

Revolve (ri vól'v) to move in a path around another object

Rotate (ró' tāt) to spin; the turning of an object on its axis

Phases (fāz' iz) the changing appearance of the moon as seen from Earth, determined by the portion of the moon visibly illuminated by the sun

Moon Phases

Using SCIENCE Words

1. Earth and other objects in the solar system _____ around the sun.
 - A. revolve
 - B. rotate
 - C. appear

- 1 How many times have you gazed into the night sky and seen a bright full moon? At night and many times during the day, the moon is usually easy to see. Have you ever wondered why the moon looks a little different?
- 2 From Earth, we see only one side of the moon. This is due to the moon's orbit around Earth. It takes the moon twenty-nine and one-half days to **revolve**, or move, around Earth one time.
- 3 While the moon travels in its path around Earth, it slowly turns on its axis. The moon takes about the same number of days to **rotate**, or turn on its axis, as it does to revolve around Earth. Because these two motions take the same amount of time, the same side of the moon is always facing Earth.
- 4 Remember, while the moon is orbiting Earth, Earth is orbiting the sun. Earth is also spinning on its axis. The relationship between these movements determines what phase of the moon we will see.
- 5 The movements of the moon and Earth affect how much of the moon we see. But the reason we can see the moon at all is the sun. The moon does not produce any light of its own. It reflects the sun's light. What we call "moonlight" is really sunlight reflected off the moon. As the moon moves in its orbit, different portions of it are visible because of reflected light, and the moon appears to change shape. These changing appearances are **phases**.
- 6 The phases of the moon are repeated every twenty-nine and one-half days. They always follow the same pattern. During the new-moon phase, the moon is between Earth and the sun. You can't see the new moon because all of the side lighted by the sun faces away from Earth. There is no moonlight visible on those nights.
- 7 About three or four days after the new-moon phase, the moon looks like a thin sliver in the sky. This is a crescent moon. As more of the moon's sunlit surface becomes visible from Earth, the moon is said to be waxing, or growing.
- 8 When the moon is a quarter of the way around its orbit, we see half its sunlit side. From Earth, we see a quarter moon. A quarter moon looks like a half circle in the sky. When more than half of the moon's surface can be seen from Earth, it is a gibbous moon.
- 9 Halfway through the moon's orbit, we can see the entire lighted side of the moon. This phase is a full moon. During this phase, the moon looks like a big white circle in the sky. Following a full moon, the moon appears to get smaller and is said to be waning. We are back to seeing a gibbous moon. A quarter moon follows, and, a few days later, we see a crescent moon. After twenty-nine and one-half days, the cycle is complete.

COMPREHENSION

Write the letter of the best answer for each question.

2. Which statement is true?
 - a. The moon revolves around Earth.
 - b. The moon does not rotate.
 - c. The moon's shape changes every twenty-nine days.
3. Moonlight is light _____.
 - a. from the stars
 - b. the moon gives off
 - c. from the sun
4. The changing appearances in the shape of the moon are _____.
 - a. illusions
 - b. phases
 - c. moonlight
5. The phases of the moon form a pattern every _____.
 - a. day
 - b. week
 - c. twenty-nine and one-half days
6. Which statement is true?
 - a. The moon gives off no light of its own.
 - b. Different sides of the moon face Earth.
 - c. The movements of Earth and the sun affect how much of the moon we see.

LEARN ABOUT WORDS

A. Read the sentences, and notice the words in **bold type**. If those words are the subject of the sentence, write *S*. If they are the predicate, write *P*.

7. **The sea** is salty.
8. The morning dew **makes the grass glisten in the sunlight**.
9. Mrs. Jenkins **bought her son a telescope**.
10. **Scientists** believe there are black holes in outer space.
11. We **will buy two microscopes**.
12. **Luis** knew the names of all the planets.

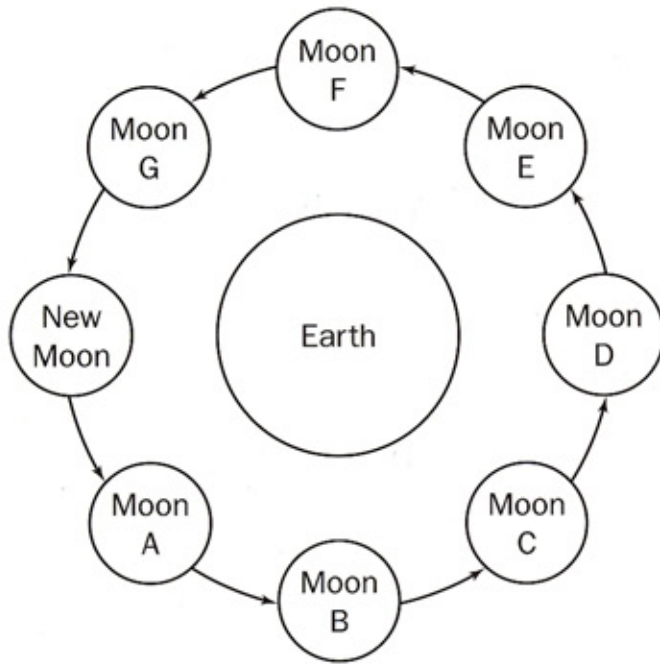
B. The **doctor** smiled at **Joe**. (persons)
Jungles in **Peru** are hot. (places)
This **car** needs **oil**. (things)

The words in **bold type** are nouns. A noun is a person, place, or thing. Each phrase below contains one noun. Write the noun.

13. a flat tire
14. visiting Berlin
15. to the park
16. when ice melts

THINK ABOUT IT

Look at the diagram. Answer the questions.



17. Which moon would be a full moon?
- A. Moon A
 - B. Moon B
 - C. Moon C
 - D. Moon D
18. Moon A would be a _____.
- A. crescent moon
 - B. quarter moon
 - C. full moon

Using SCIENCE Words

1. A

Comprehension

2. a
3. c
4. b
5. c
6. a

Learn About Words

- A. 7. S
8. P
9. P
10. S
11. P
12. S
- B. 13. tire
14. Berlin
15. park
16. ice

Think About It

17. D
18. A

Writing About Science

Write a story for a younger child about the phases of the moon. Include drawings of the moon phases in your story.