

# Rotation and Revolution Fact Sheet

It was previously thought that the sun turned around the earth but we now know that the opposite is true. The Earth moves around the sun.

## Rotation: Day Turns to Night

The Sun appears in the East every morning. At noon, in the South, and it sets in the West. The Earth turns on a tilted axis ( $23.5^\circ$ ). The rotation occurs in a counter clockwise direction from west to east over a period of 24 hours, more specifically, 23 hours, 56 minutes, 4 seconds) causing the cycle of day and night that we experience on earth. The speed of rotation is 1700 km/hr at the equator. Because the earth is spherical, the speed varies according to latitude (distance to equator).

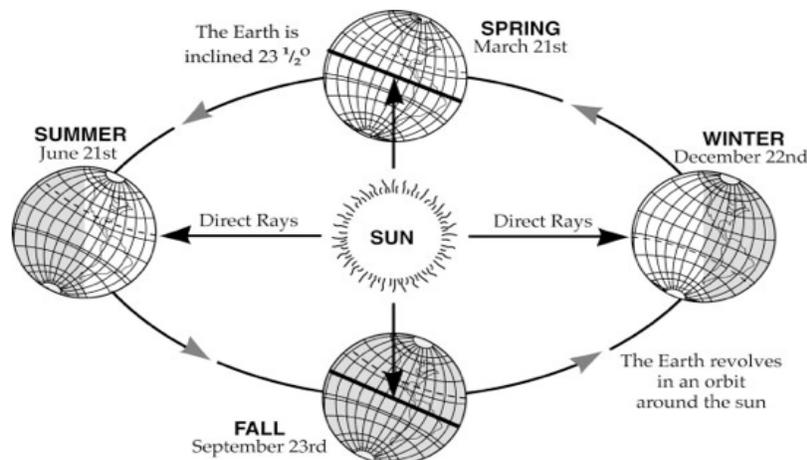


29.75 km is about the distance from Galt to Cookshire OR Galt to Ayer's Cliff.

## Revolution: The Seasons Change

The Earth turns around the sun in a path called an orbit. At a speed of 29.75 km/second, it still takes 365.25 days to revolve around the sun. The time it takes to complete this path is called its revolution or solar year. Because the solar year is longer than the calendar year, every four years we add a day to the calendar, the 29<sup>th</sup> of February. This creates a leap year of 366 days.

Because our earth is tilted at  $23.5^\circ$ , our planet is in different positions during the year in relation to the sun. This causes the four seasons. The diagram below shows the different positions of the earth throughout the year.



Summer Solstice is when the sun reaches its farthest position north (June 21). Summer solstice in the northern hemisphere is the longest day/shortest night of the year. The radiant energy reaching the ground is at its maximum.

Winter Solstice is when the sun's apparent path in the sky reaches the farthest position south (Dec. 22). In the northern hemisphere, winter solstice is the shortest day/longest night of the year. The radiant energy reaching the ground is at its minimum.

\*\*A misconception some people have is that it is winter because the earth is farther from the sun. In fact we are slightly closer to the sun at winter solstice but in summer we are tilted towards the sun so we receive the sun's rays more directly so it is hotter.

Equinoxes occur when the earth is between the two solstices. These occur in spring (vernal equinox-March 21) and fall (autumnal equinox—Sept. 22). During these seasons, day and night are almost the same duration.