

A Spin in the Solar System: MOON DANCE

Word Splash

moon

Earth

tides

eclipses

rotation

revolution

crust

meteorites

crater

volcanoes

diameter

molten

Maria

gravitational

ocean

orbit

phases

terminator

new moon

w a n e s

gravity

waxes

full eclipse

synchronize

partial eclipse

A Spin in the Solar System: MOON DANCE
Anticipation Guide

Directions: Answer the following questions by circling the correct response. Do your best!

- | | | |
|--|------|-------|
| 1. In 1969, the first American to set foot on the moon | True | False |
| 2. The moon formed after Earth. | True | False |
| 3. The moon's surface is covered with craters that were formed by meteorites hitting it. | True | False |
| 4. The moon has active volcanoes. | True | False |
| 5. Maria is the area on the moon that looks like a woman. | True | False |
| 6. The moon's surface has hardly changed over the past three billion years. | True | False |
| 7. The moon's noticeable affect on Earth is ocean tides. | True | False |
| 8. There is one high tide and one low tide a day. | True | False |
| 9. According to scientists, the moon is actually slowing Earth's rotation on its axis. | True | False |
| 10. The moon produces its own light. | True | False |
| 11. The line separating the light from dark sections of the moon is called the "terminator". | True | False |
| 12. We see every angle of the moon. | True | False |
| 13. An "eclipse" happens when the moon casts a shadow on Earth. | True | False |
| 14. The moon is slowly moving away from Earth. | True | False |
| 15. There are about 30 moons in our solar system. | True | False |

After viewing the program, review your answers. See how many questions you answered correctly. Review the ones you answered incorrectly.

A Spin in the Solar System: MOON DANCE**Video Quiz**

Directions: Now that you have viewed the program, let's challenge your memory by answering some quiz questions. Fill in the blanks with the correct words. Good luck!

1. The moon orbits the earth once every 29 _____ ; while the earth rotates on its axis once every 24 _____ .
2. True or False? The earth and moon seem to have formed from the same type of materials. _____
3. Is the moon's crust thinner or thicker than Earth's? _____
4. Maria on the moon are not seas as once thought, but fields of _____ from volcanoes that are no longer active.
5. True or False? Our solar system has over 60 moons. _____
6. The moon causes tides through the pull of its _____ .
7. Because the pull of the moon's gravity and the friction of tides, is the earth's rotation speeding up or slowing down? _____
8. We can't see the moon at night when it is between the sun and Earth. We call this phase the _____ moon.
9. In 10 million years, the moon will have moved so far away it will no longer affect _____ .
10. In the distant future, the Earth's _____ and the moon's orbit will synchronize, and the pair will face each other until they cease to exist.

A Spin in the Solar System: MOON DANCE
Discussion Questions

Directions: Answer the following questions as directed by your teacher.

1. What did the program mean by the moon and Earth have been dancing together for years?
2. What are some theories discussed in the program on how the moon was formed?
3. What has created the unique crust of the moon?
4. How is Earth's crust different from the moon's crust?
5. What are some causes for the changing of Earth's surface?
6. Why does the moon affect Earth's ocean tides?
7. How do you think scientists figured out that the moon had this effect on Earth?
8. Explain an ocean tide.
9. How is the moon's rotation different from Earth's?
10. What is the effect of this difference in rotation speed?
11. How has Earth's gravity affected the moon?
12. Explain the phases of the moon.
13. What is a lunar eclipse?
14. Has anyone ever witnessed an eclipse? Please explain your experience.
15. Why will the moon no longer affect tides one day?

A Spin in the Solar System: MOON DANCE**Cloze Activity: Positions Of The Moon And Earth**

Directions: Choose the correct word from the word box to complete the paragraph below.

gravity	rotation	ocean's	thirty
Earth	orbit	moon	tides
month	twenty-four	water	

One of the moon's most noticeable affects on Earth are ocean (1.) _____. Tides are the regular rise and fall of the (2.) _____ level. The moon creates tides through the pull of its (3.) _____. This pull is not enough to affect Earth's crust, but it is enough to cause a distinct bulge in the ocean. The high-tide ocean bulge always stays with the moon as the moon travels around (4.) _____, about once a (5.) _____.

We also see a second bulge on the backside of Earth, which creates a second high-tide for the day. The time at which high-tides occur changes slightly each day. As Earth spins, the moon moves in its (6.) _____ around Earth. By the time Earth rotates around its axis (7.) _____ hours later, the moon has moved ahead. As Earth spins around quickly, friction between the earth and (8.) _____ push the water ahead of the (9.) _____ a bit. Over long periods, this friction and timing difference between the earth's rapid (10.) _____ and the moon's slow orbit affects both the moon and Earth. Astronomers calculate that every century, because of the moon's pull, Earth's rotation takes about 1/500th of a second longer. A billion years ago, a day on Earth was only 19 hours instead of 24 hours. In another billion years, a day will last (11.) _____ hours. Will you be around to see this effect?

