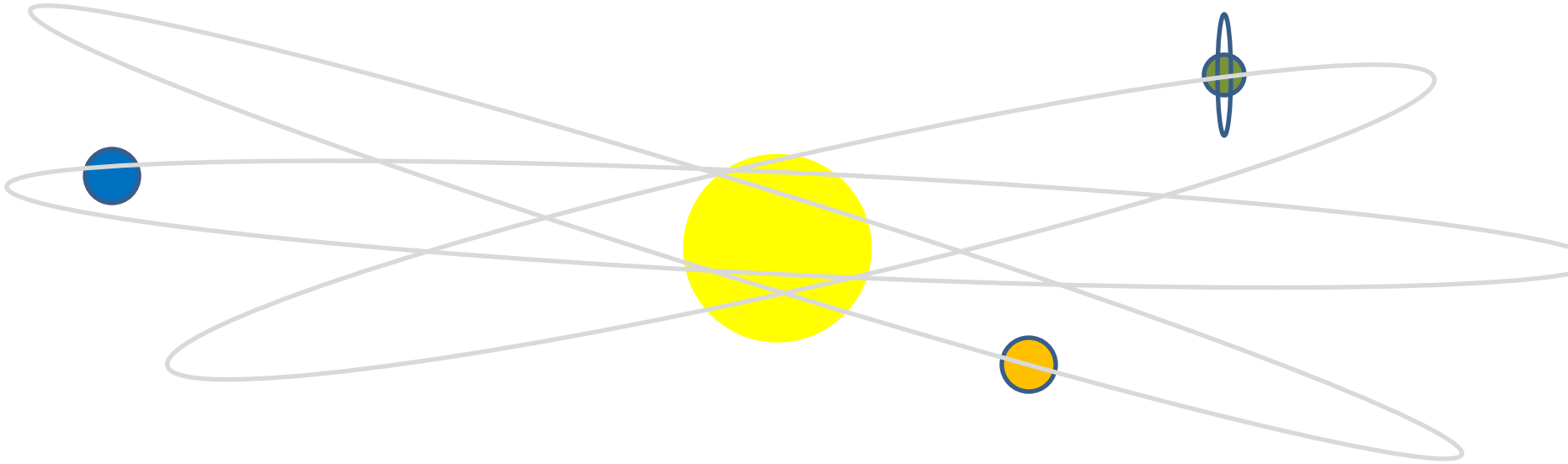
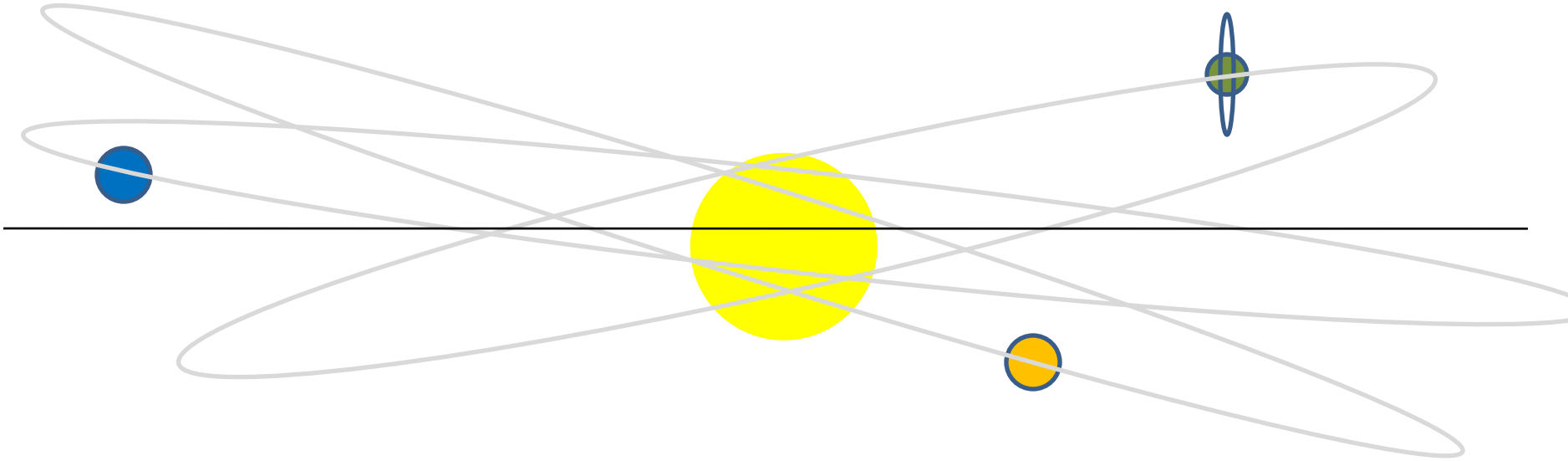
Heliocentric and Geocentric Model of the Solar System

