UNIT 8 Key

Grade 6 Science EOG Quiz Answer Key

Astronomy and Space Science - (S6E1.a.) Scientific Views Of Universe, (S6E1.b.) Solar System Position, (S6E1.c.) Compare And Contrast Planets, (S6E1.d.) Motion Of Objects Sky, (S6E1.e.) Gravity As A Force In The Solar System, (S6E1.f.) Comets, Asteroids, And Meteors, (S6E2.a.) Earth, Moon, And Sun, (S6E2.b.) Solar And Lunar Eclipses, (S6E2.c.) Earth Tilt And Solar Energy

Student Name: _____ Date: _____

Teacher Name: BRITTANY DUDEK Score: _____

1) Many years ago, people believed that the Earth was the center of the solar system because from Earth, it looks as if the stars and the Sun

- **A) rotate around the Earth.**
- B) are controlled by the Earth.
- C) are much smaller than the Earth.
- D) move more quickly than the Earth.

Explanation:
People believed that the Earth was the center of the solar system because from Earth it looks like the stars and the Sun **rotate around the Earth.** This phenomenon is called parallax. Long ago the Church said the Earth was the center of the universe, and it was considered heresy if a person said otherwise.

2) What did scientists use to come up with a theory about how the universe was created?

- A) observation and opinion
- **B) scientific evidence and observation**
- C) scientific experimentation and opinion
- D) scientific evidence and experimentation

Explanation:
Scientific evidence and observation support the Big Bang Theory of how the universe was created. This scientific evidence and observation were collected using high-powered telescopes, satellites, and other tools and data.

3) Which theory do scientists believe MOST LIKELY explains the creation of the universe?

- **A) Big Bang Theory**
- B) Radiation Theory
- C) Red Shift Theory
- D) Butterfly Effect Theory

Explanation:
According to the **Big Bang Theory**, the universe was created from a tiny, finite singularity or bubble. All of the universe's matter was inside this singularity, which started to expand through a large explosion. Scientists believe the universe was most likely created as described by this theory.

4) Scientists used to believe that the earth was the center of the universe. Which invention was primarily responsible for obtaining evidence against this?

- A) sextant
- B) astrolabe
- C) Hubble telescope
- **D) optical telescope**

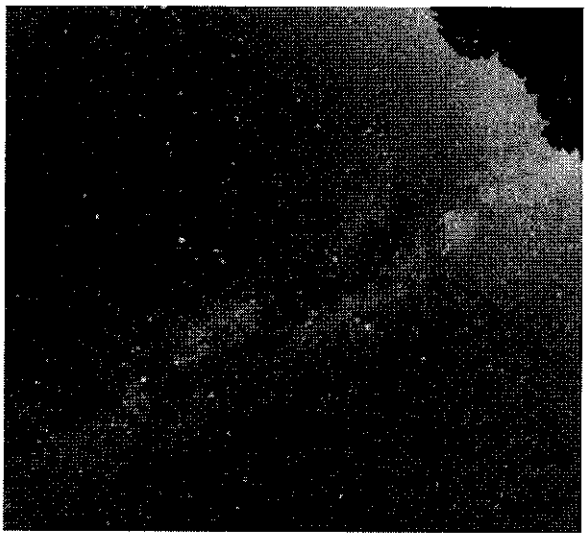
Explanation:
The **optical telescope** was used by Galileo to prove that Jupiter had moons orbiting around it. This proved that not everything orbited around the earth. Some folks weren't as keen on this idea as others.

5) Which list is organized from SMALLEST to LARGEST?

A) Planet, Galaxy, Solar System, Universe
B) Solar System, Planet, Universe, Galaxy
C) Universe, Solar System, Planet, Galaxy
D) Planet, Solar System, Galaxy, Universe

Explanation:
Planet, Solar System, Galaxy, Universe is the correct order from smallest to largest. Most students have trouble understanding the universe is composed of billions of galaxies.

