

★ Formative Assessment

SECTION 28.3 *The Sun-Earth-Moon System*

In your textbook, read about the motions of Earth, the Sun, and the Moon.

In the space at the left, write *true* if the statement is true; if the statement is false, change the italicized word or phrase to make it true.

- X _____ 1. All societies base their calendars and timekeeping systems on the *apparent motion of the Sun* and Moon.
- _____ 2. The Sun, Moon, and stars appear to rise in the east and set in the west because of the rotation of *the Moon*.
- X _____ 3. You can demonstrate that Earth rotates through the use of a *Foucault pendulum*.
- X _____ 4. The period from one sunrise or sunset to the next is called the *solar day*.
- X _____ 5. The length of time it takes for the Moon to go through a complete cycle of phases is called the *lunar month*.
- _____ 6. Annual variations in the length of the day and in temperatures are dependent on the *longitude* where you live.
- _____ 7. The plane of Earth's orbit about the Sun is called the *solstice*.
- _____ 8. The seasons are caused by Earth's orbit around the Sun in combination with the *tilt of Earth's axis*.
- _____ 9. The hemisphere that is tilted toward the Sun experiences *winter*.
- X _____ 10. A *solar eclipse* occurs when the Moon passes through Earth's shadow.
- _____ 11. On the *summer solstice*, the number of daylight hours for the northern hemisphere is at a maximum.
- _____ 12. During the northern hemisphere's summer, the sun appears *lower* in the sky than it does in winter.
- _____ 13. On the winter solstice, the number of daylight hours is at its *minimum*.
- _____ 14. The lengths of day and night are equal for *both the northern and southern hemispheres* on the vernal equinox.

Our Solar System

SECTION 29.1 Overview of Our Solar System

In your textbook, read about early ideas.

Write the letter of the term from Column B next to its matching item in Column A.

Column A

- _____ 1. Motion of a planet moving in the opposite direction of the normal direction of planetary motion as observed from Earth
- _____ 2. Outer portion of the shadow cast on Earth by the Moon
- _____ 3. Nicolaus Copernicus's model of the solar system in which the planets orbit the Sun
- _____ 4. Oval shape centered on two points instead of one point
- _____ 5. State at which the Moon's orbital and rotational periods are equal
- _____ 6. Defines a planet's elliptical orbit as the ratio of the distance between the foci and the length of the major axis
- _____ 7. Unit of measure that is the average distance between the Sun and Earth (1.4960×10^8 km)

Column B

- a. synchronous rotation
- b. astronomical unit
- c. eccentricity
- d. ellipse
- e. heliocentric
- f. penumbra
- g. retrograde

In your textbook, read about gravity and orbits.

Use each of the terms below just once to complete the passage.

acceleration

center of mass

distance

force

Isaac Newton

masses

Moon

universal gravitation

English scientist (8) _____ developed an understanding of gravity by observing the motion of the (9) _____, the orbits of the planets, and the (10) _____ of falling objects on Earth. He learned that two bodies attract each other with a (11) _____ that depends on their (12) _____ and the (13) _____ between the bodies. This is called the law of (14) _____. He also determined that each planet orbits a point between itself and the Sun. That point is called the (15) _____.

Our Solar System – Terrestrial & Gas Giant Planets

1. Where do we find the Gas Giants?
 - a. Closer to the Sun
 - b. Farther from the Sun
 - c. Throughout the Solar System

2. Where do we find the Terrestrial Planets?
 - a. Closer to the Sun
 - b. Farther from the Sun
 - c. Throughout the Solar System

Decide if the following statements are describing Gas Giants (GG) or Terrestrial (T) planets.

- _____ 3. Consists of mostly rocks and metal
- _____ 4. Has lots of moons (satellites)
- _____ 5. Earth is one example
- _____ 6. Consists of mostly gas and ice
- _____ 7. More dense
- _____ 8. More likely to have rings
- _____ 9. Made from gas and dust being pulled in by gravity
- _____ 10. Larger in size
- _____ 11. Less dense
- _____ 12. Jupiter is an example
- _____ 13. Made from colliding planetesimals
- _____ 14. Have very few (or no) moons

SECTION 29.4 Formation of Our Solar System

In your textbook, read about collapsing interstellar clouds and Sun and planet formation.
Write the letter of the item in Column B next to its matching item in Column A.

Column A	Column B
_____ 1. Gas and dust from which stars and planets form	a. inner planets
_____ 2. Rotating disk of dust and gas that formed the Sun and planets	b. tungsten
_____ 3. Solid bodies hundreds of kilometers in diameter that merged to form the planets	c. planetesimals
_____ 4. Believed to be the first large planet to develop	d. solar nebula
<u>B</u> _____ 5. One of the first elements to condense in the early solar system	e. interstellar cloud
_____ 6. Lacking in satellites because of proximity to the Sun	f. Jupiter

In your textbook, read about asteroids.
For each statement, write *true* or *false*.

- _____ 7. Asteroids orbit the Sun and range from a few kilometers to about 100 kilometers in diameter.
- _____ 8. Most asteroids are located between the orbits of Mars and Jupiter in the asteroid belt.
- _____ 9. Asteroids are thought to be planetesimals that never formed planets.
- _____ 10. A meteoroid is a broken fragment of an asteroid or other interplanetary material.
- _____ 11. A meteor is a meteoroid that bypasses Earth's atmosphere.
- _____ 12. A large meteorite will cause an impact crater when it collides with Earth.