Solar system

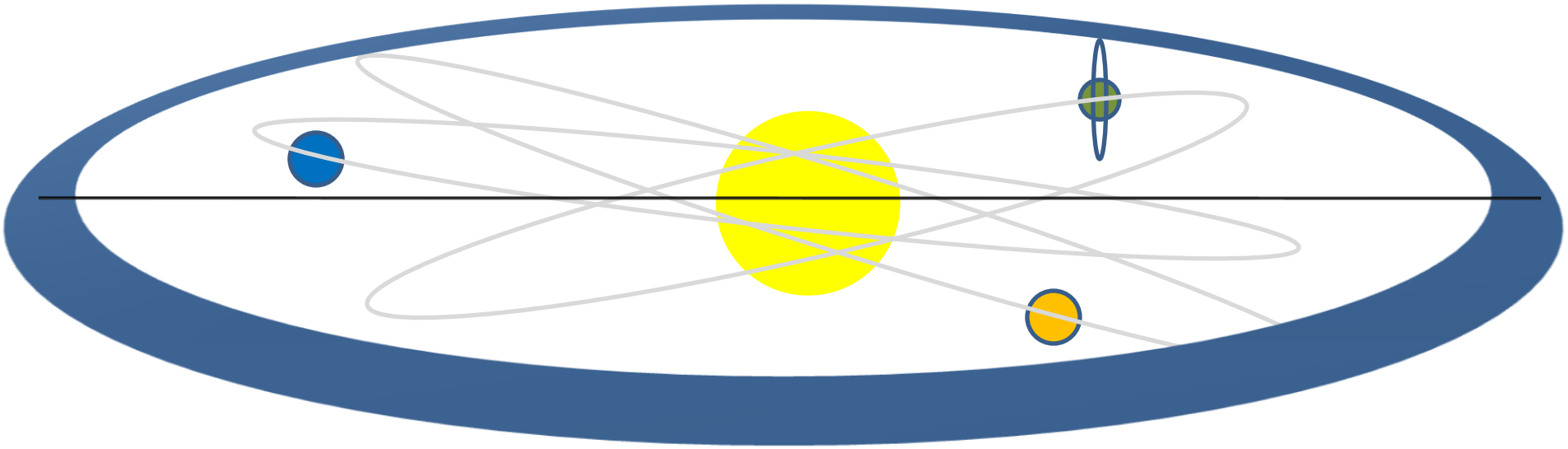


Ecliptic

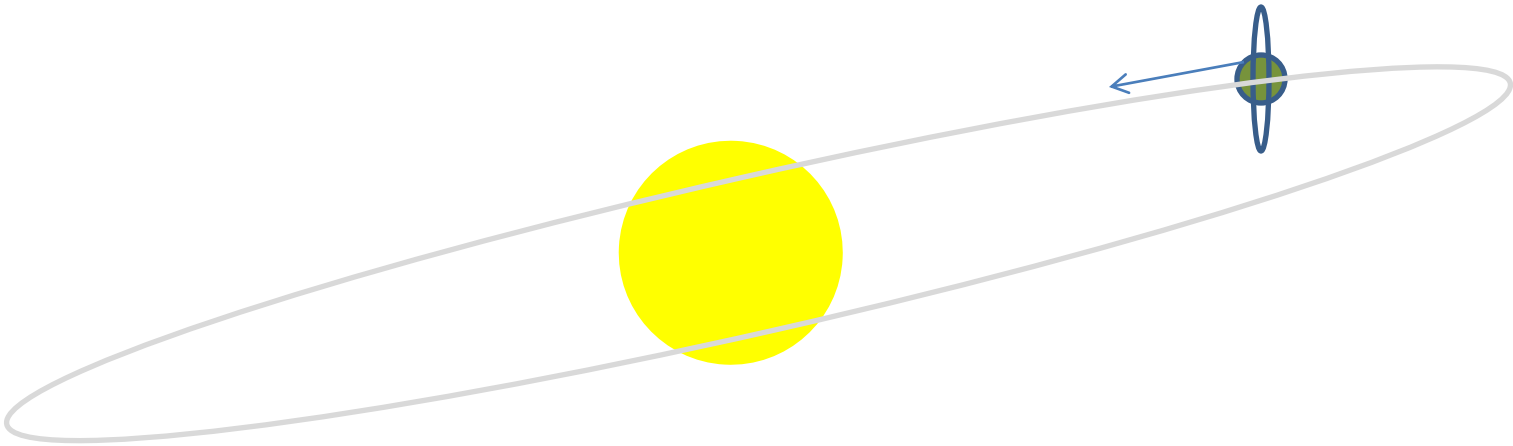


The ecliptic can be thought of as an imaginary line, extending from the center