

The path of the Moon in the sky



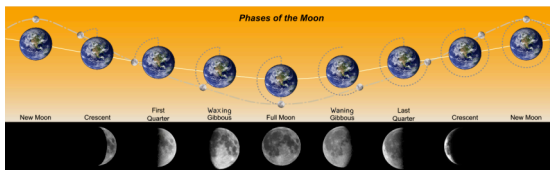
The second most striking astronomical object

If we observe the position of the Moon in the night sky, what do we find?

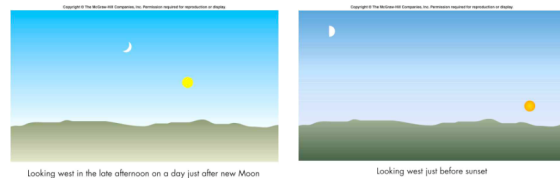


Instant gratification concession: Any opinions (guesses) on where you can find the Moon in the sky?

First phenomenon to discuss: phases of the moon

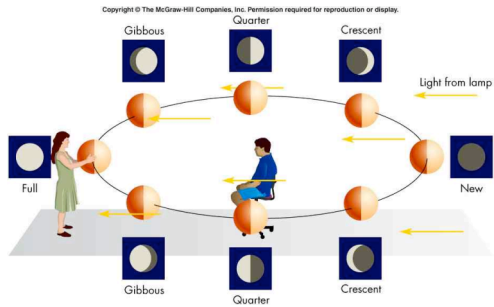


Phases of the moon and position of the Sun...they are not independent!



Full moon is 180 degrees away from the Sun on the sky, Question: where in the sky will the full moon be at midnight?

The reason for phases of the Moon



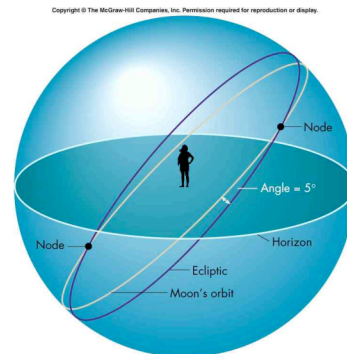
Understanding the geometric reason for the phases of the Moon allows us to immediately understand new pictures from distant spacecraft



Where do we find the Moon in the nighttime sky?

In which constellations do we find it? Does it move along the ecliptic?

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The line of nodes of the Moon's orbit



You can get out your SC1 chart and check it out for yourself!

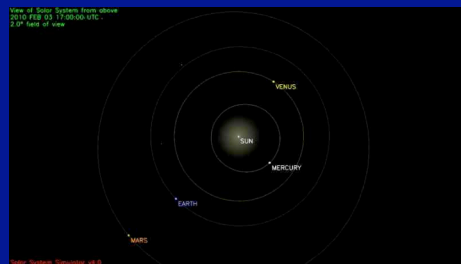


How do we explain all of this?

What is the “physics” of the solar system which produces all of these observed phenomena?

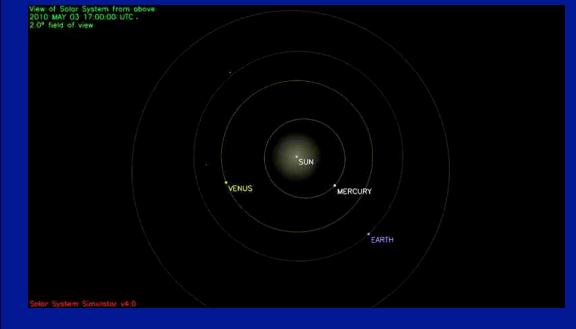
It took the human race tens of thousands of years to reach the right answer

The existence of the ecliptic

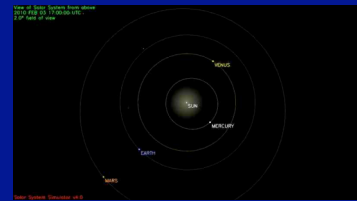


The Earth and the other planets orbit the Sun, in nearly the same plane for all planets

The inner solar system 3 months from now



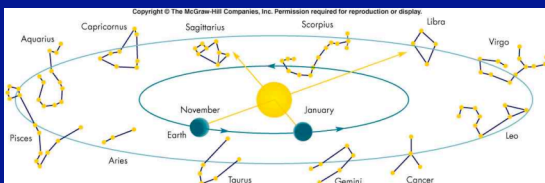
February 3



May 3



Why we see the Sun “projected against” different constellations at different times of the year



Then, why is the ecliptic tilted with respect to the celestial equator (the reason for seasons)

Answer: the **obliquity of the ecliptic** (or more simply “obliquity”, or even more simply, “tilt of the Earth’s axis”)

