

Know

**Tides** (pages 530-531)

**Key Concept:** Tides are caused mainly by differences in how much the moon's gravity pulls on different parts of Earth.

- Tides are the regular rise and fall of ocean water.
- The moon's gravity causes tides. The force of the moon's gravity causes ocean water on Earth to move higher in some places and lower in other places.
- The sun's gravity also pulls on Earth's ocean waters.
- During a new moon, the sun, moon, and Earth are lined up in a straight line. The combined forces of the sun and the moon cause spring tides. A **spring tide** is the highest possible high tide.
- Sometimes, the sun, moon, and Earth form a right angle. This arrangement produces a neap tide. A **neap tide** is the lowest possible high tide.

Answer the following questions. Use your textbook and the ideas on the page 261A and above.

9. Read the words in the box. In each sentence below, fill in the correct word or words.

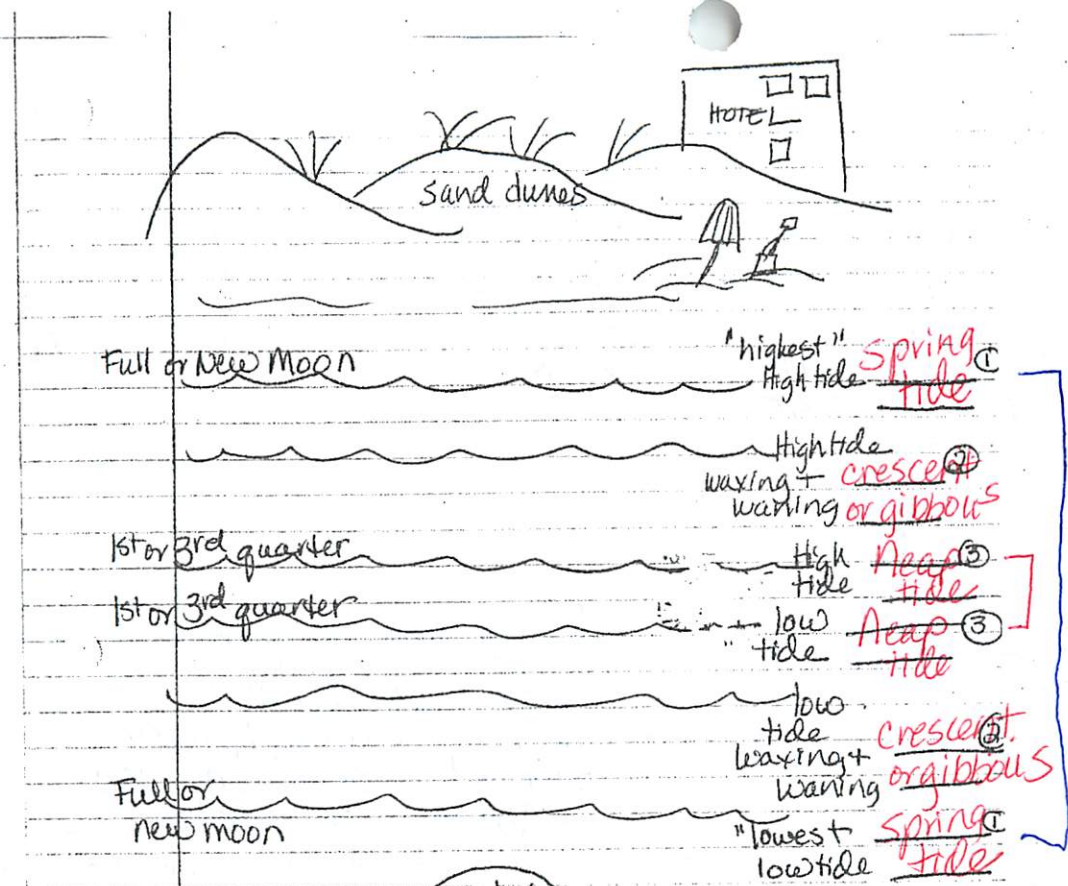
tides	spring tide	neap tide
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(\*)

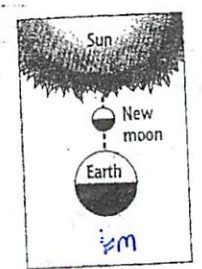
- When the sun, moon, and Earth are lined up in a straight line, a spring tide occurs.
- The regular rise and fall of ocean water are tides.
- When the sun, moon, and Earth form a right angle, a neap tide occurs.