of the Sun, that intersects all planetary orbits into two.

Zodiac belt

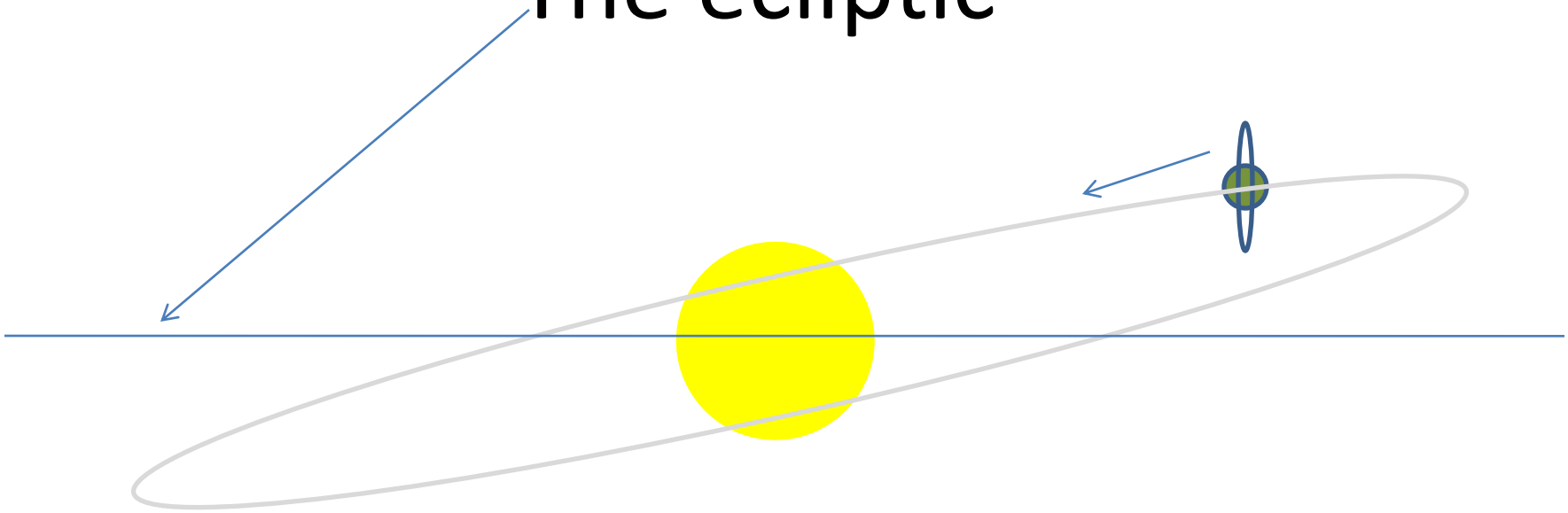


The Zodiac belt is the band of stars that surrounds the ecliptic.

