

Skills Worksheet

Directed Reading 26.2 (EVEN)

Section: Movements of Earth

THE ROTATING EARTH

Use the terms from the list below to complete the sentences that follow. Each term may be used only once. Some terms may not be used.

- | | | |
|----------|-----------|------------|
| daylight | rotation | revolution |
| east | nighttime | year |
| day | west | night |

1. The spinning of Earth on its axis is called _____.
2. A complete rotation of Earth takes about one _____.
3. As Earth rotates from west to east, the sun seems to rise in the _____.
4. The sun appears to set in the _____.
5. The part of Earth facing the sun at any given moment experiences _____.
6. The part of Earth facing away from the sun at any given moment experiences _____.
7. What did Foucault's pendulum provide in the 19th century?

8. What happens to the path of a pendulum over the course of a day?

9. What causes the apparent change in the path of a pendulum?

10. What causes deflection of ocean currents and wind belts?

11. In which direction are ocean currents and wind belts deflected in the Northern Hemisphere? in the Southern Hemisphere?

12. What is the curving of the path of wind belts and ocean currents called?

Directed Reading *continued*

THE REVOLVING EARTH

13. What is the average speed of Earth as it travels around the sun?

14. How long does each complete revolution of Earth around the sun take?

In the space provided, write the letter of the definition that best matches the term or phrase.

- | | |
|----------------------|---|
| _____ 15. revolution | a. a closed curve whose shape is determined by two points within the curve |
| _____ 16. orbit | b. the point in a planet's orbit at which the planet is closest to the sun |
| _____ 17. ellipse | c. the motion of a body that travels around another body in space |
| _____ 18. perihelion | d. the point in a planet's orbit at which the planet is farthest from the sun |
| _____ 19. aphelion | e. the path that a body follows as it travels around another body in space |

20. What is the shape of Earth's orbit around the sun?

21. What is Earth's aphelion distance? Earth's perihelion distance?

CONSTELLATIONS AND EARTH'S MOTION

22. What is a constellation?

23. What did the International Astronomical Union do in 1930?

24. Where did many of the names for the constellations come from?

Directed Reading *continued*

25. What causes the position of a constellation to appear to change during an evening?

26. What causes the position of a constellation to appear to change, at the same time of the evening, over a period of several weeks?

MEASURING TIME

_____ 27. The basis for the measurement of time is

- a. the sun's motion.
- b. the moon's motion.
- c. Earth's motion.
- d. the galaxy's motion.

_____ 28. The measurement of a day is determined by

- a. the rotation of Earth on its axis.
- b. Earth's revolution around the sun.
- c. the moon's motion around Earth.
- d. the period between successive full moons.

_____ 29. The measurement of a year is determined by

- a. the rotation of Earth on its axis.
- b. Earth's revolution around the sun.
- c. the moon's motion around Earth.
- d. the period between successive full moons.

_____ 30. The measurement of a month is based on

- a. the rotation of Earth on its axis.
- b. Earth's revolution around the sun.
- c. the moon's motion around Earth.
- d. Earth's motion around the moon.

_____ 31. Each rotation of Earth on its axis takes

- a. 24 hours.
- b. 29.5 days.
- c. 365 days.
- d. $365\frac{1}{4}$ days.

_____ 32. Each complete revolution of Earth around the sun takes

- a. 24 hours.
- b. 29.5 days.
- c. 365 days.
- d. $365\frac{1}{4}$ days.

Directed Reading *continued*

- _____ 33. Today, a month is determined as roughly
a. 29.5 days.
b. one-twelfth of a year.
c. 28 days.
d. 365 days.
- _____ 34. Who were the first people to use a calendar based on a solar year?
a. the Aztecs
b. the Romans
c. the Babylonians
d. the Egyptians
- _____ 35. Who created a calendar based on a 12-month lunar year?
a. the Romans
b. the Babylonians
c. the Egyptians
d. the Aztecs

36. What is a calendar?

37. Why is the extra one-quarter day of the year usually ignored?

38. What is a leap year? Explain why it is necessary.

39. What two Roman rulers were responsible for creating the yearly calendar as we know it?

40. What calendar problem did Pope Gregory XIII address, and how did his committee solve it?

Directed Reading *continued*

41. Define *noon*.

42. Is it noon at the same time all over the world? Explain your answer.

43. How many degrees does each of Earth's 24 standard time zones cover? Explain your answer.

44. How is the time in one zone different from the time in the zone east of it?

45. What is the International Date Line? What does it mark?

46. Why is daylight time shorter in the winter months than in the summer months?

47. Why does the United States use daylight savings time from March to November?

48. According to daylight savings time, what do we do to clocks in March and November?

49. Why do equatorial countries not observe daylight savings time?

Directed Reading *continued***THE SEASONS**

- _____ 50. Earth's axis is
- vertical.
 - tilted at 12° .
 - tilted at 23.5° .
 - 90° .
- _____ 51. During each revolution of Earth, the North Pole
- sometimes tilts toward the sun and sometimes tilts away.
 - is always vertical.
 - always tilts toward the sun.
 - always tilts away from the sun.
- _____ 52. When the North Pole tilts toward the sun, the Northern Hemisphere has
- the same amount of daylight as the Southern Hemisphere.
 - longer periods of daylight than the Southern Hemisphere.
 - shorter periods of daylight than the Southern Hemisphere.
 - varying periods of daylight compared to the Southern Hemisphere.
- _____ 53. When the North Pole tilts away from the sun, the sun's rays strike the Northern Hemisphere
- vertically.
 - more directly.
 - less directly.
 - horizontally.
- _____ 54. Seasons are caused by
- Earth's rotation on its axis.
 - changes in the angle at which the sun's rays strike Earth.
 - the distance of a place from the equator.
 - differences in Earth's time zones.
- _____ 55. Fewer daylight hours mean
- less solar energy.
 - more solar energy.
 - higher temperatures.
 - a longer season.
- _____ 56. During winter in the Northern Hemisphere,
- the North Pole tilts away from the sun.
 - the North Pole tilts toward the sun.
 - the sun's rays strike the Northern Hemisphere at a high angle.
 - the sun's rays create more daylight hours.

Directed Reading *continued*

57. When it is winter in the Northern Hemisphere, the Southern Hemisphere experiences
- a. winter.
 - b. summer.
 - c. spring.
 - d. fall.

Use the terms from the list below to complete the sentences that follow. Each term may be used only once. Some terms may not be used.

autumnal equinox hemisphere equator
equinox vernal equinox celestial equator

58. An imaginary line in the sky directly overhead the equator on Earth is called the _____.

59. The moment when the sun appears to cross the celestial equator is a(n) _____.

60. During an equinox, the angle of the sun's rays along the _____ is 90° .

61. The beginning of fall is marked by the _____, occurring on September 22 or 23 in the Northern Hemisphere.

62. The beginning of spring is marked by the _____, falling on March 21 or 22 in the Northern Hemisphere.

63. What is true of the hours of daylight and darkness everywhere on Earth at an equinox?

64. What is a solstice?

65. What begins on the solstices each year?

Directed Reading *continued*

66. Along what imaginary line do the sun's rays strike Earth at a 90° angle during the summer solstice? Where is this line located?

67. What happens to the sun in the Northern Hemisphere during the summer solstice?

68. How does the period of daylight change depending on your location on Earth during the summer solstice?

69. Along what imaginary line do the sun's rays strike Earth at a 90° angle during the winter solstice? Where is this line located?

70. Describe the hours of daylight in the Northern Hemisphere during the winter solstice.