

**Learning Objectives**

- 1) Students will:
- 2) Understand the moon's relationship to Earth.
- 3) Describe the composition of the moon.
- 4) Understand the effects of gravity on the moon.
- 5) Detail the phases of the moon.

**Suggested Activities**

- 1) Before Viewing Activity. Lead a short discussion with the following questions. (You might want to record the responses so you can check for accuracy afterward.) "Which is larger – the sun or the moon or Earth?" "Does the moon have water on it? Or air? Or plants? Or animals?" Ask the class to tell you what shape to expect to see in the sky when looking for the moon. After you get several responses, ask the students to watch in the video for the correct answer.
- 2) Rotation and Revolution. Use students to illustrate the difference between rotation and revolution, and show that revolution requires two objects while rotation requires only one. Ask a student to come to the front of the class and rotate – spin him/her if you need to. Then ask the student to revolve – if necessary, help him/her move around you. Then move away and ask the student to revolve again without you. If the student revolves around an object, point out that a second object is required for revolution to occur. If the student cannot find a way to revolve, ask what he/she needs. You can also illustrate the meaning of satellite and orbit. You and the student can take turns being the satellite. You can mark a particular orbit on the floor with chalk, and/or change the size or shape of the orbit as you revolve around the student. To further reinforce, ask students to pair up and practice rotating and revolving – taking turns being the satellite and encouraging one student to follow the orbit made by the first satellite student. This can be done either before or after viewing the video.
- 3) Phases of the Moon. To reinforce the names of the phases of the moon, color half of a tennis ball black or a dark color. Standing in front of the class, hold the ball where all students see it from the same angle. Start with the black side fully at the facing forward (New Moon).

Then turn it slowly, stopping as each phase is seen to announce the name of that phase. When you get back to the New Moon position, ask what that phase is called. Repeat and ask the students to supply the phase names. Ask if the moon is waxing or waning. You could reinforce further by randomly showing the phases and asking what phase is represented. And/or give the ball to a student and ask him/her to display the phase you name.

**Test**

- 1) The moon is the star nearest earth. \_\_\_ T \_\_\_ F
- 2) The moon has less gravity than Earth because it is smaller. \_\_\_ T \_\_\_ F
- 3) There is ice on the moon. \_\_\_ T \_\_\_ F
- 4) The sun, moon and stars revolve around the Earth. \_\_\_ T \_\_\_ F
- 5) Tides are caused by the moon's gravity pulling on the ocean waters. \_\_\_ T \_\_\_ F
- 6) Which of these physical characteristics are found on the earth but NOT on the moon?  
a) mountains    b) valleys    c) lakes    d) plains
- 7) Moon craters were formed when...  
a) Water washed away the sandy soil  
b) Mountains rose up in a circle  
c) Giant trees fell over and left the holes.  
d) Comets or asteroids hit the moon
- 8) Revolution is...  
a) An object spinning like a top.  
b) One object tracing a path around another object.  
c) An object moving toward and then away from another object.  
d) None of the above
- 9) The different shapes of the moon that we see each night are called...  
a) months    b) phases    c) craters    d) geometric
- 10) The moon seems to change shape because...  
a) We see only the part of the moon that has the sun shining on it.  
b) The Earth causes a shadow on the moon.

- c) The moon really does get bigger, then smaller, then bigger again.
- d) It is made of a clay-like substance

Answers: 1F, 2T, 3T, 4F, 5T, 6C, 7D, 8B, 9B, 10A

**Vocabulary**

**Craters** – bowl-shaped depressions on the moon's surface caused by objects from space colliding with the moon.

**Gravity** – Force that causes objects to be pulled toward the center of all other objects.

**Highlands** – the light areas seen on the moon which are rough and mountainous.

**Maria** (singular: mare) – the dark patches seen on the moon which are lowlands covered by a thin layer of rocky soil.

**Orbit** – the path taken by an object moving around another object.

**Phases of the Moon** – the various shapes the moon seems to have each night as it moves through its approximately monthly cycle (29.5 days).

**Revolution** – one object tracing a path or orbit around another object.

**Rotation** – the spinning of an object.

**Satellite** – an object that revolves around another object.

**Tide** – the rise and fall of water along the ocean shore.

**Waning** – the time when the moon appears to be growing smaller each passing night – the lighted side is on the left.

**Waxing** – the time when the moon appears to be growing larger with each passing night – the lighted side is on the right.