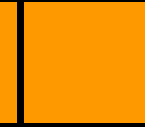


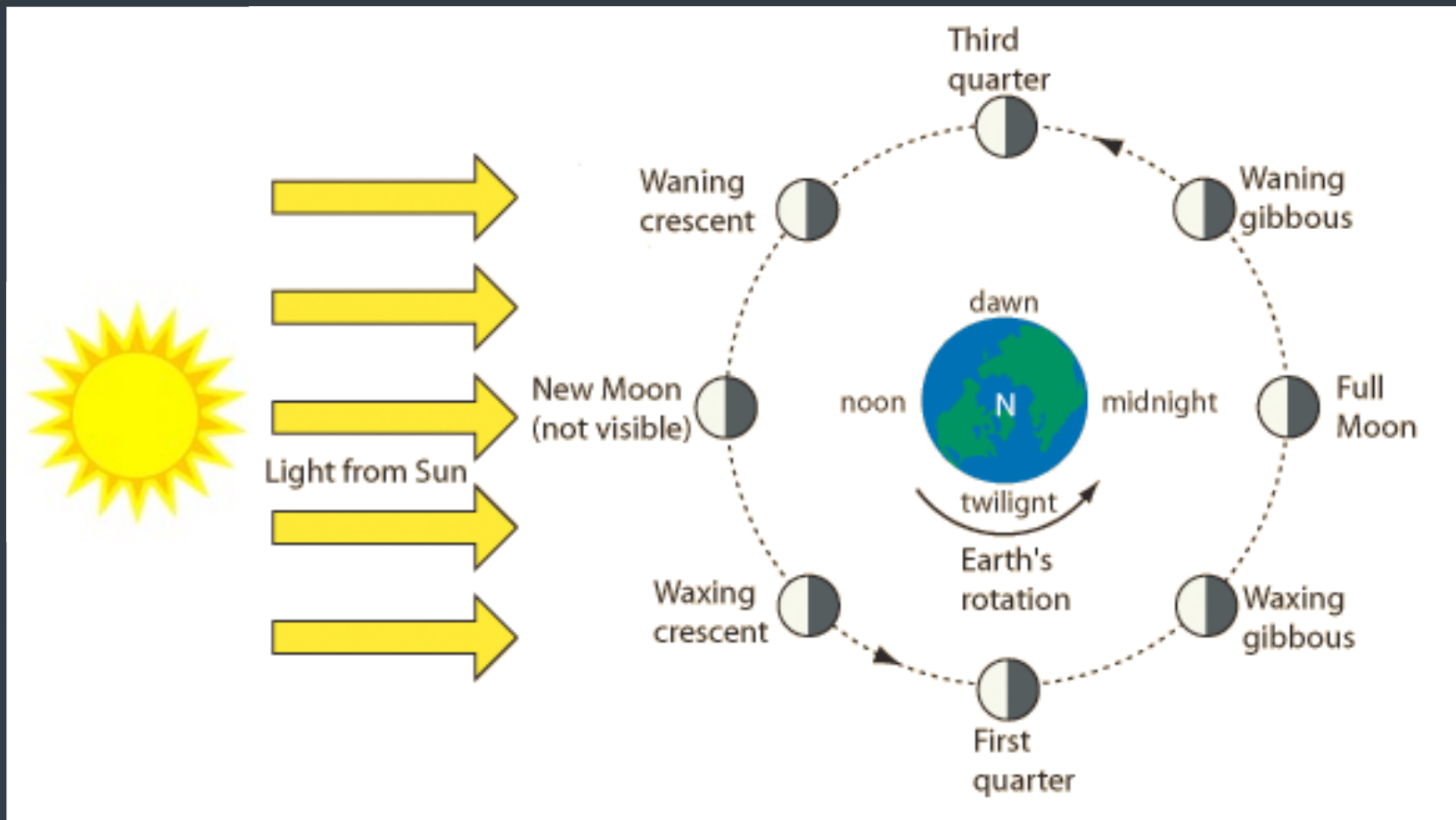
ASTR 1010

Lab 2: Phases of the Moon



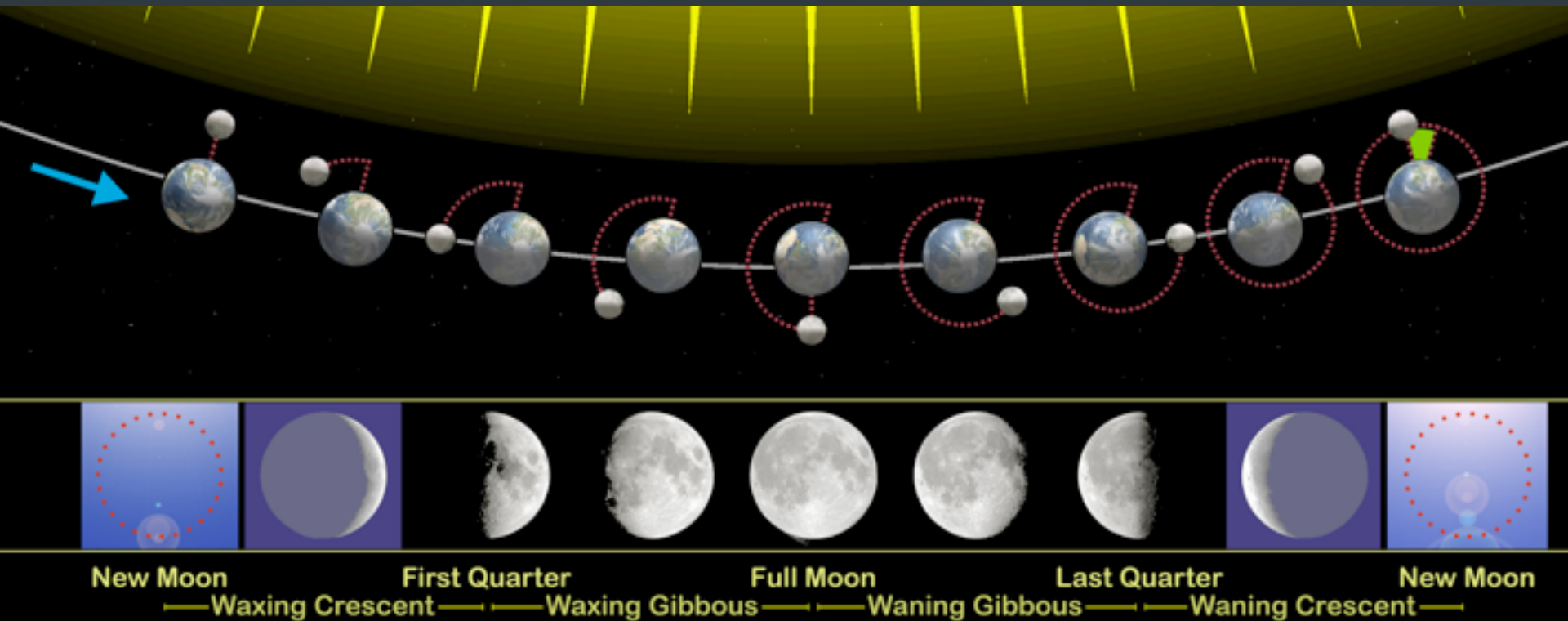
Moonlight Comes from the Sun

Moonlight is actually reflected sunlight. At any given time, the Sun lights half the surface of the Moon, just like it lights half the surface of Earth. The phase of the Moon depends on the relative positions of the Sun, the Moon, and the Earth.



