that have the weather we think of for that season. December to February marks meteorological winter in the Northern Hemisphere and meteorological summer in the southern. March, April, and May are lauded as spring or autumn, depending on the location, while June through August are the months of summer for the north and winter for the south. September, October, and November conclude the cycle, ushering in fall in northern regions and spring in southern.

The seasons can bring a wide variety to the year for those locations that experience them in full. The weather in each one may allow people to engage in activities that they cannot perform in others — skiing in the winter, swimming in the summer. Each season brings with it its own potential dangers, but also its own particular brand of beauty.

adapted from <http://www.space.com/22852-fall-equinox-earth-seasons-explained.html>

**Fill in the blanks to describe the equinoxes.**

The equinoxes are times of the year when the \_\_\_\_\_ is tilted parallel to the \_\_\_\_\_. This means that the whole Earth from North to South receives about the same amount of \_\_\_\_\_. There is an equinox in both \_\_\_\_\_ and \_\_\_\_\_.