6)

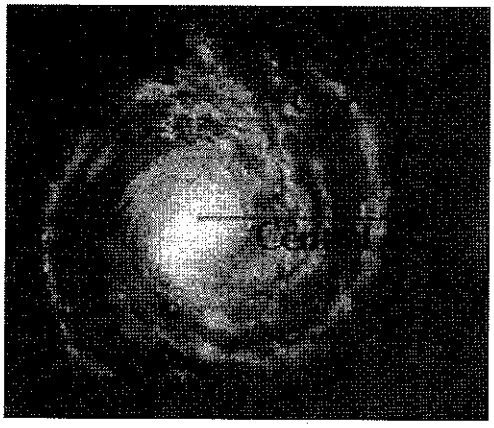


What is the name of the galaxy where Earth is located?

A) Andromeda
B) Sun Galaxy
C) Comet Galaxy
D) Milky Way Galaxy

Explanation:
Earth is part of the spiral shaped **Milky Way Galaxy**. It contains over 200 billion stars and has a diameter of 100,000 light years.

7)



What can you tell about the location of the Sun from this illustration of the Milky Way?

A) It is outside of the Milky Way.
B) It is near an outer arm of the Milky Way.
C) It is on the right side of the Milky Way.
D) It is within the Central Bulge of the Milky Way.

Explanation:
You can tell from the illustration that the Sun is **near an outer arm of the Milky Way.** The curved lines represent the arms of the Milky Way, which give it its spiral shape.

8)

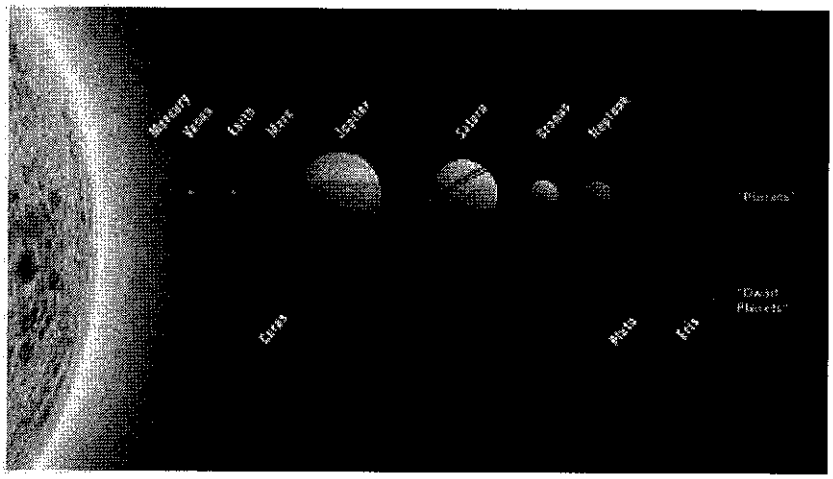
Inner Planets	Outer Planets	Dwarf Planets
Mercury	Jupiter	Pluto
Venus	Saturn	Ceres
Earth	Uranus	Eris
Mars	Neptune	

The inner planets are DIFFERENT from the outer planets mainly because they are

A) colder.
B) larger.
C) comprised of gas.
D) comprised of rock.

Explanation:
The inner planets—Mercury, Venus, Earth, and Mars—are different from the outer planets mainly because they are **comprised of rock.** The outer planets are known as the gas giants because they are enormous and comprised of gas.

9)