A Spin in the Solar System: MOON DANCE
Phases of the Moon

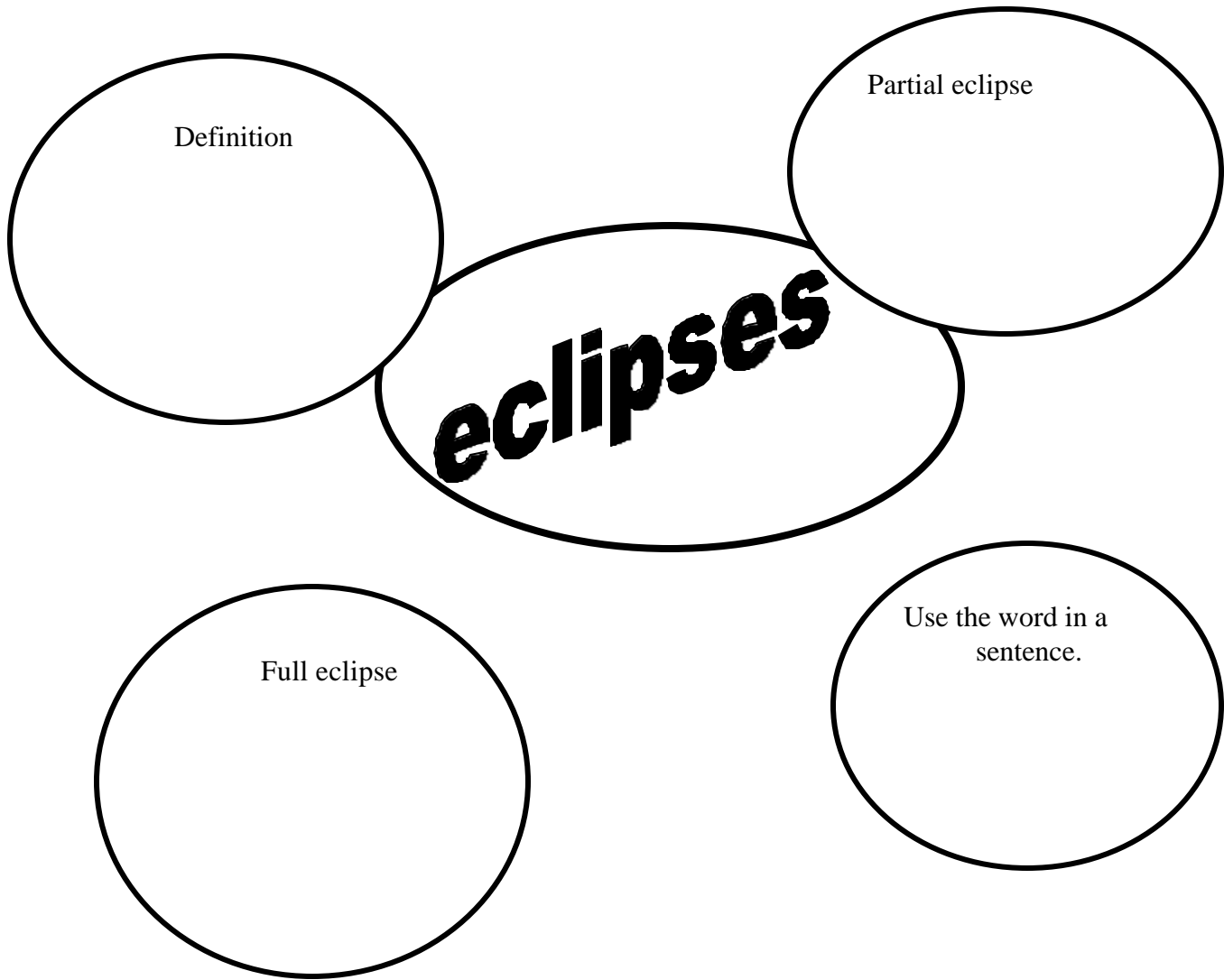
Directions: Draw the four phases of the moon. Use additional materials if needed. Here are some vocabulary words that may help you.

waxing, waning, new moon, full moon, terminator

LABEL your illustration.

A Spin in the Solar System: MOON DANCE
Eclipse Graphic Organizer

Directions: Fill in the graphic organizer below. Use your scientific mind to fill in each area.



A Spin in the Solar System: MOON DANCE**Post-Test**

Directions: Answer the following questions by circling the correct answer. Remember to double-check your work for accuracy after you have completed the test. Do your best!

1. Which answer is a scientific theory of how the moon formed?
 - A. It was created after the Earth was created.
 - B. The moon was created from part of the Earth that was knocked off by another planet.
 - C. The moon was once a planet that was pulled in by Earth's gravity.
 - D. It was formed two billion years ago.
2. What created the moon's surface?
 - A. asteroids
 - B. Other planets hitting it.
 - C. meteorites
 - D. Earth colliding with it a long time ago.
3. The moon's surface has hardly changed over the past 3 billion years?
 - A. True
 - B. False
4. What is the moon's most noticeable affect on Earth?
 - A. Eclipses
 - B. Tides
 - C. Phases of the moon
 - D. None of the above
5. Earth spins more quickly on its axis than the moon does on its axis?
 - A. True
 - B. False
6. Earth's gravity has affected the moon in which way?
 - A. Created the surface of the moon.
 - B. Pulled the moon into a synchronized orbit.
 - C. Creates eclipses.
 - D. Created the Maria.
7. Which one is not a phase of the moon?
 - A. New moon
 - B. Waxing
 - C. Waning
 - D. Old moon
8. The moon is slowly moving away from Earth?
 - A. True
 - B. False
9. How does an eclipse occur?
 - A. From the gravitational pull of Earth.
 - B. When a volcano erupts on the moon.
 - C. When the moon passes in front of the sun and casts a shadow on Earth.
10. What force causes tides?
 - A. The Earth's gravitational pull.
 - B. The sun's gravitational pull.
 - C. The moon's gravitational pull.