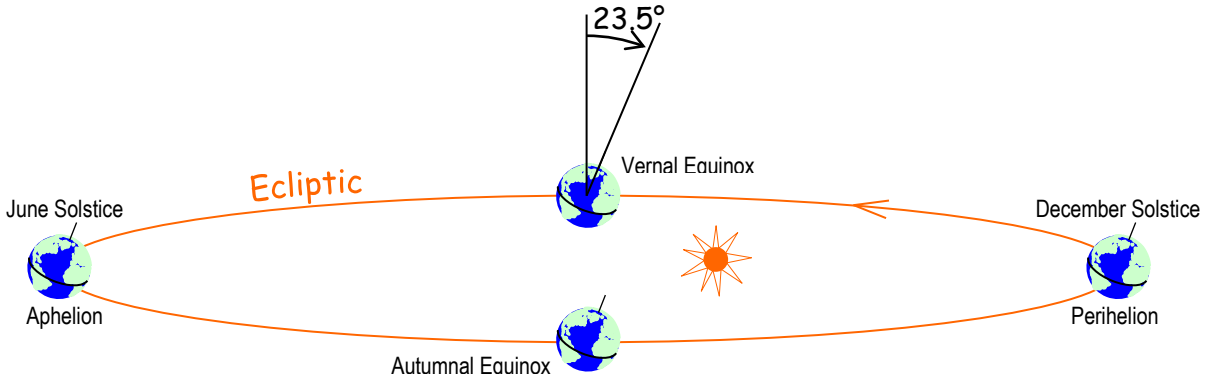
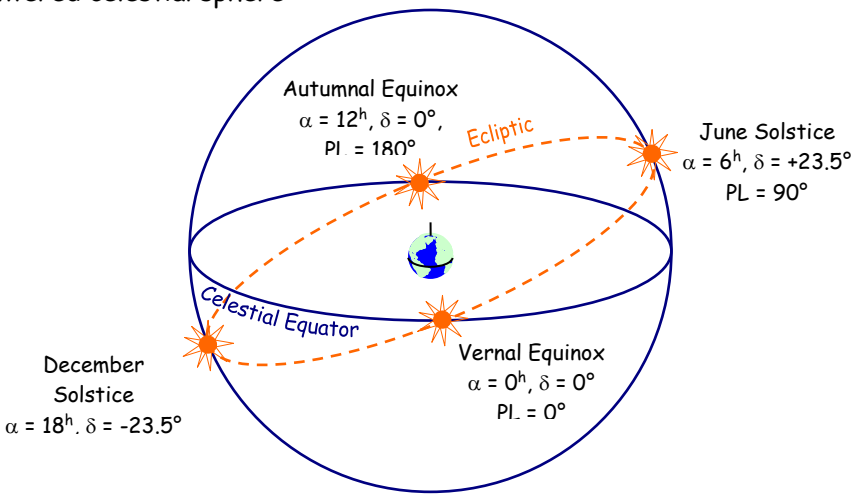
The Ecliptic

As the Earth orbits the Sun we see it "move" across the stars. It moves 360º in 365 days, so it moves about 1º 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 23.5º. 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.

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

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

Today's Date: _____

Sun's Position: RA: ____h____m Dec. _____º Constellation: _____

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.

Celestial Event	Definition	Date	PL	α	δ	Subsolar Latitude	Atlas Chart	Constellation
Vernal Equinox								
June Solstice								
Autumnal Equinox								
December Solstice