

# In-Class Lunar Phase Activity

## Goal of the activity:

To demonstrate why the moon passes through in various phases and when the moon is visible.

## Materials Required:

1. Lamp with a bare (not frosted) bulb
2. Pencil
3. 8 cm Styrofoam Ball
4. Plain paper with 8 6 cm circles drawn on it
5. Optional 8 pieces of paper with the following written on them:
  - Noon, 0 days old **New Moon**
  - 3:00 PM, 3.5 days old **Crescent Moon**
  - 6:00 PM, 7 days old **1st Quarter Moon**
  - 9:00 PM, 10.5 days old **Waxing Gibbous**
  - Midnight, 14 days old **Full Moon**
  - 3:00 AM, 17.5 days old **Waning Gibbous Moon**
  - 6:00 AM 21 days old **3<sup>rd</sup> Quarter Moon**
  - 9:00 AM 24.5 days old **Crescent Moon**

## Instructions:

Have the students draw a face on one side of the ball then carefully stick the pencil into the Styrofoam ball (see fig. 1). Have the students stand in a circle about 2 meters away from the bare lamp. Ideally the lamp should be at the same height as the students faces. On the floor place the paper indicating the time around each student (see fig. 2). Have the students hold their pencils at arms length directly between themselves and the lamp (the noon/New Moon position). Ask the students to draw what they see in the first circle and note the time and phase. Have the students then hold their pencils at the 3:00 PM position with the face on the pencil still facing them and repeat the drawing and noting of time and phase. Repeat for all eight positions.

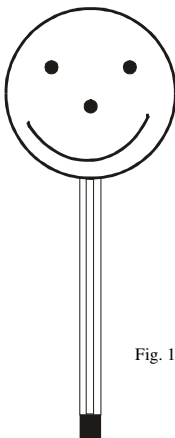


Fig. 1

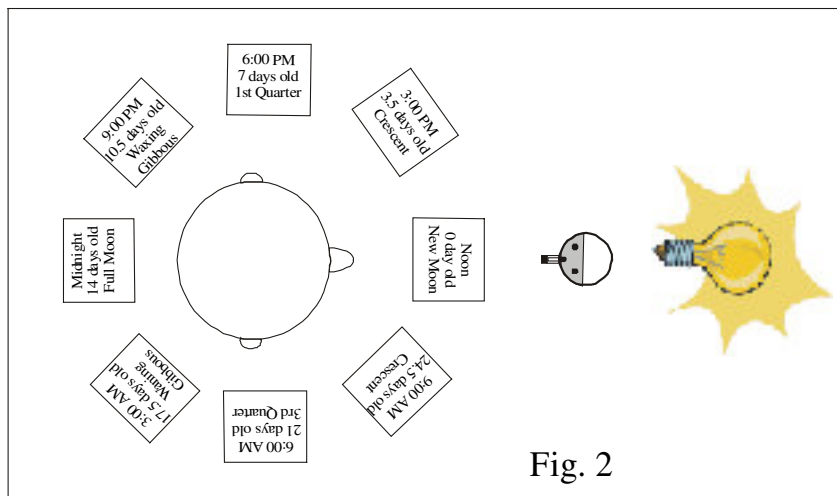
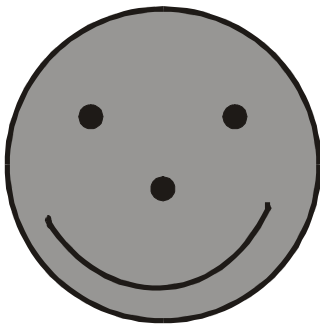


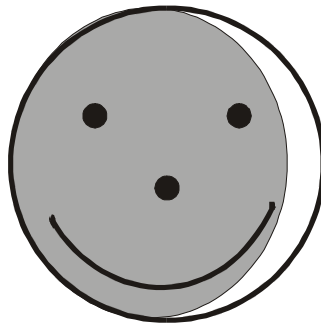
Fig. 2

**Observations:**

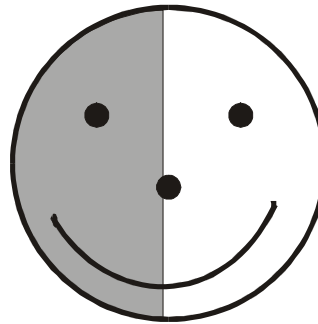
1. When the exercise is complete each student should have a sheet similar to sample sheet provided. The shade represents the moon phase and the time is when that phase of the moon is visible.
2. Notice the age of the moon. The earth needs to turn (counterclockwise) almost 28 times before the moon completes its orbit around the earth once.
3. Note that the moon has rotated once as it completed it's orbit around the earth. This demonstrates why we see the same face of the moon at all times.
4. The time represents the approx. time when the moon is at its highest point in the sky during a particular phase.



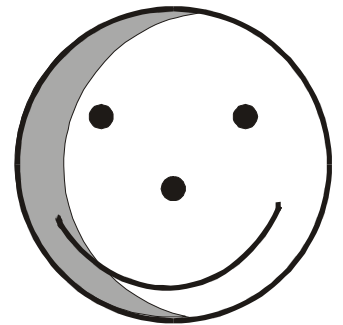
New Moon  
0 days old  
Noon



Crescent  
3.5 days old  
3:00 PM



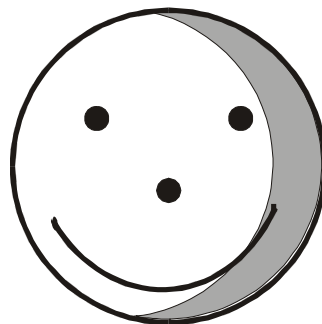
First Quarter  
7 days old  
6:00 PM



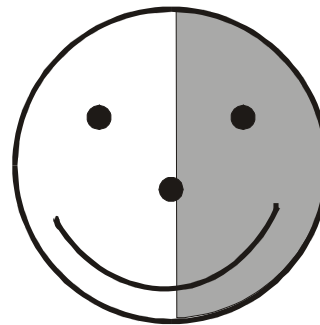
Waxing Gibbous  
10.5 days old  
9:00 PM



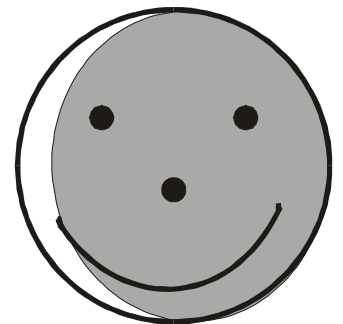
Full Moon  
14 days old  
Midnight



Waning Gibbous  
17.5 days old  
3:00AM



Third Quarter  
21 days old  
6:00 AM



Crescent  
24.5 days old  
9:00 AM