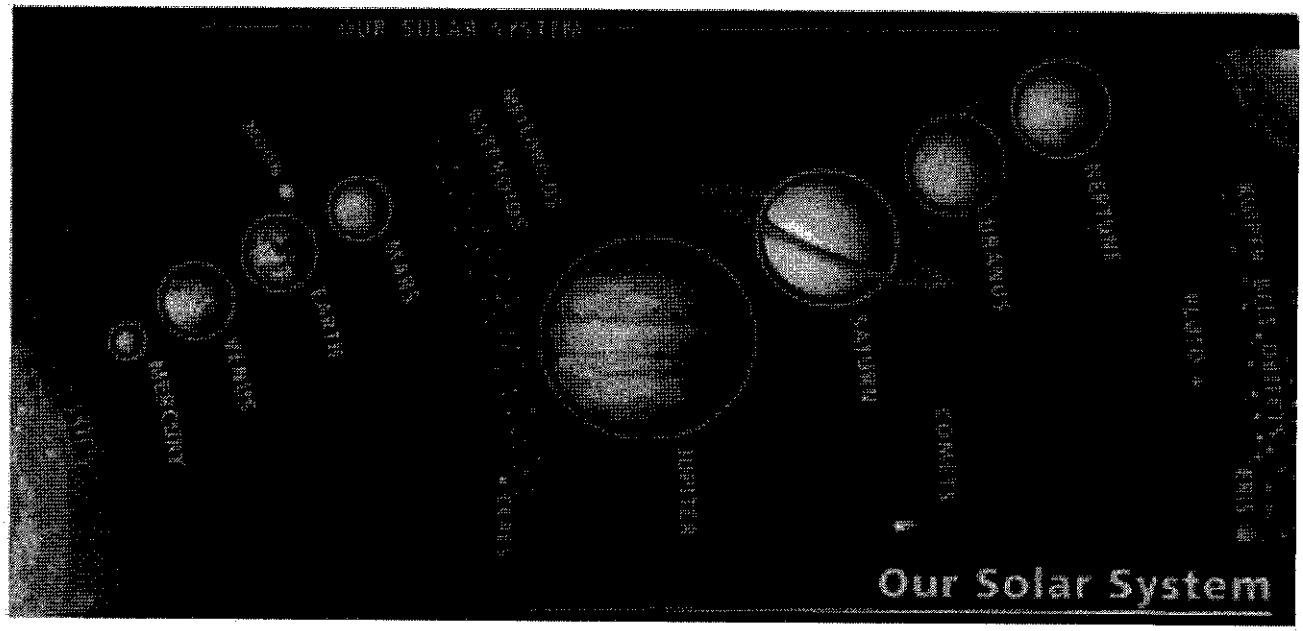


Jupiter, Saturn, Uranus, and Neptune: what is one reason why life probably does not exist on these four planets?

A) They have no gravity.
B) They are the gas planets.
C) They are the giant planets.
D) They are the rocky planets.

Explanation:
Jupiter, Saturn, Uranus, and Neptune: **they are the gas planets.** They are sometimes called the gas giants. These planets a far from the sun and exist in a gaseous state. They would be not be able to support life as we know it. Mercury, Venus, Earth, and Mars: these are considered the rocky or terrestrial planets.

10)



What can you tell about Jupiter from the diagram?

A) It is colder there than on Earth.
B) It has more moons than Earth does.
C) Its days are shorter than the days on Earth.
D) Its atmosphere is similar to Earth's atmosphere.

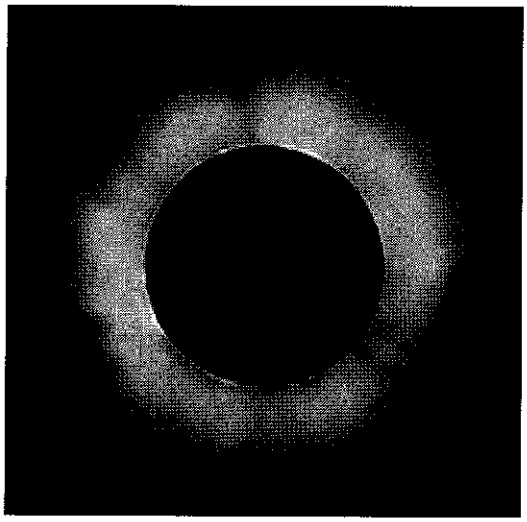
Explanation:
Jupiter is farther from the Sun, **so it colder there than on Earth.** While the inner core of the planet is warm, on the surface, the average temperature on Jupiter is about -200 degrees Fahrenheit.

11) Rings are a characteristic of

A) large planets only.
B) small planets only.
C) both large and small planets.
D) neither large nor small planets.

Explanation:
Only large planets have rings. The ring is formed by a powerful gravitational force that pulls objects that might end up as moons into small fragments. Only large planets have enough mass to do this.

