



Activity 9: Phases of the Moon

What are the phases of the Moon's cycle?

As you do the following activity involving the phases of the Moon, you will do in 30 minutes what the Moon takes about 30 days to do.

Resources

Exercise Part A

- ADLC Digital Lesson: <https://adlc.wistia.com/medias/r21il9qwkb>
- Moon Phases BrainPOP video (username: 0099 password: students)
<https://www.brainpop.com/science/space/moonphases/>
- Moon Worksheet

Exercise Part B

- one white Styrofoam ball (5 cm or larger)
- pencil
- bright light source (lamp with shade removed)
- a dark room
- Phases of the Moon Worksheet

Instructions: Part A

1. Watch the ADLC Lesson and Brain POP Moon Phases videos.
2. Answer the questions on The Moon Worksheet as you watch the video(s).

The Moon Worksheet

1. Draw the various views of the Moon. Begin with the New Moon in the first box and end with the New Moon in the last box. Be sure that the Full Moon is in the middle of the chart.

New Moon	
Full Moon	
New Moon	

2. What does the term waxing mean?

3. What does the term waning mean?

4. How much of the Moon's bright side can you see during a New Moon?

5. Does the Earth's rotation on its axis ever affect the Moon's phase?

6. Place the following phases of the moon in the correct sequence:
waxing crescent, waning gibbous, third quarter Moon

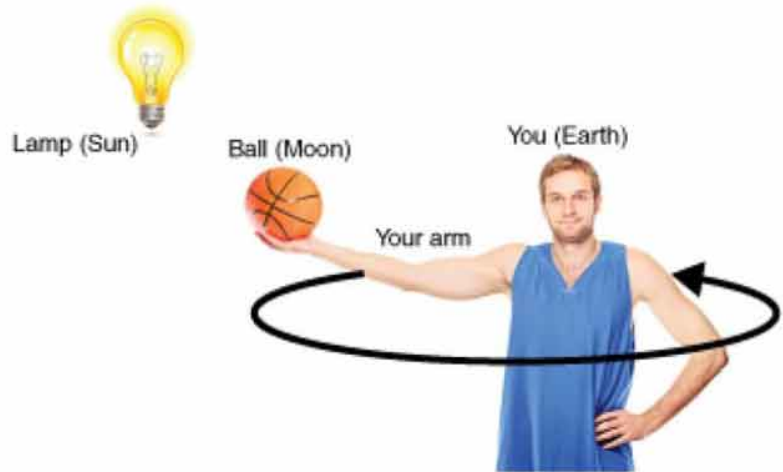
Instructions: Part B

1. Place the lamp in the middle of the room that can be darkened.

2. Poke your sharpened pencil through the Styrofoam ball and hold the pencil with the ball attached in your left hand.

3. The light bulb is the Sun and your Styrofoam ball is the Moon. You are the Earth.

4. As you complete the activity, record the phases of the Moon on the following *Phases of the Moon Chart* and draw pictures showing the portion of the lighted Styrofoam ball.



5. New Moon: To begin, face the lamp and extend the ball directly in front of you. Raise the ball enough so that you can also see the lamp. This view simulates a New Moon. From Earth, the New Moon is not seen because the Sun is behind it and no light reflects from the surface that is facing Earth.

New Moon is your starting position. You will be turning to your left (counterclockwise) as you move through the phases.

6. Crescent Moon: Keep your arms extended in front of your body. Turn your body and extended arm counterclockwise (to your left) about 45 degrees (one-eighth turn). Observe and draw which part of the Moon is lighted.

7. First Quarter: Continue turning left so your moon and body are now 90 degrees to the left of your original position (one-quarter turn). Observe and draw which part of the Moon is lighted.

8. Full Moon: Move your Moon so it is directly opposite the Sun as viewed from Earth (one-half turn). Be sure you hold your Moon high enough so your head does not block the "sunlight". Observe and draw the part of the Moon that is lighted.

9. Third or Last Quarter: Keep turning, with arm extended, so that you are three-quarters of the way around from your original position. This is the third quarter. Observe and draw which part of the Moon is lighted.

10. Return to New Moon: Continue moving counterclockwise so that you are brought back to a thinning crescent and finally a return to a New Moon.

Phases of the Moon Chart

Record your observations in your **Phases of the Moon Chart** by drawing on it.

Phase of the Moon	Picture (drawing)
New Moon	
Crescent Moon	
First Quarter	
Full Moon	
Third (Last) Quarter	

Check your answers on p. 74.