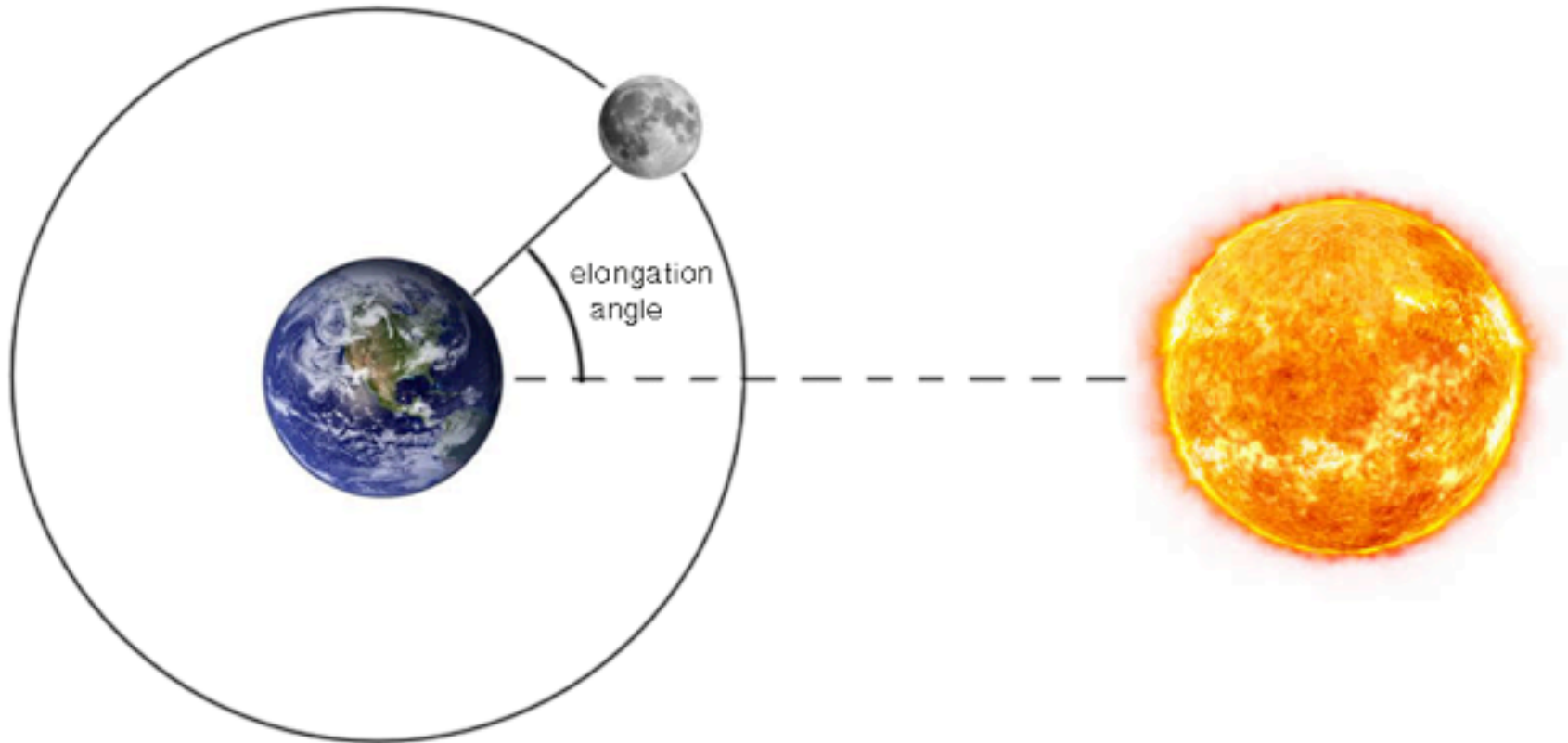
Relative Positions and Phase

Here's a bird's-eye view of the dynamics. Whatever lit portion of the Moon faces Earth is the phase. Notice light on the moon progresses right to left for us. Notice also that the Moon, the Earth, and their orbits all progress counterclockwise.



Elongation Angle

Elongation angle is the angle between the line from the Earth to the Sun and the line from the Earth to the Moon. Lunar phase is directly related to elongation angle.



Can We See the Moon During the Day?

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Can We See the Moon During the Day?