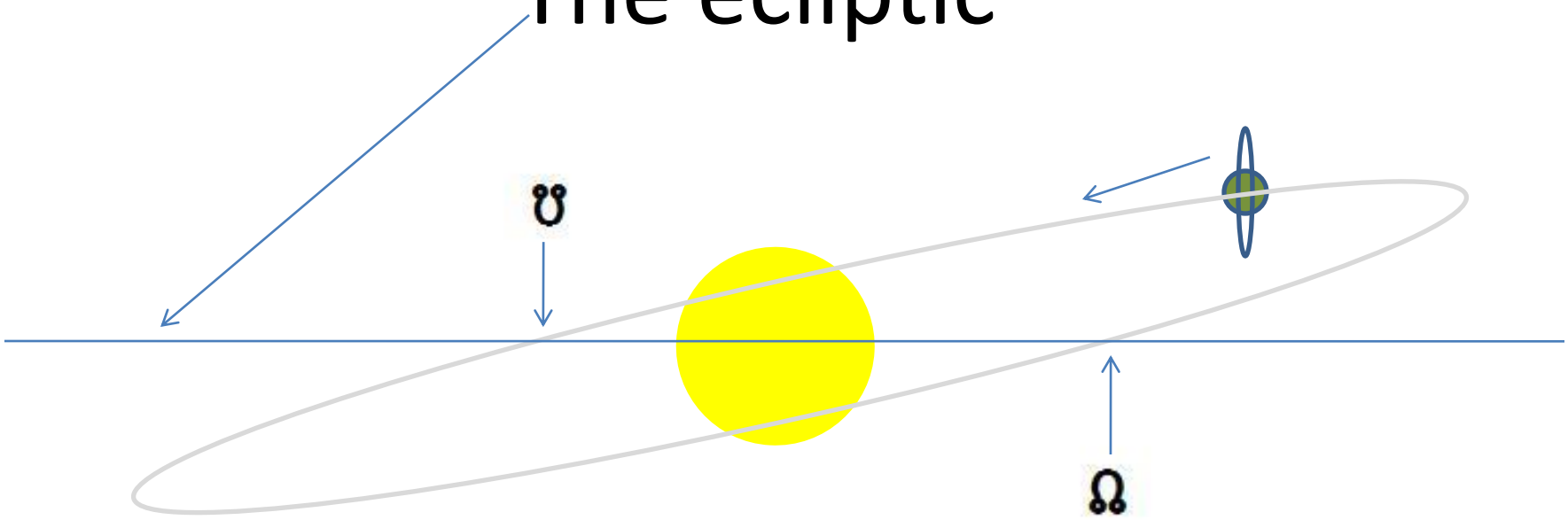


Lets look at this again - simplified, with just one planet.