12)

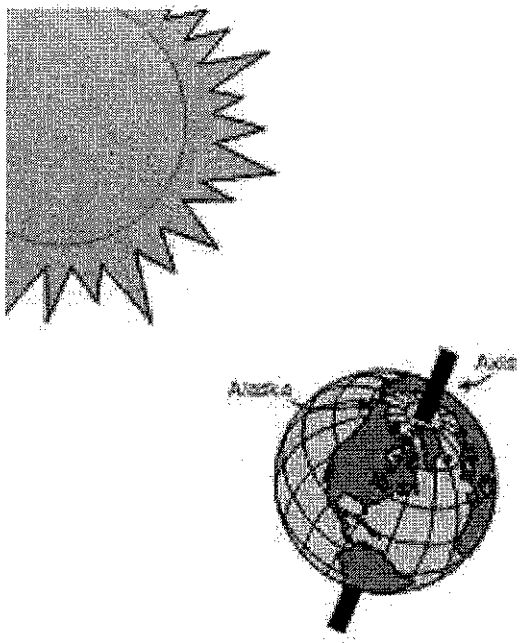


The sun and moon are very different sizes, but often appear to be the same size. During a solar eclipse, our tiny moon can totally block the giant sun because of

A) the dark side of the moon facing Earth.
B) the large shadow Earth casts on the sun.
C) their differing distances from the Earth.
D) the reflection of light waves from the sun.

Explanation:
During a solar eclipse, our tiny moon can totally block the giant sun because of **their differing distances from the Earth.** The moon is much, much closer to Earth than the sun. It appears to be much larger, due to its place in space. When the two line up, it seems like the moon is large enough to block the sun.

13)



The Earth rotates from _____ to ____, giving rise to the apparent motion of the Sun each day.

A) east to west
B) west to east
C) north to south
D) south to north

Explanation:
west to east
Although the Sun appears to rise in the east and set in the west, the Sun is essentially stationary relative to the Earth. The Earth rotates from **west to east** giving rise to the apparent motion of the Sun each day.

14) The stars in the night sky look as if they are slowly moving because

A) the Earth is moving.
B) they rotate around the Sun.
C) they rotate around the Earth.
D) the Sun blocks them out at times.

Explanation:
Sunlight blocks out the light of the stars during the day, so that the stars can only be seen during the night hours—but they are there during the day. They look as if they moving slowly across the night sky because **the Earth is moving.**

15) Gravity on the moon is about $\frac{1}{6}$th the gravity felt on the earth. This is because

A) the moon is so far away from the earth.
B) the moon is much less massive than the earth.
C) the earth has a molten core and the moon doesn't.
D) the moon is so much further from the sun than the earth.

Explanation:
The size of the object determines the gravitational attraction of it, and **the moon is much less massive than the earth.**

16) Why does Earth orbit the Sun rather than any other body in the solar system?

A) The mutual repulsions among all the planets hold Earth in its orbit.
B) The Earth is closer to the Sun than other bodies in the solar system.
C) The Sun is the most massive object; gravitational attraction is related to mass.
D) The rotational motions of all the planets, including Earth, cause them to remain in its orbit around the Sun.

Explanation:
The Sun is massive in size compared to the planet and it exerts a stronger gravitational force than any other body in the solar system. Gravity contributes to the orbital path of the planets. So, Earth orbits around the Sun because **the Sun is the most massive object; gravitational attraction is related to mass.**.

17) Almost everything in the universe orbits around a central object. The planets orbit the sun and moons orbit planets. The force MOST responsible for these orbits is

A) gravity.
B) inertia.
C) strong force.
D) electromagnetic.

Explanation:
The force MOST responsible for the orbits of bodies in a solar system is **gravity.** Gravity is really an attractive or pull together force. Any circular orbit occurs when the sideways motion of the planet or moon is balanced with the gravitational force of the central object.

18) Which force determines Earth's path around the Sun?

A) nuclear force
B) magnetic force
C) gravitational force
D) electrostatic force

Explanation:
Earth is pulled towards the Sun by its **gravitational force.** Earth tries to travel in a straight line away from the Sun, but the Sun's gravitational force pulls Earth toward it. As a result of this, Earth and all the other planets move in a curved path around the Sun.

19)

several miles in diameter
originate beyond the outer planets
thought to have struck early Earth
bodies of ice, stone, and organic compounds
may have created major changes to Earth's early climate

The list above describes _____ that are thought to have struck Earth billions of years ago and helped to modify the climate, atmosphere, and oceans of this planet.

