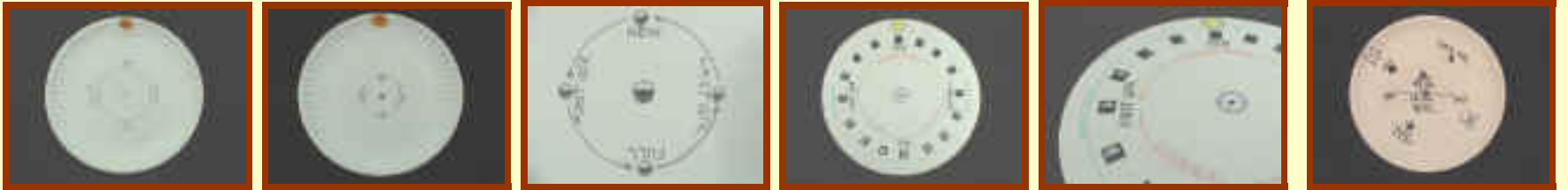


# Paper Plate Education

*"Serving the Universe on a Paper Plate"*

## Activity: Moon Finder



This and several other activities from the *Paper Plate Astronomy* videotape and DVD are now available online as [free streaming video!](#)

The Moon Finder consists of two plates--a moon phases plate and a local horizon plate. See the Gallery for [images of students](#) from Shaker Heights, Ohio, constructing Moon Finders,



First, make a plate that shows a God's-eye view of the moon in orbit around the earth, which is centered on the plate. Place the sun on the perimeter of the plate and label the phases accordingly.

If possible affix images of the moon that show the moon in its respective phases. One technique for planetarians is to cut out pictures from the lunar calendars of previous years that have been distributed courtesy of Evans and Sutherland.



Make a horizon plate as shown at left (or use a 3x5 card as shown in the sample). The plate depicts an observer who is facing south, with east being toward her left and west being toward her right. The outer edge of the horizon plate is cut away to allow the sun to be seen on the perimeter.



Place the horizon plate over the moon phases plate and secure them

with a paper fastener. The fastener goes through the center of the horizon plate and through the earth on the moon phases plate. Your instrument is ready for use.

The sun indicates the time, rotating clockwise once every 24 hours. When the sun is low along the eastern horizon, the time is sunrise (or simply AM). When the sun is high and due south, the time is noon. When the sun is low along the western horizon, the time is sunset (or simply PM). When the sun is opposite the noon position and below the horizon, the time is midnight. When the sun is between those four positions, interpolate for time. This will compensate for some inaccuracies that become amplified near the solstices.

Using the sun as a time indicator, set the sky to an approximate time. Though the sun indicates the time, refrain from referring to the sun as a "clock." Users tend to envision a 12-hour clock face rather than determining the time from the sun's position relative to the local horizon.

When using the Moon Finder, focus on only one moon phase and the sun at a time. Notice how the angle between the sun, the earth, and the moon remains the same whether the system is viewed from the earth or from the God's-eye perspective for the respective phases.

From a calendar or a newspaper or from observation, determine the current moon phase. Use the Moon Finder to determine when that moon rises, transits, or sets. Note how the full moon always rises as the sun sets and sets as the sun rises. Also note why most people are more familiar with the first quarter moon than the last quarter moon by virtue of the *practical* hours they are each visible in the sky.

There are limitations to the accuracy of this device, obviously, but the Moon Finder gives you a fairly good idea of when to look and in which direction to see the moon in its respective phases. A similar device, the [Planet Pointer](#) allows you to use your local horizon plate and a planet positions plate to determine when and in which direction to look for the visible planets.

For a simple version of a moon plate for young children, see [Oreo Moon Phases](#).

Contributed by Chuck Bueter.

*GLPA Proceedings*, 1994, pp. 31-33.

[Note: This activity is included in the [Paper Plate Astronomy video/DVD/streaming video](#).]

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