

1.3: Seasons and the Sun's Location

Seasons and the Sun's Location

Seasons occur on a planet or moon because the axis of rotation remains tilted in one direction during its orbit about its star; Earth about the Sun. The tilt is relative to the planet's or satellite's orbit. This tilt results in a planet or moon having Seasons. Earth's axis is tilted about $23\frac{1}{2}^{\circ}$. And for comparison, the axis of Mars is tilted about 25° . Not all planets are tilted on their axis, for example Mercury's tilt is 0° .

One of the results of Earth undergoing seasons is changes in day and night lengths. In the summer the days are longer and nights shorter. In the winter it is just the opposite.

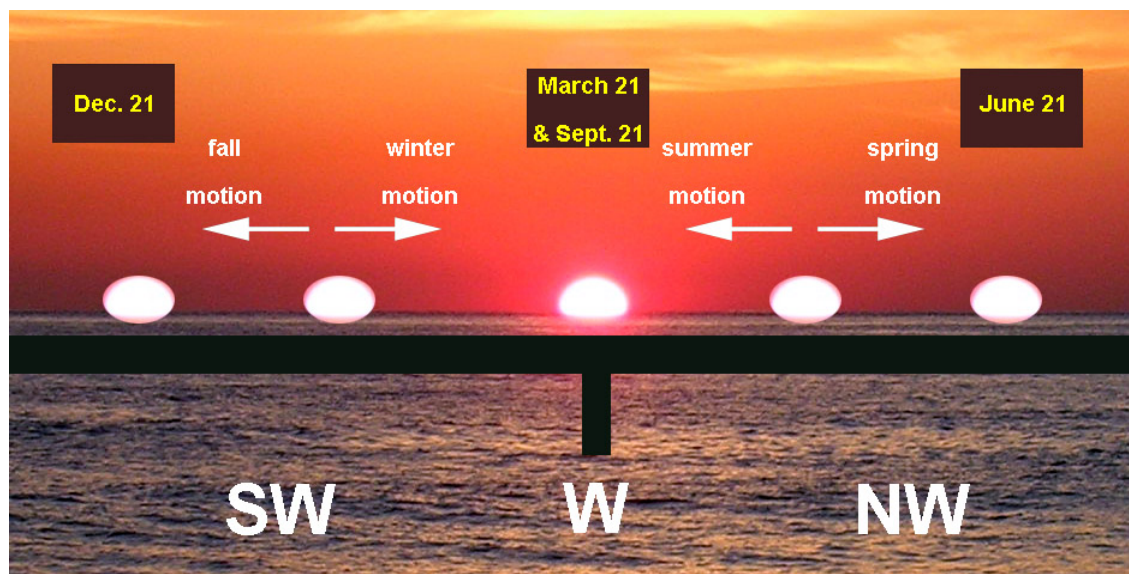
Day and Night Lengths for Jacksonville, Florida; 2018

Date	Season	Day Length	Night Length
March 20	Vernal Equinox Start of Spring	12 hours 8 minutes	11 hours 52 minutes
June 21	Summer Solstice Start of Summer	14 hours 7 minutes	9 hours 53 minutes
September 22	Autumnal Equinox Start of Fall	12 hours 8 minutes	11 hours 52 minutes
December 21	Winter Solstice Start of Winter	10 hours 11 minutes	13 hours 49 minutes

Seasonal Position of Sunrise and Sunsets

Season	Position of Sunrise	Position of Sunset
Winter	Southeast	Southwest
Spring	East	West
Summer	Northeast	Northwest
Autumn	East	West

If you watch sunrise and sunset locations over a year, you will also note that the location of where the Sun rises and sets changes. As we orbit the Sun, the rising and setting points are further north in the summer and further south in the winter. There is a variable here: your location on Earth. For example, if you are at far northern or southern latitudes, you will experience extreme day and night lengths, depending on the seasons. And, for those north of the Arctic Circle or south of the Antarctic Circle, you will experience some days with no nights, or some nights with no days. ⁽¹⁾



The sunset position changes throughout the year, as does the sunrise position. Note: change “W” (west) to “E” (east) for sunrise position. [“Sunset Cycle”, Florida State College at Jacksonville is licensed under [CC BY-SA 4.0](#) / A derivative from the [original work](#)]

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