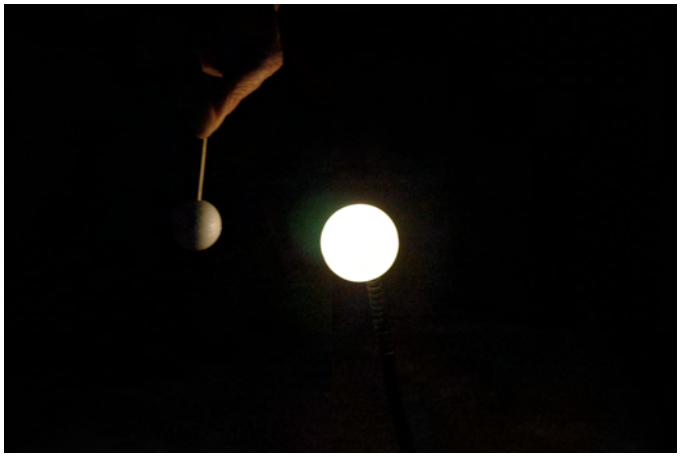
Venus Phases

Why Does Venus Look Like the Moon?

About the Activity

You've seen the phases of the Moon. Did you know we also see the phases of two planets? Here is a great way to explain why we see phases of Venus when looking through the telescope.



Topic Covered

- Why we see the phases of Venus and Mercury

Materials Needed

- 2 "Planet balls": 1"–2" dylite balls work well. *See Helpful Hints for more information.*
- Skewers or toothpicks for holding your planet
- Lamp without a shade or other set up for a clear bulb Sun

Participants

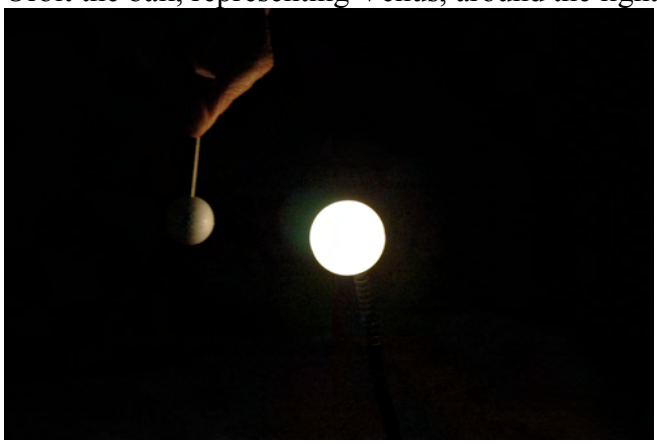
Use this activity with families, the general public, and school or youth groups ages 7 and up.

Location and Timing

This activity takes about 5 minutes and can be used in a darkened room. It can also be used at a star party if the light does not bother other astronomers.

Detailed Activity Description

Venus phases – Why does Venus look like the Moon?

Leader's Role	**Participants' Role (Anticipated)**
Presentation Tip: Sometimes a person will look into your telescope at Venus and say "It looks like the Moon!" This explains why.	
To Do: Turn on the light bulb, representing the Sun. Have visitors stand in a semi-circle. *To Say:* You are viewing Venus from Earth. Venus is closer to the Sun than Earth is. As I orbit this ball, representing Venus, around this light, representing the Sun, notice how much of Venus is lit up. *To Do:* Orbit the ball, representing Venus, around the light.  If Venus is in the sky, align Venus and Sun in the same positions as they appear in the sky. *To Say:* Here is where Venus and Sun are in the sky right now. Look at the ball. Is that what Venus looked like in the telescope? *To Do (Optional):* Do the same thing but identify the ball as Mercury. (Can segue from here to Transits Activities)	Venus has phases like the Moon! Yes!
Presentation Tip: When showing the demonstration, if you have more than 3 or 4 people watching, those people standing at the edge of the crowd might not see the same Venus phase as those in the middle who are directly facing you. Be sure to turn and hold the props so that everyone will be able to see the correct Venus phase.	

Helpful Hints

There are many options for "Planet Balls" but the dylite balls work by far the best. Most importantly, the balls need to be smooth and white. It is useful to be able to mount them on skewers or toothpicks.

- 1–2" (3–5 cm) dylite/polystyrene balls: http://plasteelcorp.com/. You might also find polystyrene balls at arts and craft stores, but be sure you are using polystyrene, *NOT styrofoam*. The material is also called "dylite".
- Ping-pong balls with hole: sporting goods – you need to poke your own small hole with a pencil. Beware, kids love to smash these.

Background Information

Find out how the discovery of Venus's phases was a major piece of evidence when Galileo made a case for a heliocentric (Sun at the center) Solar System:
http://www.thespacesite.com/space_galileo_astronomy.html