A) asteroids
B) comets
C) meteors
D) stardust

Explanation:
Scientists believe that **comets** struck Earth billions of years ago and helped to modify the climate, atmosphere, and oceans of this planet.

20) A meteorite is DIFFERENT from a comet mainly because it

A) has a tail of ice and dust.
B) enters the Earth's atmosphere.
C) has a nucleus made of snow and rock.
D) is found in orbit between Mars and Jupiter.

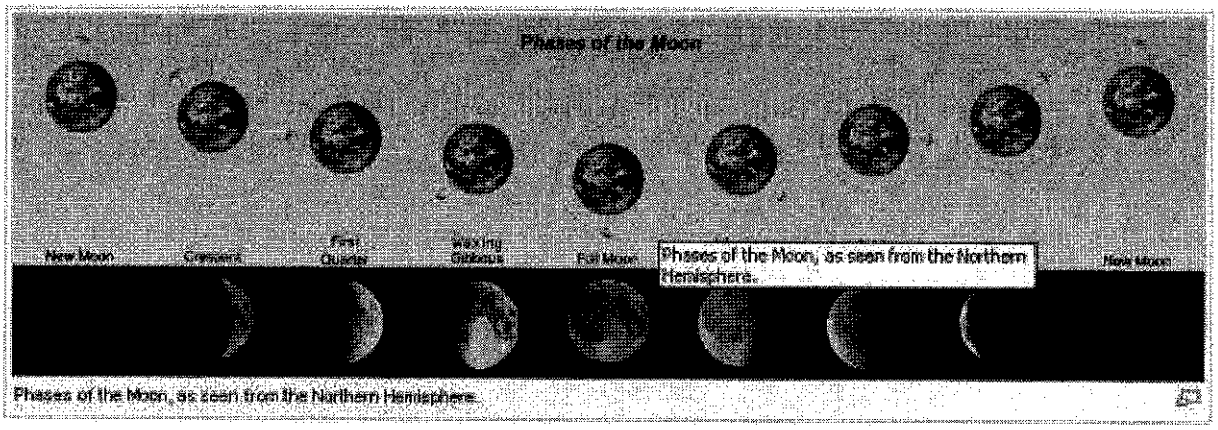
Explanation:
A meteorite is a meteor that **enters the Earth's atmosphere**, while a comet orbits the Sun. While some comets come close to the Earth during their orbit, they do not enter the Earth's atmosphere.

21) The tail of a comet usually faces

A) toward the Sun.
B) away from the Sun
C) toward the Earth.
D) away from the Earth.

Explanation:
The tail of a comet usually faces **away from the Sun.** The ice surrounding the comet turns to gas when it hits the Sun's solar rays. This gas forms the tail of a comet.

22)



During a full moon, _____ of the moon is facing Earth.

A) none
B) a quarter
C) the dark side
D) the bright side

Explanation:
During a full moon, **the bright side** of the moon is facing Earth. This side is called the illuminated side, which means it is lit up by the sun.

23) What causes the phases of the moon as observed from the Earth?

A) Filtering of the light from the moon due to the Earth's atmosphere.
B) The tidal forces of the Earth's oceans change the appearance of the moon.
C) Change in distance of the moon from the Earth as it orbits in an elliptical orbit.
D) The angle of light from the sun as it reflects off the moon and viewed from the Earth's surface.

Explanation:
The angle of light from the sun as it reflects off the moon and viewed from the Earth's surface. As the moon orbits the Earth, its angle with respect to the angle of sunlight changes from night to night.

24)

This is a _____ gibbous moon.

A) crescent
B) new
C) waning
D) waxing

Explanation:
This is a **waxing** moon. During the waxing phase of the moon, it looks as if we can see half the moon is the night sky. This is because Earth is next to the moon. Waxing means that the part of the moon that is reflecting sunlight is getting larger, this continues until the full moon.

25) What is the phase of the moon when the moon is positioned between the sun and the earth?