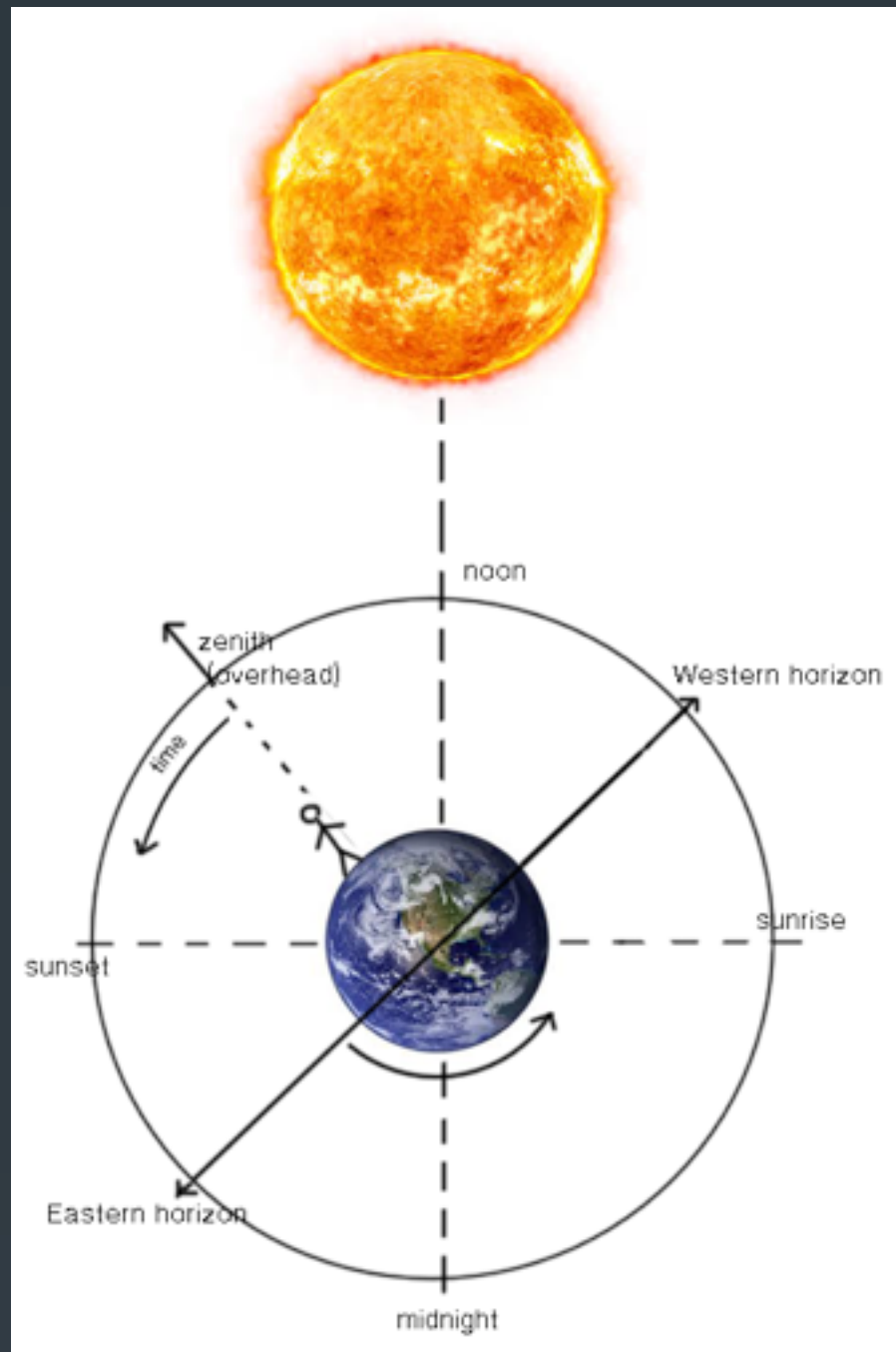
Yes!

Particularly during the crescent and quarter phases.



Sun Clock

We can envision our angle to the Sun like a 24-h clock, with noon occurring when the sun is directly overhead. All sky objects rise at the eastern horizon and set at the western horizon. Use this to figure out when specific phases of the moon rise and set.



