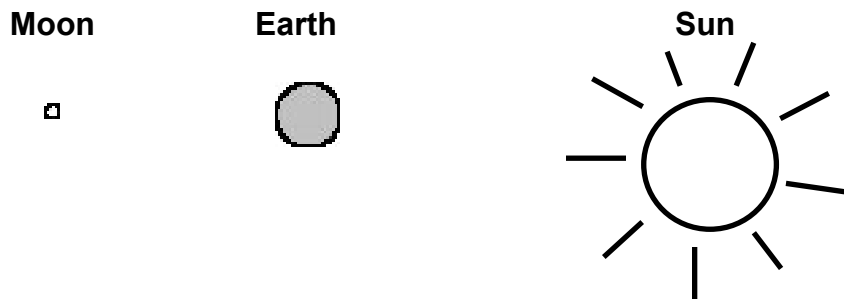


Multiple Choice

1. Why does the moon appear to move across the sky during the night?
 - A. It travels around Earth every day.
 - B. Earth rotates on its axis.
 - C. It is extremely far away.
 - D. All objects in space are moving.

2. What happens when you see the moon's "phases" change? The moon appears to change
 - A. color
 - B. location
 - C. shape
 - D. distance

Use this diagram to answer the next two questions.



3. What phase of the moon would you see on this night?
 - A. first quarter moon
 - B. last moon
 - C. new moon
 - D. full moon

4. How many days would pass before the moon was on the other side of Earth?
 - A. 7
 - B. 14
 - C. 21
 - D. 28

5. Why do we see phases of the moon during a month?
- A. We see only the lighted part of the moon as it moves around Earth.
 - B. Parts of the moon are covered by Earth's shadow.
 - C. Volcanoes on the moon change its shape.
 - D. The moon is smaller when it is farther from us.
6. Which of the following would be a way to investigate the phases of the moon?
- A. Watch it all night.
 - B. Draw it every night for a month.
 - C. Measure the moon with a ruler.
 - D. Make measurements every Wednesday for a year.
7. Which of the following correctly describes the movement of Earth, moon and sun?
- A. Moon revolves around sun, Earth revolves around moon.
 - B. Sun revolves around moon, moon revolves around Earth.
 - C. Moon revolves around Earth, Earth revolves around sun.
 - D. Sun and moon revolve around Earth.
8. What is the movement of Earth on its axis called?
- A. phases
 - B. flotation
 - C. revolution
 - D. rotation
9. What is the movement of Earth around the sun called?
- A. precipitation
 - B. random movement
 - C. revolution
 - D. rotation

10. What causes the apparent movement of objects across the sky during a day or night on Earth?

- A. revolution of Earth in its orbit
- B. rotation of Earth on its axis
- C. location of Earth in space
- D. objects are moving around Earth

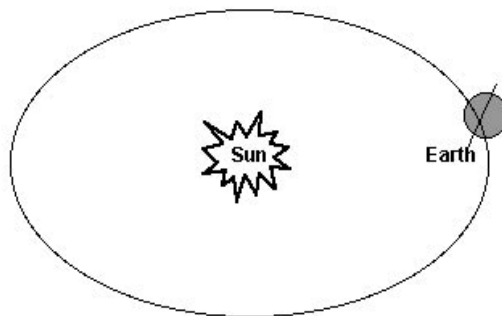
11. If you watched the night sky for several hours, how would the stars appear to be moving? Around

- A. the North Star
- B. the Big Dipper
- C. the moon
- D. you

Constructed Response

1. Describe how the moon would change if you observed it every night for a month. Assume it starts as a full moon.
2. What are you seeing when you see a half moon?

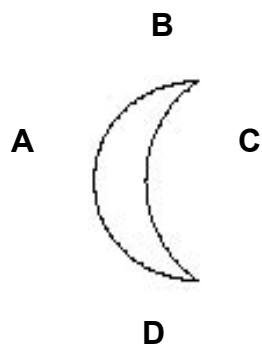
Use this diagram to answer the next two questions



side view of Earth's orbit

3. Label Earth's orbit.
4. Label Earth's axis.
5. Draw the moon on this diagram, showing where it would be in a New Moon phase.

Use this picture of the moon to answer the next two questions:



6. Which letter shows the direction of the sun in relation to the moon?
7. Make a drawing showing where the moon, sun and Earth would be for this phase of the moon.

Answers Standard 1:

Multiple Choice

1. *B*
2. *C*
3. *D*
4. *B*
5. *A*
6. *B*
7. *C*
8. *D*
9. *C*
10. *B*
11. *A*

Constructed Response

1. *The moon would go from full to last quarter to new first quarter. It would start getting bigger after that and go to a full moon again.*
2. *One half of the moon is light and bright, the other half is shadowed and dark ,but not always invisible.*
3. *the large circle*
4. *the line extending from Earth*
5. *In between Earth and sun*
6. *A*
7. *Something like this:*



Title: Moon Watching

Activity Description: Students will watch the moon over several days to help explain its phases and movement.

Materials Needed: Paper and Pencil

Prior to Assessment

The teacher will need to plan this activity so that it corresponds to several days when the moon rises at a time when 6th graders can be awake and the moon visible. Some daytime hours will work and early evening or morning hours are also OK. When the sun is high in the sky, the moon becomes hard to see and students should not be looking at the sun. A calendar with moon phases will be helpful to planning this activity. Internet sites such as NASA or weather stations also have moon charts.