A) new moon
B) full moon
C) half moon
D) waxing crescent

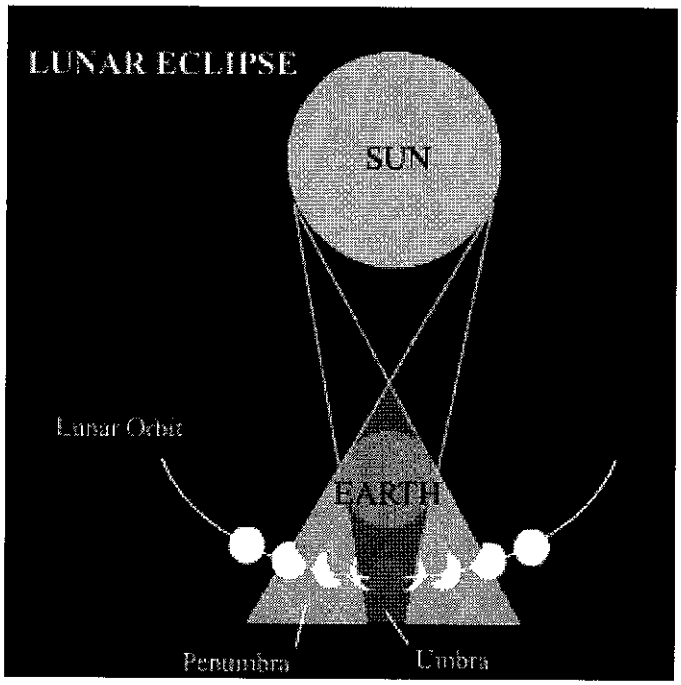
Explanation:
When the moon is positioned between the sun and the earth, it is called a **new moon**. With a new moon, it looks as though the moon is gone. In reality, it is still there, only we cannot see it due to the light from the sun not hitting the moon for us to see. Throughout the lunar cycle, the phases change as the moon moves around the earth and the amount of light hitting the moon changes as well.

26) Which is the correct alignment for a solar eclipse?

A) sun - moon - Earth
B) moon - sun - Earth
C) Earth - sun - moon
D) moon - Earth - sun

Explanation:
Sun - moon - Earth is the correct alignment for a solar eclipse. The moon will block the light from the sun for a brief amount of time on the surface of the earth.

27)

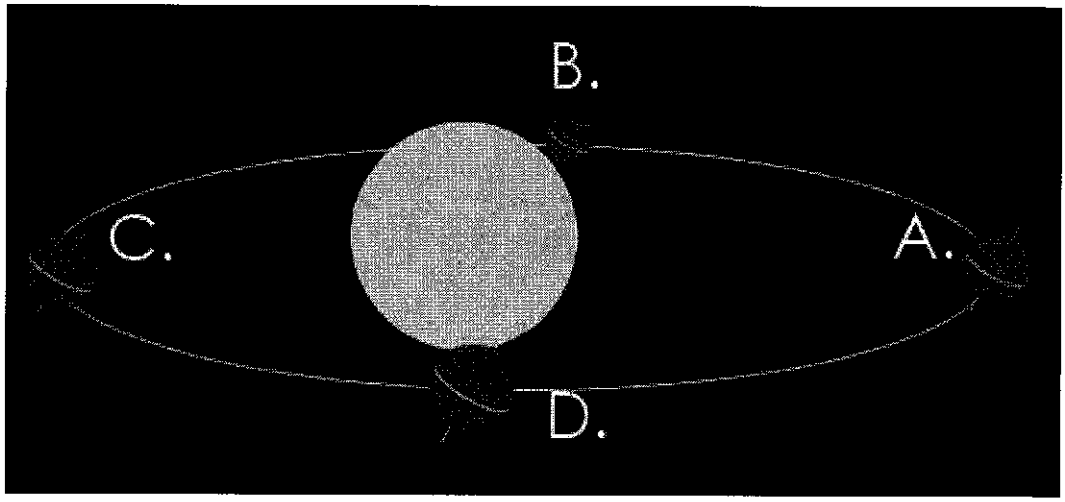


You can tell from this diagram that a complete lunar eclipse occurs when the Moon is

A) closer to the Sun than the Earth.
B) in any place during its lunar orbit.
C) in the umbra, the darker part of the Earth's shadow.
D) in the penumbra, the lighter part of the Earth's shadow.

Explanation:
A complete lunar eclipse occurs when the Moon is **in the umbra, the darker part of the Earth's shadow.** In a partial lunar eclipse, the Moon is in the penumbra, the lighter part of the Earth's shadow.