The ecliptic



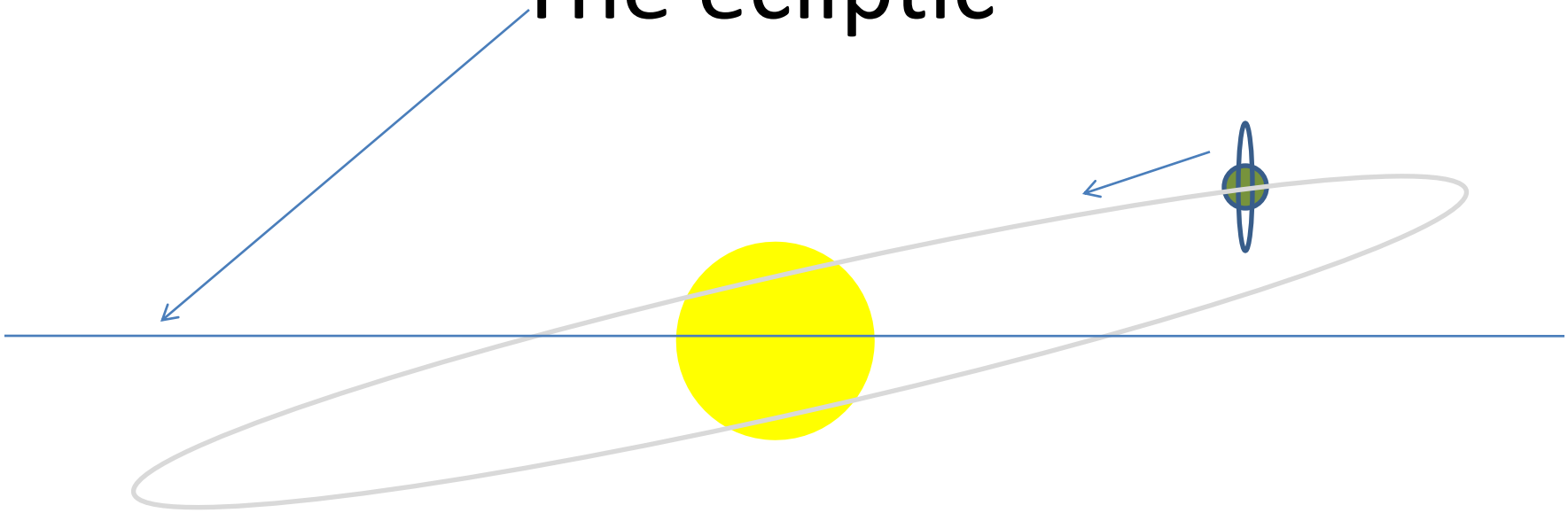
The ecliptic



Those two horseshoe looking glyphs are called “Planetary nodes.” We will learn a lot more about those later. For now, they are simply the points at which the orbital path of any planet intersects the ecliptic.

One nodal point correlates to where the orbital path falls below the ecliptic (descending node). The other correlates to where the orbital path rises above the ecliptic (ascending node).

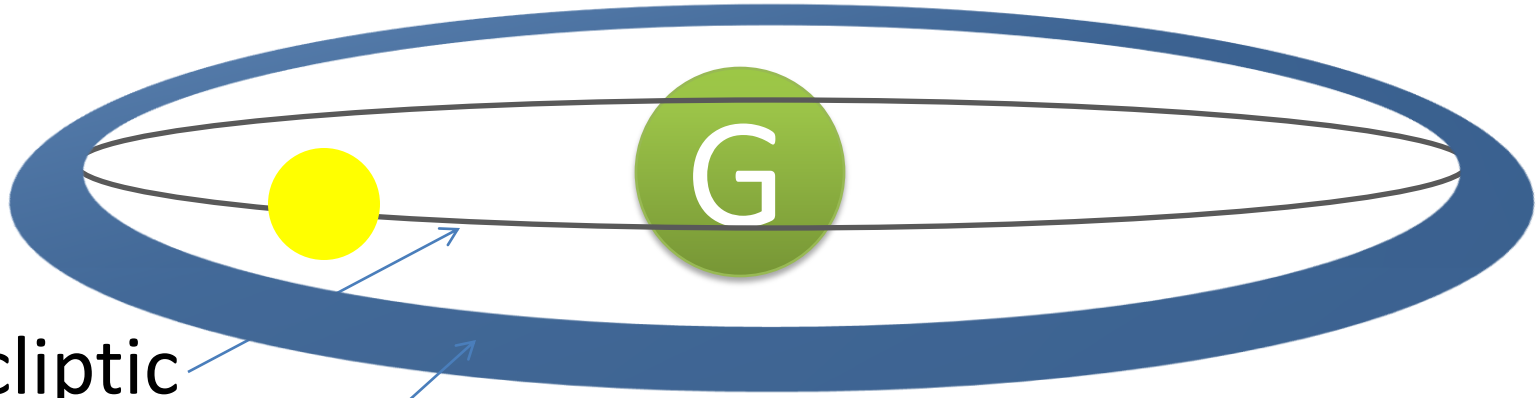
The ecliptic



From the point of view of the Sun, all activity around the ecliptic is perfectly symmetrical on both sides.