Time Needed

If done as homework, 30 minutes of explanation, 30 minutes of summary. The same if done in class but an additional 15 minutes per observation will have to be added.

Procedure

1. Explain to students that they will be observing the moon for the length of time you desire (at least a week). You may want to send a note to parents asking them to remind students if this is a homework assignment, or have parents sign the students' observations every time they make them.
2. Have students develop a chart on which to collect data. It doesn't need to be the same for each student. Tell students the chart needs to be complete and accurate. They might make drawings, note the time, write a journal entry or draw other objects (in the landscape or sky)
3. Remind students each day about the assignment or take them outdoors and write observations.
4. Summarize the assignment on the final day. Give students summary questions to answer such as:
 - A. What were the names of the phases we saw this week?
 - B. Was the moon waxing (getting bigger) or waning (getting smaller)?
 - C. What kinds of features could you see on the moon?
 - D. What did you notice about the time the moon came up each day?

Scoring Guide

1. *Student makes data chart.....5 pts*
2. *Student makes daily observations.....20 pts*
3. *Students records accurate and complete observations.....20 pts*
4. *Student correctly answer questions.....5 pts*

Title: Modeling the Moon

Activity Description: Students will develop and use a model of the Earth, sun and moon system.

Materials Needed: Light source (a lightbulb in a socket able to stand alone) several white, styrofoam balls or light-colored play balls.

Prior to Assessment: Students should know that the moon revolves around Earth and Earth revolves around the sun. They should be familiar with the fact that we see the moon best at night but we can see it during the day. They should also know that it is always half lighted by the sun but we cannot see the entire lighted half except during a full moon.

Time Needed for Assessment: One hour

Procedure

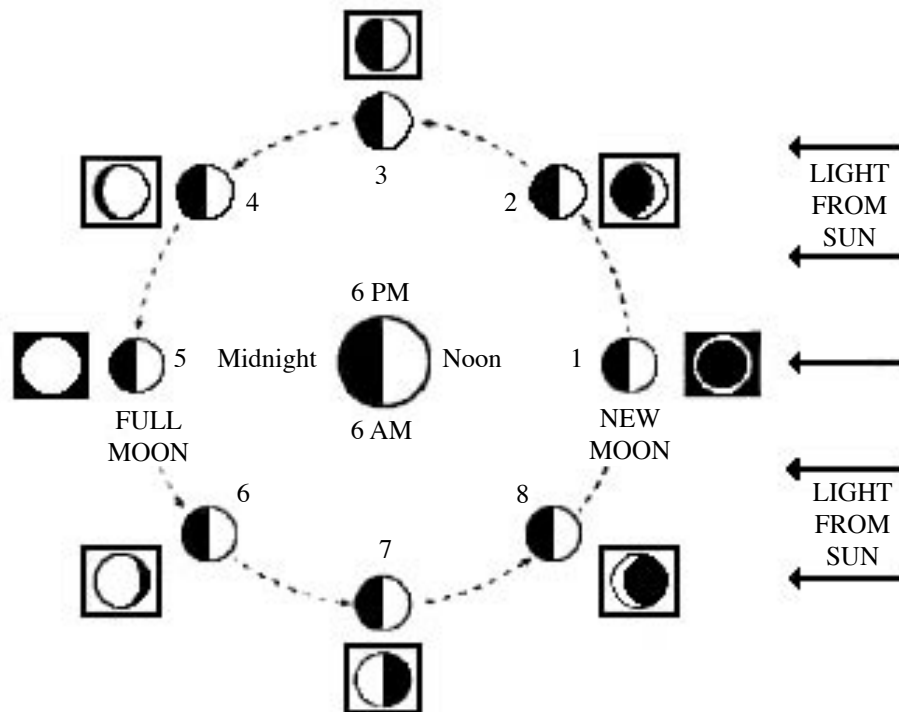
1. Divide the class into groups of four or five students. Each group needs a moon (ball).
2. Explain to students that the light source represents the sun, the ball is the moon. Ask a student to volunteer his/her head to represent the Earth. The student's head can rotate just as Earth does.
3. One student from each group should volunteer to be Earth and one will hold the moon ball.
4. Darken the room as much as possible and turn on the "sun."
5. Start with "Earth" facing away from the "sun" and the moon ball on the side farthest from the light source. This would be a full moon to the Earth observer.
6. Other students in the group need to follow the directions on the worksheet and ask their Earth and moon to move around. At each position the questions should be answered.
7. When the students have had time to learn from their model, ask each group to position themselves in a particular phase of the moon.

Scoring guide:

1. *Students model the phases and work in their groups.....5 pts*
2. *Students accurately fill out worksheet and answer questions.....5 pts*
3. *Students are able to correctly model phases when asked.....3 pts*

Student Worksheet:

Use this diagram of the phases of the moon to help you with your model.



1. Start with the moon on the far side of Earth from the sun. Have the person who is “Earth” describe what the moon looks like. Draw it here:

What is the name of this phase?

2. Have the person holding the moon to move around the Earth a little way. Draw the moon as it is described by “Earth.”

What is the name of this phase?

3. As the moon continues around Earth, make a drawing and label the phase below:

4. Your teacher will ask you to model a phase of the moon. Be ready to show how that phase will look.