# **Earth in Space Comprehension Check**

For questions 1-4, match each of Earth’s spheres to the correct description:

|  |  |
| --- | --- |
| 1. Lithosphere | a. Includes all water on and beneath Earth’s surface, as well as any water in the atmosphere; is only about 3% fresh water |
| 2. Hydrosphere | b. Includes all living things such as microorganisms, animals, plants, and humans |
| 3. Biosphere | c. Includes all the air that surrounds Earth; space begins where this sphere ends |
| 4. Atmosphere | d. Incudes all rock and land below Earth’s surface; refers to Earth’s crust, mantle, outer core, and inner core |

1. Lithosphere –
2. Hydrosphere –
3. Biosphere –
4. Atmosphere –
5. Describe Earth’s place in space, including its relation to the solar system, galaxy, and universe.
6. Earth rotates on its axis once every 24 hours. What effects does this cause on Earth?
7. Earth is also tilted on its axis. How does this tilt affect the amount of sunlight at different latitudes on the planet?
8. Describe how Earth’s orbit, rotation, and tilt create the typical four seasons experienced by many.
9. What are seasons typically like in areas found near the equator? Why is this?
10. Compare solar and lunar eclipses.

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1. Lithosphere – d
2. Hydrosphere – a
3. Biosphere – b
4. Atmosphere – c
5. Describe Earth’s place in space, including its relation to the solar system, galaxy, and universe.
   1. Earth is one of eight planets in our solar system. The others are Neptune, Uranus, Saturn, Jupiter, Mars, Venus, and Mercury. Our solar system also includes one star, the sun, at its center. In our solar system, the planets travel around the sun in an elliptical path called an orbit. Earth is the third planet from the sun. Our solar system is part of a larger galaxy, which is just a tiny part of the universe that includes all matter that exists anywhere in space or time.
6. Earth rotates on its axis once every 24 hours. What effects does this cause on Earth?
   1. Earth’s axis is an imaginary line from the North to the South pole. Earth spins on this axis and makes a complete rotation once every 24 hours. We consider this to be one full day. During the day, particular places on Erath are rotated to face the sun, and at night, these places are rotated away from it. As the 24 hour period continues, other places on Earth are rotated to receive direct sunlight. Earth’s rotation also affects the air in the atmosphere causing it to curve in different directions depending on its hemisphere. This is known as the Coriolis effect and impacts wind patterns, weather, and ocean currents.
7. Earth is also tilted on its axis. How does this tilt affect the amount of sunlight at different latitudes on the planet?
   1. Earth is tilted about 23.5 degrees on its axis. This allows for one hemisphere to angle toward the sun while the other angles away from it. This creates the seasons we experience on Earth as some areas get more sunlight, whereas others get less.
8. Describe how Earth’s orbit, rotation, and tilt create the typical four seasons experienced by many.
   1. Due to Earth’s tilt, the Northern and Southern hemisphere face the sun differently throughout the year. This creates seasons because it affects how much sunlight reaches Earth’s surface. In the summertime, the hemisphere that is tilted toward the sun is at a relatively direct angle. In the wintertime, the hemisphere that is tilted away from the sun causes it to be darker and colder. As Earth rotates and orbits the sun, the amount of direct sunlight an area receives changes, causing the change in seasons we experience.
9. What are seasons typically like in areas found near the equator? Why is this?
   1. Instead of experiencing summer, fall, winter, and spring, areas near the equator experience a dry season and a rainy season. Their latitude and proximity to the sun affects their climate. Areas near the equator receive about 12 hours of sunlight each day year-round.
10. Compare solar and lunar eclipses.
    1. As the Earth and moon rotate and orbit, their positions relative to the sun can cause some dramatic events, such as eclipses. A solar eclipse occurs when the moon moves into a position where it blocks the sun’s light from reaching Earth. During a total solar eclipse, the moon is situated so it covers almost all of the sun, with the only visible light coming from the dangerous rays peeking out around the edges of the moon. A lunar eclipse, on the other hand, occurs when Earth moves into a position where it blocks the sun’s light so it cannot hit the moon. Because of the spherical shape of Earth, some of the sun’s rays refract in a way that causes the moon to appear red. That is why some people refer to a total lunar eclipse as a blood moon.