

# Moon Phase Dial

Understanding Moon phases is difficult because we can't see what's happening from outer space. Please remember that the Moon is orbiting Earth; one revolution (orbit) takes about 28 days to complete. At the same time, Earth is rotating (one rotation takes 24 hours) and also orbiting the Sun (one revolution takes 365 days).



Both Earth and the Moon are half lit by the Sun all the time, as shown by the picture. This image was taken by the NearEarth Asteroid Rendezvous (NEAR) Spacecraft on 1998. Credit: NASA

**IMPORTANT:** The phase of the Moon depends on how much of the lit up portion we can see *from here on Earth*.



New Moon



Waxing Crescent



First Quarter



Waxing Gibbous



Full Moon



Waning Gibbous



Third Quarter



Waning Crescent

## Glossary:

**Waxing = getting bigger**

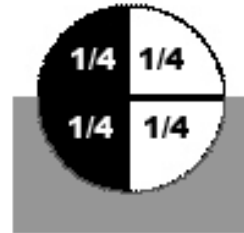
(To remember, think of a candle. One way to make a candle is to dip it into melted wax many times. It gets bigger with each dip.)

**Waning = getting smaller**

**Gibbous = rounded** The word comes from a Latin word that means “hump.” Look at the gibbous phases – they do seem to have rounded “bellies” or humps.

**First Quarter** Why is it called a “quarter” when half the Moon is always lit by the Sun and we see half of it lit? Because the lit part we can see from Earth is only a quarter of the moon. Think of geometry for this one.

**Half of the Moon is lit  
Half of the Moon isn't lit**



**This is what we see from Earth**

**To make the Moon Phase dial:**

- Supplies:**
- Card stock
  - Transparency (optional)
  - Scissors
  - Paper fasteners
  - Yellow marker or crayon (optional, for paper plate)
  - Glue stick (optional, for paper plate)
  - Ordinary paper plates (optional)

There are two ways to make the Moon Phase dial. One uses only card stock; the other uses a paper plate. Either method can use a transparency for the dial part.

Print both parts of the dial on card stock (or print the dial on a transparency). Cut out the dial, being careful to read the instructions for card stock or transparency. If you're using card stock, then the rectangular section needs to be cut out. Be sure to leave a little door regardless of what media you use.

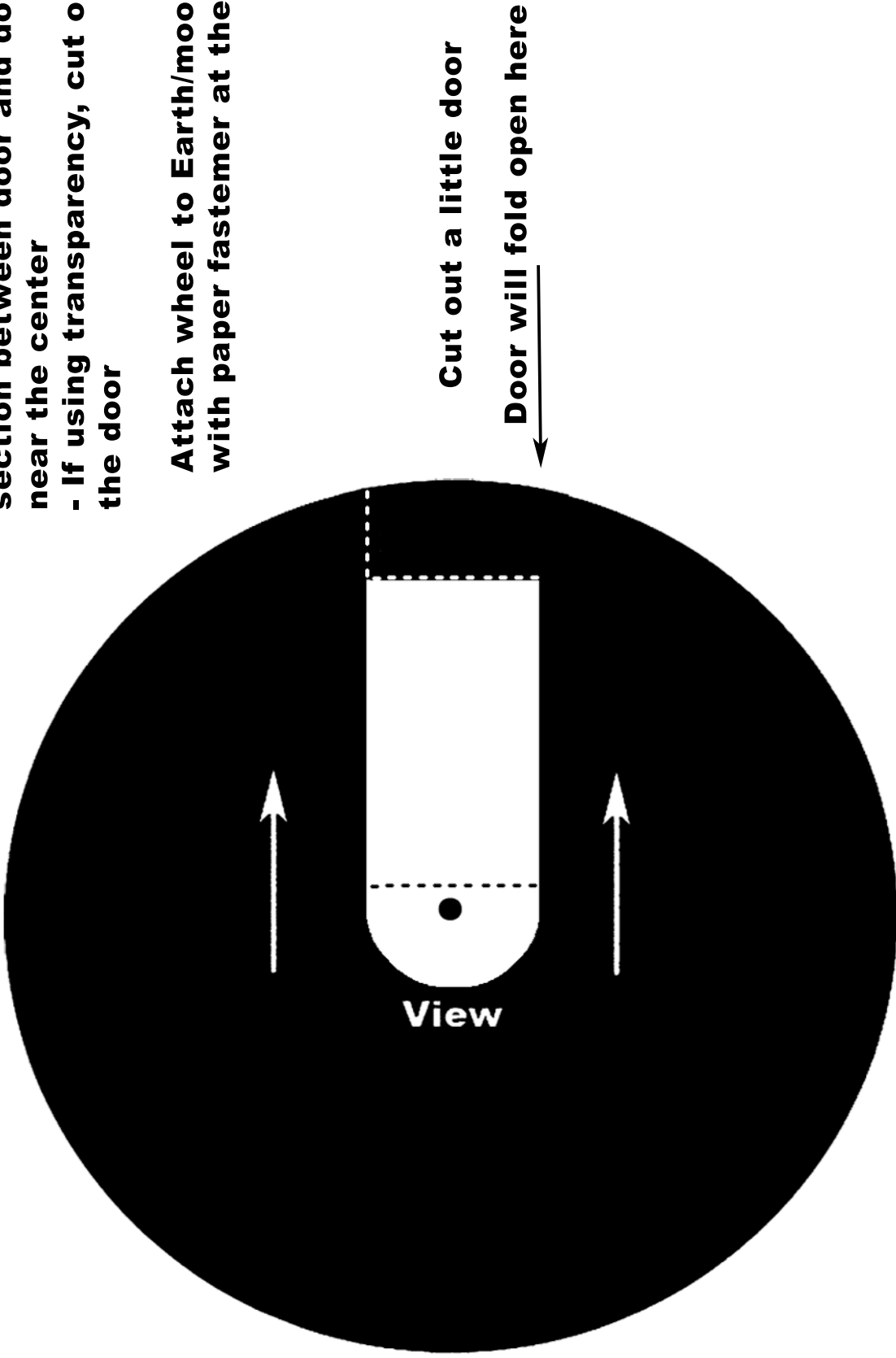
Carefully make holes where indicated; there is a black hole guide on the dial and a white hole guide on the Earth. **SAFETY FIRST:** Have an adult or teacher make the hole in the transparency. Connect the dial to the Earth diagram with a paper fastener.

I prefer the paper plate method. Draw a sun on the crinkled edge of the paper plate with a yellow marker or crayon. Cut out the Earth diagram and glue it to the center of the paper plate. Connect the dial to the Earth diagram with a paper fastener.

**Copy onto card stock or transparency**

- If using card stock, cut out white section between door and dotted line near the center
- If using transparency, cut out only the door

**Attach wheel to Earth/moon diagram with paper fastener at the dots**



**Cut out a little door**

**Door will fold open here**

**View**

**Sun**

