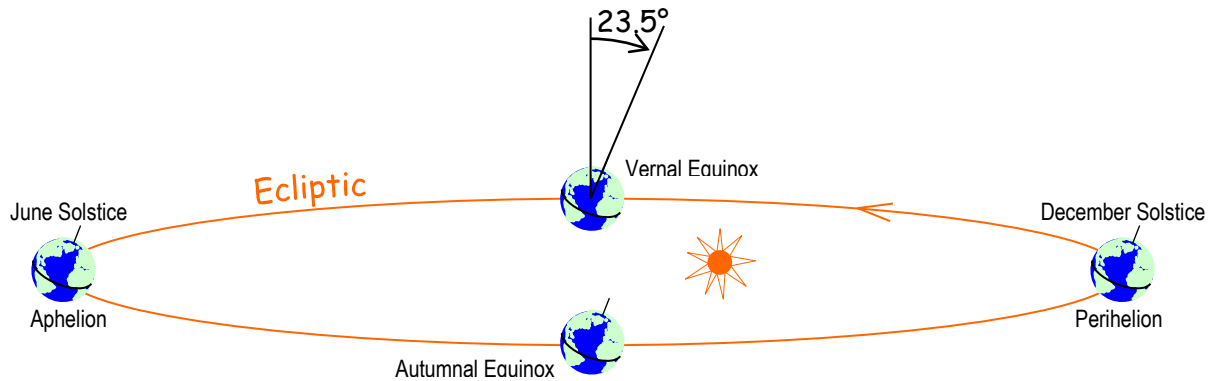
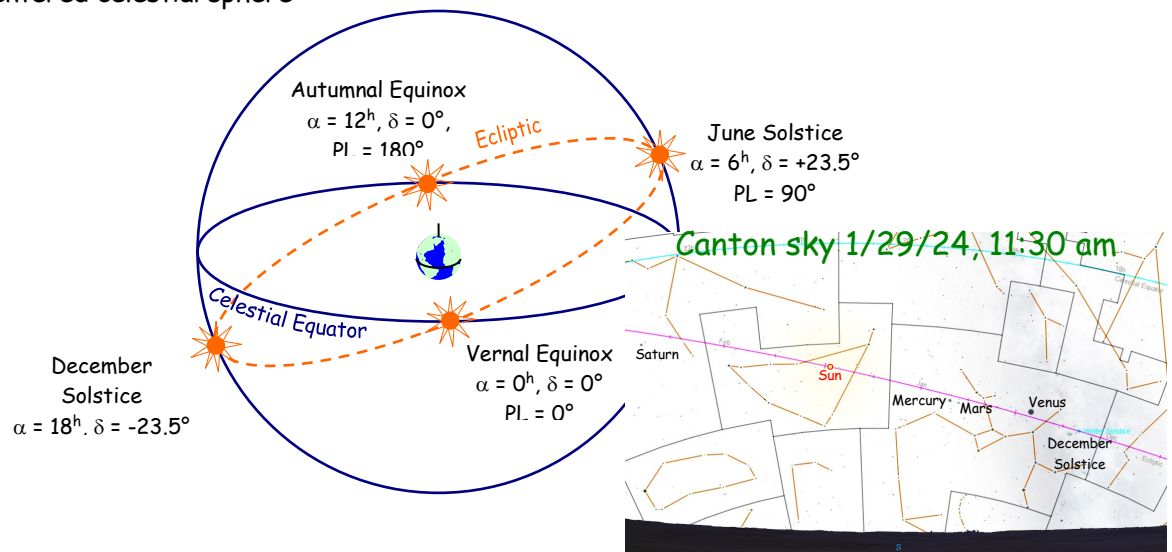


The Ecliptic

As the Earth orbits the Sun we see it "move" across the stars. It moves 360° in 365 days, so it moves about 1° per day **TO THE EAST** against the background of the stars. This path of the Sun is called the **ECLIPTIC**. This represents the path of the Sun across the sky through the year and it also represents the plane of the orbit of Earth and the other planets (within a few degrees.) The angle between the Earth's axis and the axis of the orbit is 23.5° . The sun is not at the center of the orbit, but at one focus of the ellipse, so Earth's distance from the sun varies through the year. We are closest to the Sun near the December solstice (on about January 4) and farthest from the Sun near the June solstice (about July 4).



View of Earth-centered celestial sphere



On your celestial globe, locate the ecliptic. Notice that it is marked in dates. That is because **THE DATE IS DETERMINED BY THE SUN'S POSITION ON THE ECLIPTIC.**

⁵Find today's date on the ecliptic and estimate its position using the constellation marks and the RA-Dec grid:

Today's Date: 1/29/24

*You can't tell on the globe!
 Use the atlas chart!!*

Sun's Position: RA: 20 h 45 m Dec. -18° Constellation: Capricornus

THE SOLSTICES AND EQUINOXES: THE CELESTIAL MARKERS

Four points are marked on each of the diagrams on the previous page. These are "celestial markers" that are used to mark the beginnings of Earth's seasons. They arise from the alignment of Earth's equator and the celestial equator. Each is

- 1) A position in Earth's orbit (top figure on previous page).
- 2) A position on the sky.
- 3) A particular date of the year.

The table below defines the celestial markers. Fill it in using your own knowledge, the celestial globe, and Starry Night and locate each of the celestial markers on your globe.²⁴

CELESTIAL EVENT	DEFINITION	DATE	PL	α	δ	SUBSOLAR LATITUDE	ATLAS CHART	CONSTELLATION
VERNAL EQUINOX	SUN CROSSING CELESTIAL EQUATOR MOVING NORTH	3/21	0°	0 ^h	0°	Equator	21	Pisces
JUNE SOLSTICE	SUN AT NORTHERNMOST POINT	6/21	90°	6 ^h	+23.5°	Tropic of Cancer	11/12	Taurus
AUTUMNAL EQUINOX	SUN CROSSING CELESTIAL EQUATOR MOVING SOUTH	9/21	180°	12 ^h	0°	Equator	27	Virgo
DECEMBER SOLSTICE	SUN AT SOUTHERNMOST POINT	12/21	270°	18 ^h	-23.5°	Tropic of Capricorn	41/42	Sagittarius



DURING AUTUMN EVENINGS, THE CRESCENT MOON AND VENUS NEVER GET VERY HIGH ABOVE THE HORIZON, EVEN WHEN THEY ARE FAR FROM THE SUN.