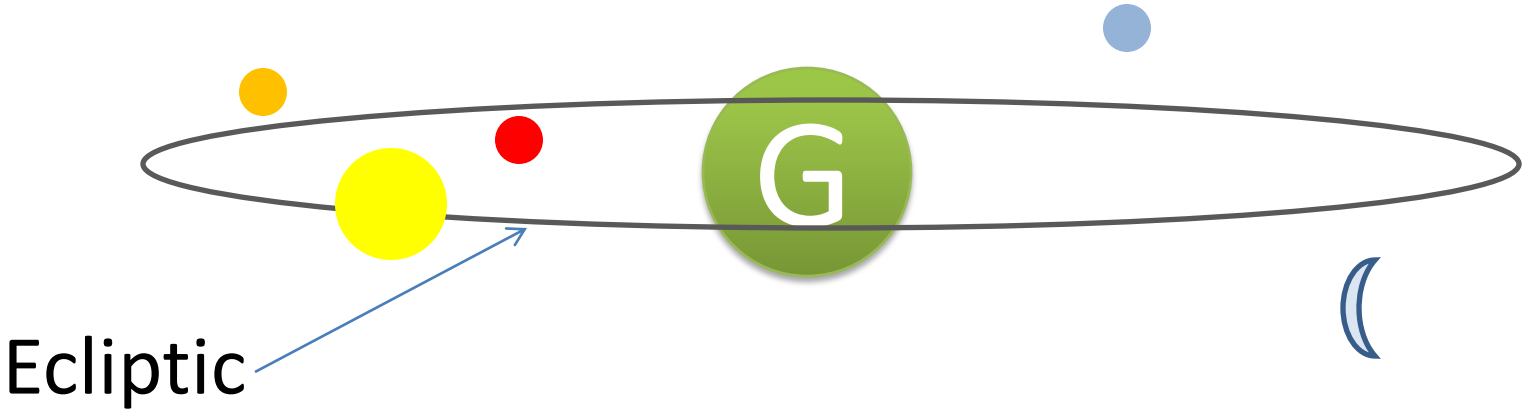
Geocentric (earth centric) model

However when we look at the ecliptic from the Earth's perspective, the ecliptic will literally be the path of the (apparent) Sun itself. This makes sense if we remember that the ecliptic itself is an imaginary plane that extends outwards from the Sun. Scientists officially define the ecliptic, when discussed from a geocetric model of the solar system, as the *apparent* path of the Sun.

