

Answer keys to selected questions in Lab #2

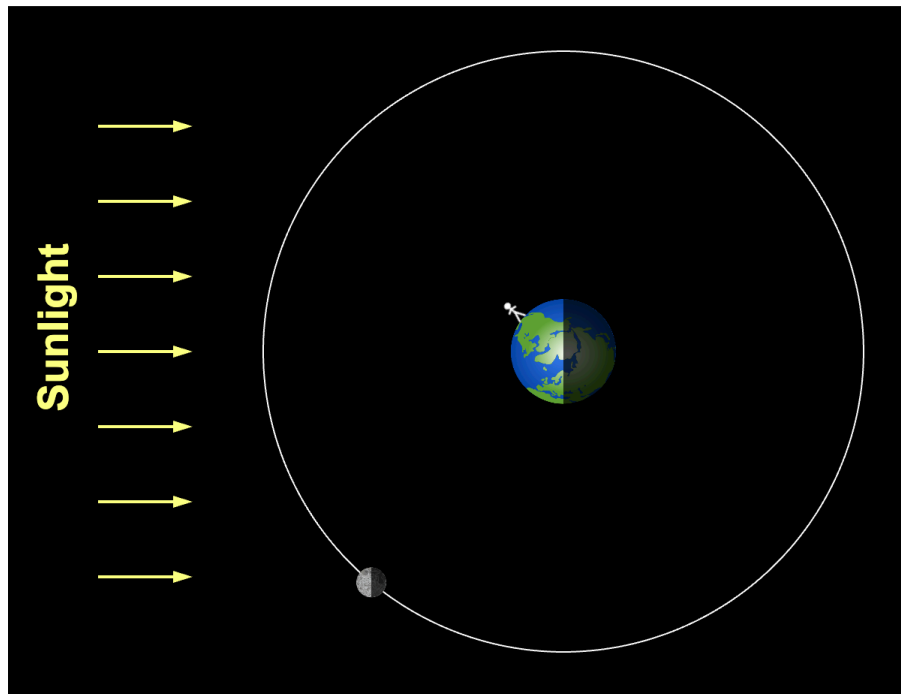
2) [Away from the Sun] Use the animator in the software to answer this question.

7)

What causes eclipses? Eclipses are caused when the Moon moves through the Earth's shadow (lunar eclipse) or the Earth moves through the Moon's shadow (solar eclipse).

Why do we not see eclipses every month? All 3 bodies must align in a straight line for the middle one to cast a shadow on the outer one; the Moon's orbital plane around the Earth is tilted; the Earth's orbital plane around the Sun is tilted; they do not align perfectly except a few times a year.

10) Here is a screenshot showing how you should set your Lunar Phase Simulator for this question:



Animation and Time Controls

Start Animation

Animation rate:



Increment animation:

Day: - +

Hour: - +

Minute: - +

Diagram Options

- Show angle
- Show lunar landmark
- Show time tickmarks

Moon Phase

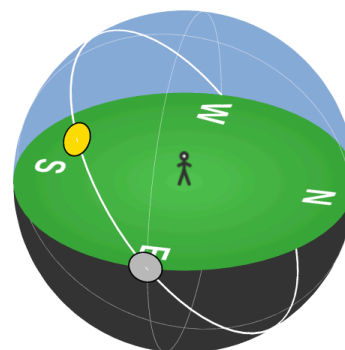
Waxing Crescent



18% illuminated
Time since new moon:
4 days, 3 hours

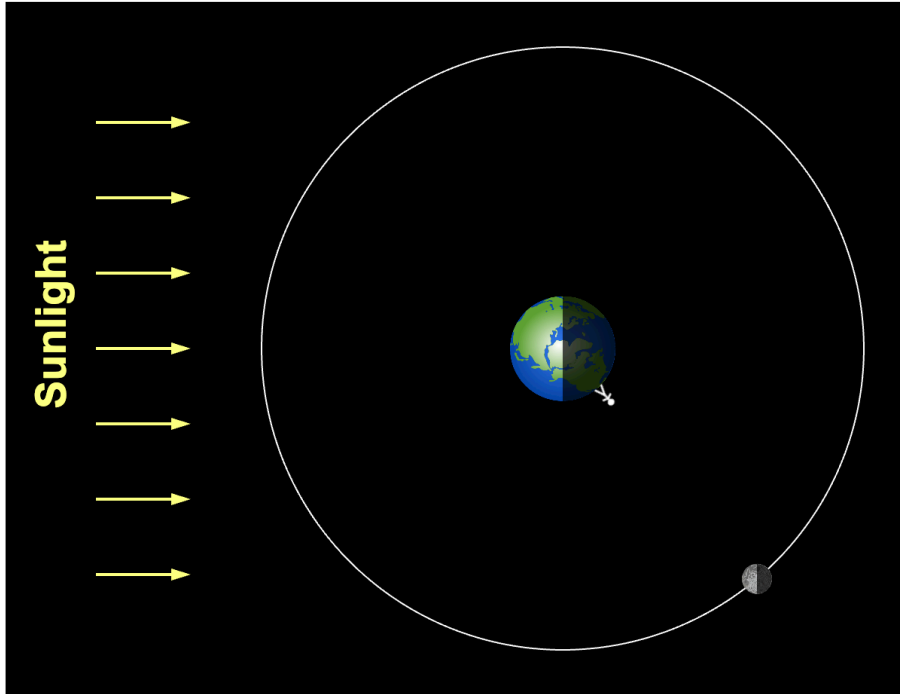
Hide

Horizon Diagram



Observer's local time: 09:24 AM

Hide



Animation and Time Controls

Start Animation

Animation rate:



Increment animation:

Day:

Hour:

Minute:

Diagram Options

- Show angle
- Show lunar landmark
- Show time tickmarks

Moon Phase

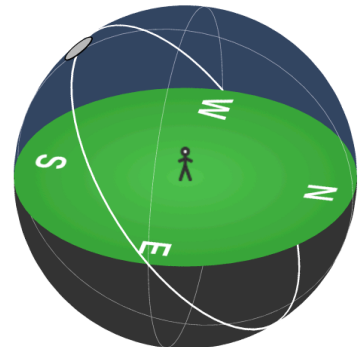
Waxing Gibbous



82.2% illuminated
Time since new moon:
10 days, 16 hours

Hide

Horizon Diagram



Observer's local time: 08:48 PM

Hide

17) Exactly the same as lunar phases. Name any two of them.

20) The Earth phase is "opposite" of the Moon phase. Here the "opposite" means the opposite direction on the Lunar Phase diagram. E.g. crescent v.s. gibbous, gibbous v.s. crescent, full v.s. new, first quarter v.s. third quarter.

21) A full Earth with a "Earth" eclipse: you see a small shadow crossing Earth.

25) Phase 1 would note be visible from Earth because the Venus would be right behind or very close to the Sun on the sky and the lights from the Venus is too dim compared to the Sun.