28)

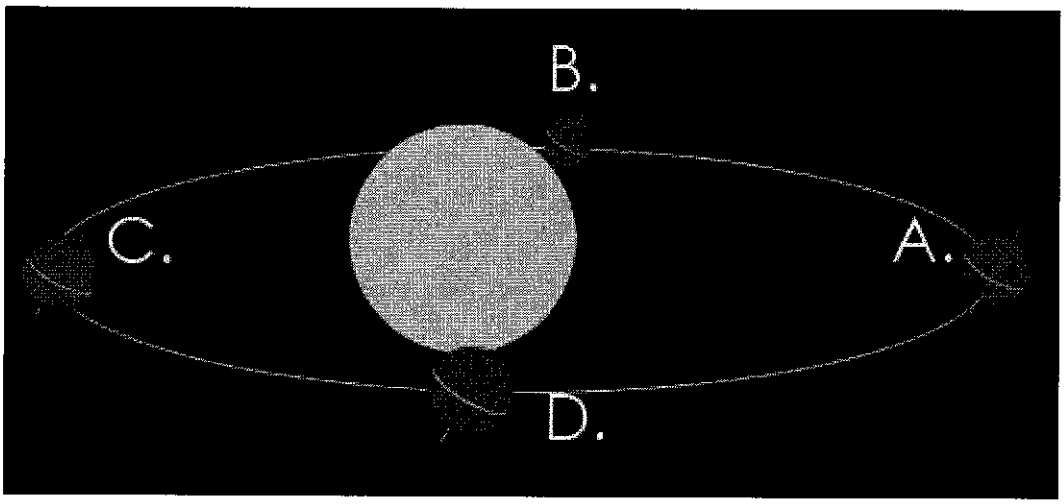


If you live in the southern hemisphere, what season would you be experiencing in position C this diagram?

A) Fall
B) Summer
C) Winter
D) Spring

Explanation:
In the diagram, it is **winter** in the southern hemisphere. As you can see, the earth is tilted to receive direct sunlight in the northern hemisphere. During this time, the incident sunlight is more spread out in the southern hemisphere, causing it to be colder and winter.

29)

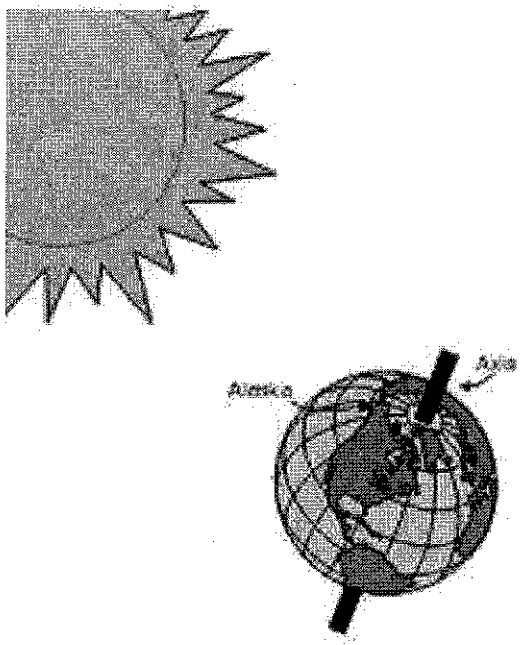


As Earth spins on its axis, producing night and day, it also moves about the Sun in an elliptical orbit that requires about 365 1/4 days to complete. The Earth's axis is tilted with respect to its orbital plane. When the earth's axis points towards the sun, it is _____ for that hemisphere.

A) day
B) night
C) summer
D) winter

Explanation:
The part of the Earth that experiences **summer** is tilted toward the Sun. This increases the amount of time that the Earth receives direct sunlight, which makes it warmer and makes the days longer.

30)



Which factor has the biggest impact on Earth's seasons?

A) Earth's revolution.
B) Earth's elliptical orbit.
C) Earth's tilt on its axis.
D) Earth's distance from the Sun.

Explanation:
The seasons depend on the **Earth's tilt on its axis.** North and south hemispheres have opposite seasons. This is due to how the rays of the Sun reach Earth, directly or indirectly.