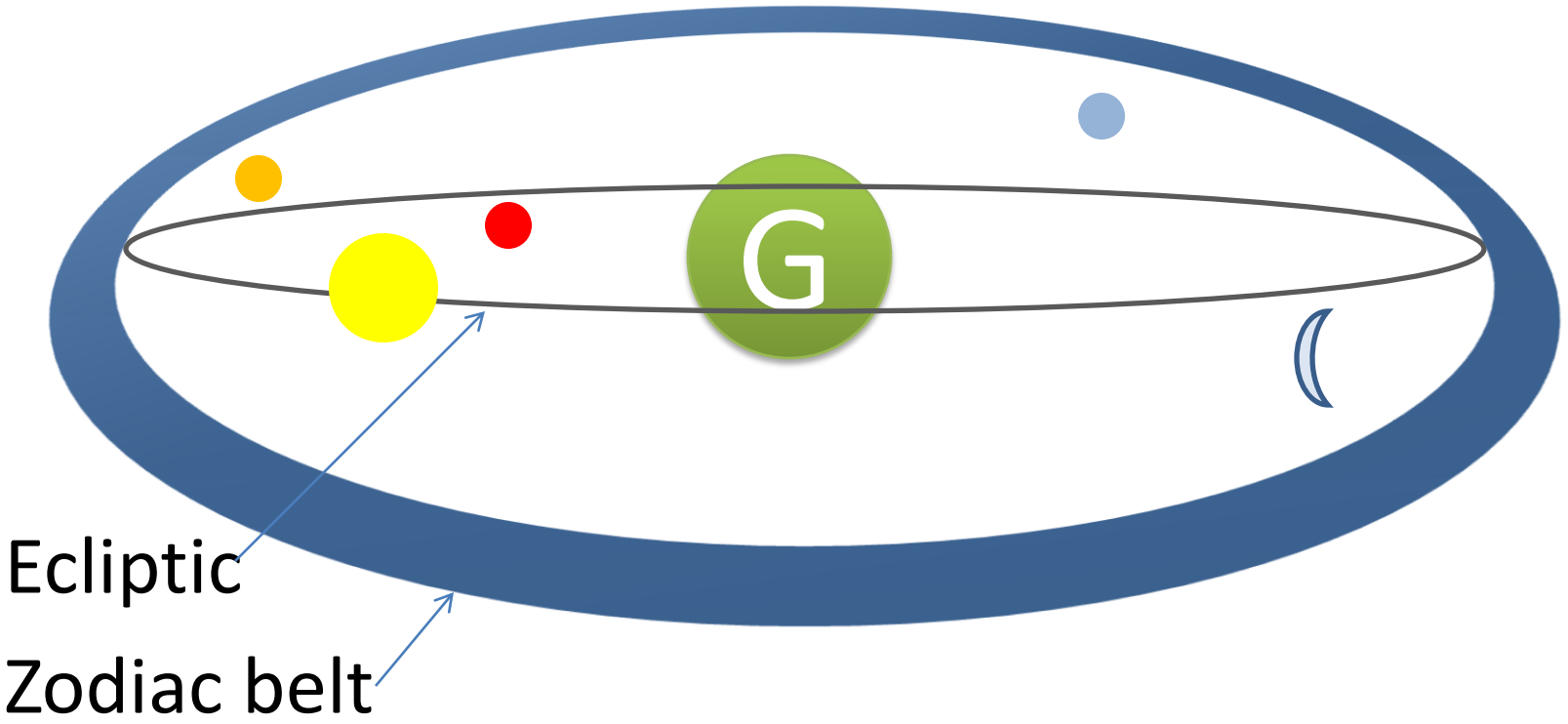


There are so many stars in the solar system. However only the stars of the zodiac belt surround the ecliptic. Remember that the zodiac belt is simply the band of stars that surround the ecliptic. From the Earth's point of view these are the stars that the Sun and all the planets are always transiting (passing) through.

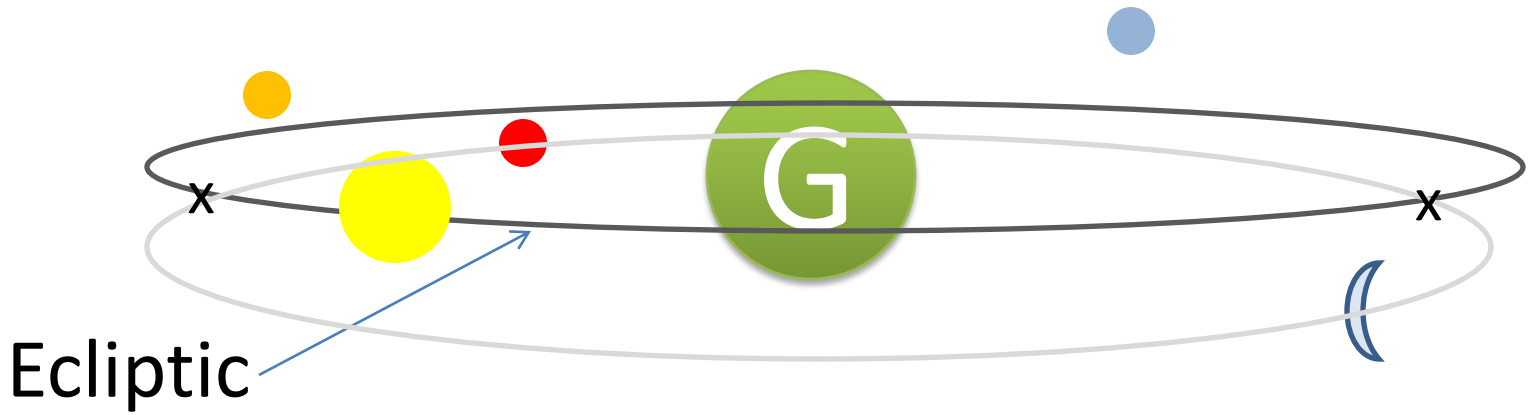
Adding planets



From the Earth's point of view, all celestial bodies (anything that orbits the Sun) will always be somewhere close to the ecliptic. This is because From the Sun's point of view, the planets in their orbit around the Sun are always either above or below the ecliptic.


G
Ecliptic
Zodiac belt

The Moon's nodes



The Moon only has nodes when viewed from the Earth. In a heliocentric model, the Moon is just wherever the Earth is. However from the point of view of the Earth, since on Earth we experience the Moon to move around us, and since the Earth itself is always somewhere along the ecliptic, the Moon will also always be transiting somewhere along the ecliptic.

When we look at a planetary node from the Earth's point of view, the intersection points between that planet's orbital path and the ecliptic will not be exactly opposite one another like it always is from the Sun's point of view.