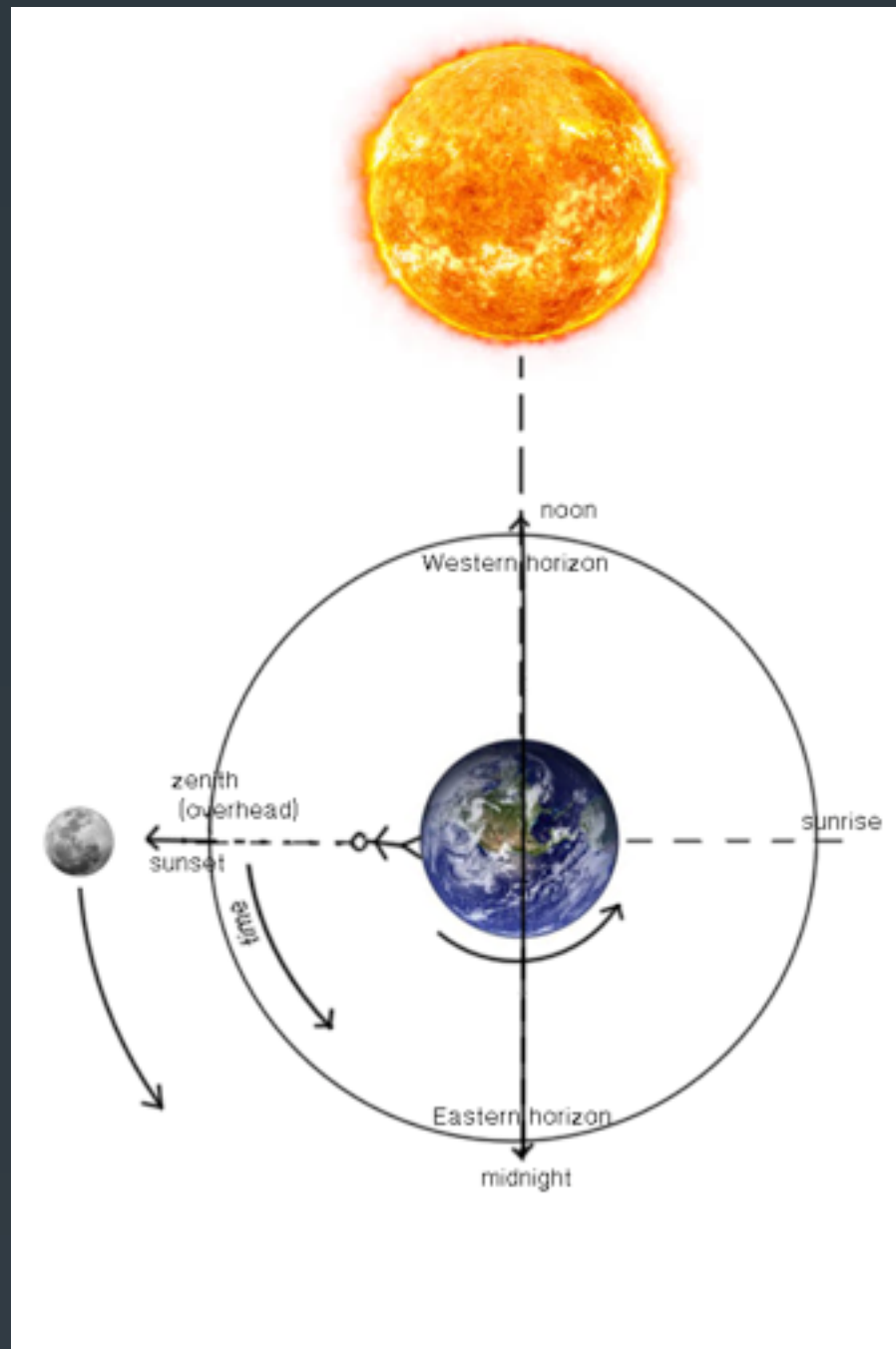
Sun Clock and Moon Phase

Moon placement determines moon phase.

Head placement (you on Earth in relation to where the sun is to you) determines time of day.

In the picture, the moon is in First Quarter phase, and the time of day is sunset (notice the Sun is on the person's Western horizon).

Whenever the sun is over your head, it's noon.



Fin