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

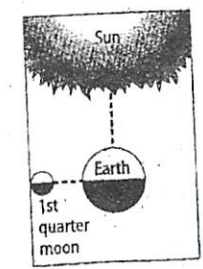
- The moon's gravity causes tides. \* most
- The sun's gravity also causes tides.
- The sun's gravity and the moon's gravity do not combine. not true



sea turtle: We lay + hatch our eggs on spring tides



9. Spring Tide



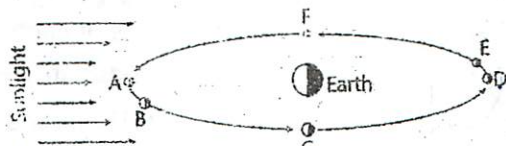
10. Neap Tide

# Phase, Eclipses, and Tides Test Review

## Understanding Main Ideas

Use the following figure to answer questions 1 and 2. Write your answers on a separate sheet of paper.

1. What phases of the moon would someone on Earth see when the moon is at positions A through F?
2. What kind of tide (spring or neap) will occur when the moon is at positions A, C, D, and F?



A new moon      D full moon  
 B waxing crescent      E waning gibbous  
 C 1st quarter      F 3rd or last

AP Spring  
 CF Neap

## Building Vocabulary

From the list below, choose the term that best completes each sentence, and write it in the blank.

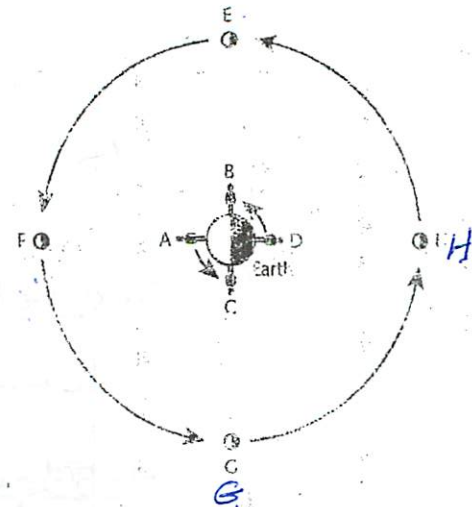
- |       |         |          |        |       |
|-------|---------|----------|--------|-------|
| phase | gravity | penumbra | umbra  | solar |
| tides | lunar   | eclipse  | spring | neap  |

3. A(n) neap tide occurs when the sun is at right angles to the line between Earth and the moon.
4. A(n) eclipse occurs when the moon's shadow hits Earth or Earth's shadow hits the moon.
5. A person standing in the moon's penumbra would see a partial solar eclipse.
6. Differences in the moon's pull on different parts of Earth cause tides.
7. A person standing in the moon's umbra would see a total solar eclipse.
8. The phase of the moon you see depends on how much of the sunlit side of the moon faces Earth.
9. A(n) Spring tide occurs when the sun, moon, and Earth line up.
10. A(n) lunar eclipse occurs at a full moon when Earth is directly between the moon and the sun.
11. A(n) Solar eclipse occurs when the moon passes between Earth and the sun.
12. The force of gravity pulls the moon and Earth toward each other.

13. How does distance affect the strength of the force of gravity?  
↑ distance (farther apart) ↓ gravity

## Using Science Skills

Use the diagram below to answer questions 21 and 22. Answer each question in the lines provided.



14. Inferring Where in the sky would the sun appear to an observer at each of the four positions on Earth shown in the diagram? (Examples: overhead, on the horizon, not visible.)

- A. noon - overhead  
 B. sunrise - on the horizon  
 C. sunset - on the horizon  
 D. night - not visible

15. Drawing Conclusions What is the phase of the moon when it is in each of the positions shown?

- E. 3rd or last qtr  
 F. new moon  
 G. 1st qtr  
 H. full moon

Match the term with its definition.

- | Term                    | Definition   |
|-------------------------|--|
| <u>B</u> 16. axis       | a. The movement of one object around another object                                    |
| <u>D</u> 17. rotation   | b. The imaginary line that passes through Earth's center and the North and South poles |
| <u>A</u> 18. revolution | c. The path of an object as it revolves around another object in space                 |
| <u>C</u> 19. orbit      | d. The spinning motion of Earth on its axis  |

rotation - rotates  
 revolution - revolves

16  
 17