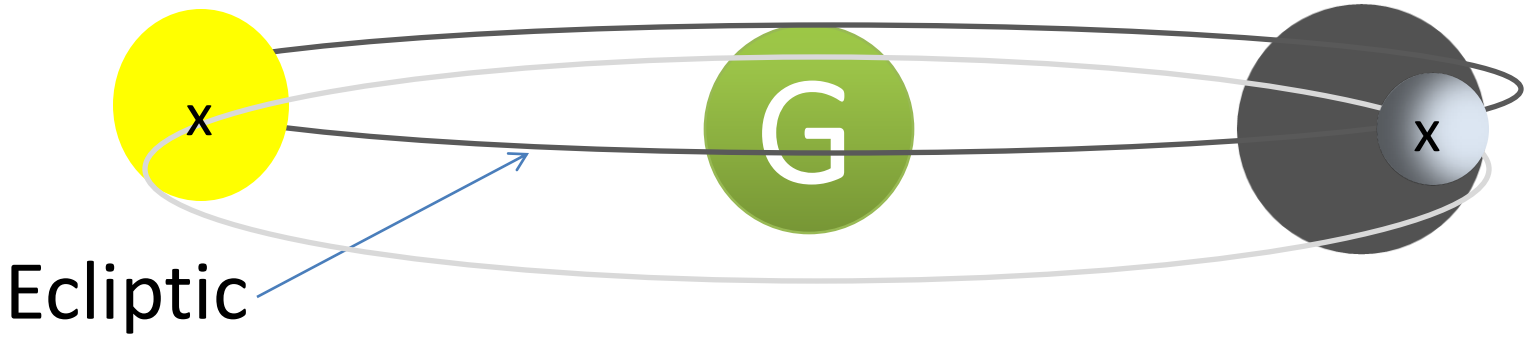
Lets look at that again, with just the Moon in the picture


G
X
X

Theoretical placement of zodiac signs

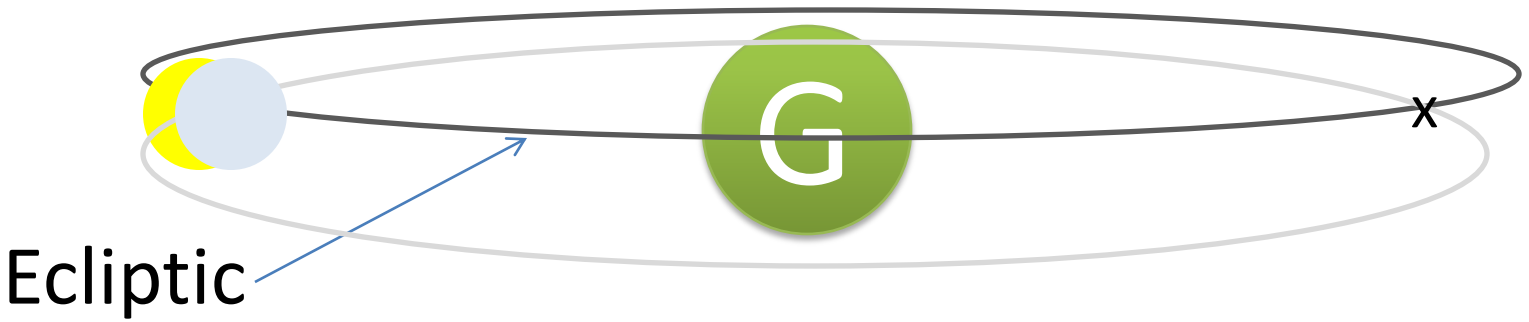
It is now possible, since the zodiac belt always surrounds the ecliptic, to identify the location of the celestial bodies and the nodes they create with the eclitpic all in relation to the constellations of the zodiac.

Lunar Eclipse = full Moon on nodal points



A lunar eclipse is a full Moon (when the Sun and Moon are opposite one another) that is conjunct (in the same place) as the nodes of the Moon. I.E. The Sun and the Moon, while they are opposite one another, will also each be on one of the Moon's nodes, right on the ecliptic itself.

Solar eclipse = new Moon on a nodal point



A solar eclipse is a new Moon (when the Sun and Moon are conjunct) that is also conjunct either of the lunar nodes. IE, the Moon, as it joins the Sun, is exactly on one of its nodes, right on the eclitpic itself.