CHAPTER

EARTH, MOON, AND SUN

SECTION Earth in Space

This section explains what causes day and night and what causes the cycle of seasons on Earth.

Days and Years

1. The study of the moon, stars, and other objects in space is called ____________

Match the term with its definition.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. axis</td>
<td>a. The movement of one object around another object</td>
</tr>
<tr>
<td>3. rotation</td>
<td>b. The imaginary line that passes through Earth's center and the North and South poles</td>
</tr>
<tr>
<td>4. revolution</td>
<td>c. The path of an object as it revolves around another object in space</td>
</tr>
<tr>
<td>5. orbit</td>
<td>d. The spinning motion of a planet around its axis</td>
</tr>
</tbody>
</table>

6. Each 24-hour cycle of day and night is called a(n) ____________

7. Why is an extra day added to February every four years? ____________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
CHAPTER  Earth, Moon, and Sun  (continued)

8. What causes day and night? __________________________


Seasons on Earth

9. Why is it warmer near the equator than near the poles? __________________________


10. Why does Earth have seasons? __________________________

11. Circle the letter of each sentence that is true when the Northern Hemisphere has summer.
   a. The Southern Hemisphere is tilted away from the sun.
   b. The Northern Hemisphere is tilted away from the sun.
   c. The Southern Hemisphere is tilted toward the sun.
   d. The Northern Hemisphere is tilted toward the sun.

12. What is latitude? __________________________

13. Circle the letter of each sentence that is true about Earth's seasons.
   a. Earth is closest to the sun when it is summer in the Northern Hemisphere.
   b. The hemisphere that is tilted away from the sun has more daylight than the other hemisphere.
   c. When it is summer in the Northern Hemisphere it is winter in the Southern Hemisphere.
   d. In December, there are fewer hours of daylight and less direct sunlight in the Northern Hemisphere.
14. Each of the two days of the year when the noon sun is overhead at either 23.5° south or 23.5° north is called a(n) ________________.

15. Each of the two days of the year when neither hemisphere is tilted toward or away from the sun is called a(n) ________________.

16. Complete the table.

<table>
<thead>
<tr>
<th>Earth's Seasons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day in Northern Hemisphere</strong></td>
</tr>
<tr>
<td>Summer solstice</td>
</tr>
<tr>
<td>Autumnal equinox</td>
</tr>
<tr>
<td>Winter solstice</td>
</tr>
<tr>
<td>Vernal equinox</td>
</tr>
</tbody>
</table>
SECTION Phases, Eclipses, and Tides

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

▶ Introduction

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

▶ Motions of the Moon

2. Circle the letter of each sentence that is true about motions of the moon.
   a. The moon revolves around the Earth once a year.
   b. The “near side” of the moon always faces Earth.
   c. The moon rotates slowly on its axis once every 27.3 days.
   d. The moon’s orbit around Earth is an oval shape.
CHAPTER, Earth, Moon, and Sun (continued)

Phases of the Moon

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

4. How often does the moon go through a whole set of phases?

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

6. Complete the table about phases of the moon.

<table>
<thead>
<tr>
<th>Phase</th>
<th>What You See</th>
</tr>
</thead>
<tbody>
<tr>
<td>New moon</td>
<td></td>
</tr>
<tr>
<td>First quarter</td>
<td></td>
</tr>
<tr>
<td>Full moon</td>
<td></td>
</tr>
<tr>
<td>Third quarter</td>
<td></td>
</tr>
</tbody>
</table>

Eclipses

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. ______________________

Solar Eclipses

9. The darkest part of a shadow is called the ______________________.
10. What happens to cause a solar eclipse?

________________________________________________________________________

________________________________________________________________________

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 is dark.
   d. People in the penumbra see a total solar eclipse.

   ▶ Lunar Eclipses

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

________________________________________________________________________

14. Circle the letter of each sentence that is true about lunar eclipses.
   a. You are more likely to see a total solar eclipse than a total lunar eclipse.
   b. A lunar eclipse 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.

   ▶ Tides

15. The rise and fall of the level of the ocean are called ________________.

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

________________________________________________________________________

17. Why do tides occur?

________________________________________________________________________

________________________________________________________________________
CHAPTER  Earth, Moon, and Sun (continued)

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 each of the illustrations below, draw a moon to show its position at a spring tide or at a neap tide.

22. Circle the letter of each of the phases of the moon when a spring tide occurs.
   a. new moon   b. first quarter   c. full moon   d. third quarter

23. Is the following sentence true or false? Sometimes the effects of ocean tides extend far up rivers. _________________

Reading Skill Practice

By looking carefully at illustrations in textbooks, you can help yourself understand better what you have read. Look carefully at Figure 6 on page 27. What important idea does this figure communicate?