

Eclipse Interactive Lab

http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::800::600::/sites/dl/free/0072482621/78778/Eclipses_Nav.swf::Eclipse%20Interactive

Questions Answer all parts of the following using complete sentences after following any directions given.

1. Where in its orbit is the moon when a solar eclipse occurs?
2. Where in its orbit is the moon when a lunar eclipse occurs?
3. What is the phase of the moon during a solar eclipse?
4. What is the phase of the moon during a lunar eclipse?
5. Joe Astronaut stands on the moon at the place closest to the Earth. He looks straight up, towards the Earth. What does he see during a lunar eclipse as seen from Earth?
6. What does he see during a solar eclipse as seen from Earth?
7. Set the size of the moon and the size of its orbit to 100 percent. Set the "Tilt of Orbit" slider to zero degrees and watch a complete orbit of the moon. Do any eclipses occur? Explain.
8. Set the "Tilt of Orbit" to 3 degrees. Watch one complete orbit. Do eclipses occur? Explain.
9. In real life, the tilt of the moon's orbit is about 5 degrees. Should the moon cover the sun as it passes? Explain.
10. However, even though the moon's orbit is tilted so much, we still occasionally see eclipses. Explain why.
11. Set the size of the moon to 100 percent. Reset the "Tilt of Orbit" slider to zero degrees and arrange a perfect solar eclipse. What do you see?
12. Look at the shadow of the moon. Where does it end?
13. Reset all parameters to their default values. Watch both a solar and lunar eclipse. "Totality" is defined as the time during which one body is completely covered by another, either the sun by the moon or the moon by Earth's shadow. Which is longer, the totality of a solar or lunar eclipse? Explain why.