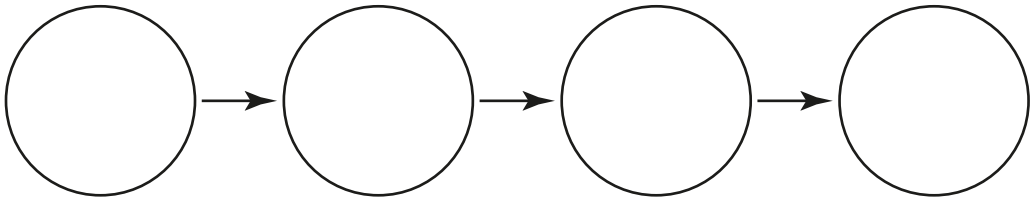
Phases, Eclipses, and Tides (pp. 478–485)

This section explains what causes phases of the moon, what causes eclipses, and what causes the tides.

Use Target Reading Skills

As you read about the phases of the moon, create a cycle diagram that shows how the moon appears from Earth as it goes through its phases. Include new moon, first quarter, full moon, and third quarter. Label your diagram.



Motions of the Moon (pp. 478)

1. Circle the letter of each sentence that is true about motions of the moon.

- **a.** The moon revolves around Earth once a year.
- **b.** The same side of the moon always faces Earth.
- **c.** The moon rotates on its axis once every 31.5 days.
- **d.** A "day" and a "year" on the moon are the same length.

2. What causes the phases of the moon, eclipses, and tides?

_____

_____

Phases of the Moon (pp. 479–481)

3. The different shapes of the moon you see from Earth are called _____.

4. How often does the moon go through an entire set of phases?

_____

_____

Phases, Eclipses, and Tides *(continued)*

5. What does the phase of the moon you see depend on?

_____

_____

_____

6. Complete the table to show what you see during the different phases of the moon.

Phases of the Moon	
Phase	**What You See**
New moon	The side of the moon facing Earth is dark.
First quarter	**a.**
Full moon	**b.**
Third quarter	**c.**

d. Is the near side (facing Earth) always the dark side? Use the table to explain your answer.

_____

_____

_____

e. What percentage of the dark side of the moon do you see during the first and third quarters?

_____

Eclipses (pp. 481–483)

7. When the moon's shadow hits Earth or Earth's shadow hits the moon, what occurs?

_____

8. What are the two types of eclipses?

a. _____ **b.** _____

9. What causes a solar eclipse?

_____

_____

_____

_____

10. The darkest part of the moon's shadow is called the _____ .

11. The larger part of a shadow, less dark than the umbra, is called the _____.

12. Circle the letter of each sentence that is true about solar eclipses.

a. People in the umbra see only a partial solar eclipse.
b. During a partial solar eclipse, part of the sun remains visible.
c. During a total solar eclipse, the sky grows dark.
d. People in the penumbra see a total solar eclipse.

13. What is the arrangement of Earth, the moon, and the sun during a lunar eclipse?

_____

_____

_____

14. Circle the letter of each sentence that is true about lunar eclipses.

a. People see a total lunar eclipse when the moon is in Earth's penumbra.
b. A lunar eclipse always occurs at a full moon.
c. During a lunar eclipse, Earth blocks sunlight from reaching the moon.
d. A partial lunar eclipse occurs when the moon passes partly into the umbra of Earth's shadow.

Phases, Eclipses, and Tides *(continued)*

Tides (pp. 484–485)

15. The rise and fall of ocean water are called _____.

16. What force pulls the moon and Earth toward each other?

_____

17. Why do tides occur?

_____

_____

_____

18. Circle the letter of each sentence that is true about tides.

a. The point on Earth that is closest to the moon has a high tide.
b. Every location on Earth has two high tides per month.
c. A low tide occurs at the point on Earth farthest from the moon.
d. The point on Earth farthest from the moon has a high tide.

19. What is a spring tide?

_____

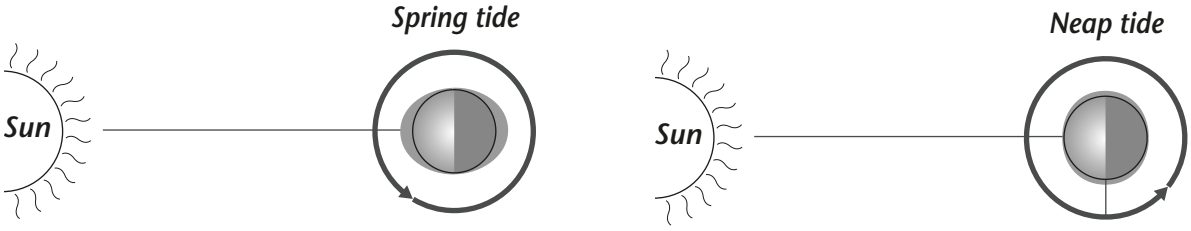
_____

20. What is a neap tide?

_____

_____

21. On the illustrations below, draw the possible position(s) of the moon at spring tide and at neap tide.



22. Circle the letter of each of the phases of the moon when it is possible for a spring tide to occur.

a. new moon
b. first quarter
c. full moon
d. third quarter