Earth, Moon and Sun Study Guide

Vocabulary

Axis:	an imaginary line that runs through the North and South Poles
Equinox:	the two days of the year (one in autumn and one in spring) when the hours of daylight and darkness are equal
Full Moon:	A full moon occurs about fifteen (15) days after the new moon phase
Moon:	a satellite of the Earth that orbits the Earth once every 29 1/3 days (Remember: the moon is always located on the same side of the sun as the Earth); if you look up at the sky in Connecticut and see a crescent moon, people in other parts of the world, such as Australia or China, would also see a crescent moon
Orbit:	the path of one object in space around another object (the Earth orbits the sun once a year – or – once every 365 ¼ days)
Phases:	describes the 8 different shapes the moon seems to have during the month
Summer Solstice:	the day of the year with the most hours of daylight (around June 21 in the Northern Hemisphere
Wanes:	describes the second half of the moon's cycle, when the lit side of the moon, as seen from Earth, decreases or shrinks
Waxes:	describes the first half of the moon's cycle, when the lit side of the moon, as seen from Earth, increases or grows
Winter Solstice:	the day of the year that has the most hours of darkness (around December 21 in the Northern Hemisphere)

Notes

- The **moon** revolves around the **earth**, which revolves around the **sun**.
- The Earth's moon is always much closer to the Earth than it is to the sun.
- The **winter solstice** is followed by the **spring equinox**, then **summer solstice**, then **fall equinox**
- Night and Day - one half of Earth is always in light, and one half of earth is always in darkness because **at any time during the day, half of the Earth is facing the sun and half of the Earth is facing away from the sun due to its rotation.**

- The tilt of the Earth on its axis causes the change in seasons. Thus, when it is winter in the Northern Hemisphere, it is summer in the Southern Hemisphere. For example, in December, the Southern Hemisphere is tilted in the direction of the sun so that part of Earth experiences summer. At the same time, the Northern Hemisphere is tilted away from the sun, so that part of Earth experiences winter.

- The Earth and the Moon are alike because they both get light and heat from the Sun.

*** When responding to open ended questions, remember to use factual information to support your ideas. For example:

Question: Sally and Sam were discussing the reason why we experience different seasons in Connecticut.

Sally: "The reason why we have seasons in Connecticut is because during the months of June, July and August, as the sun orbits around the Earth, it moves closer to the Earth. During the months of December, January and February, it moves further away from the Earth.

Sam: "I think we have seasons because the Earth is tilted on its axis, and the seasons depend on where we live, and the direction of its tilt."

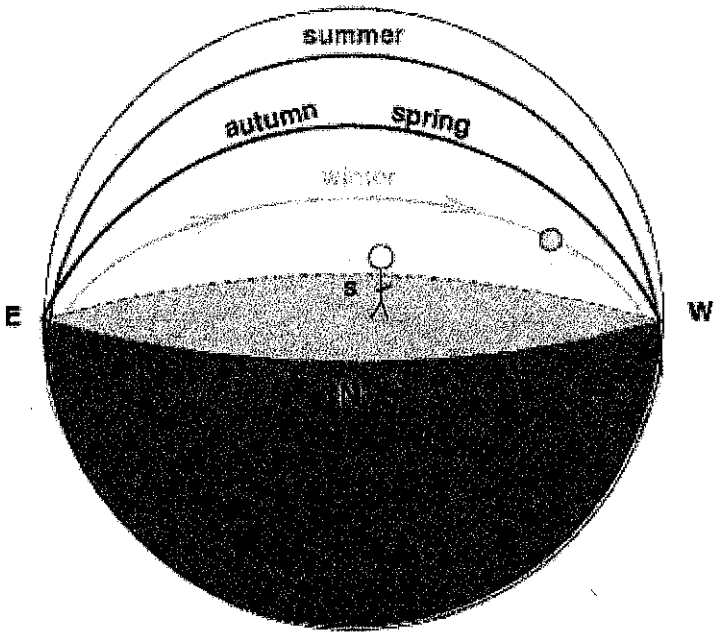
Which person do you agree with the most? Explain why you agree with that person and not the other.

Response:

I agree with Sam. The reason why we have seasons in Connecticut is because as the Earth orbits around the sun (one complete orbit is approximately 365 days), it is tilted on its axis. When the Northern Hemisphere (where Connecticut is located) is **tilted in the direction of the sun**, that part of the Earth receives more **direct sunlight** and warmer temperatures. At the same time, the Southern Hemisphere is **tilted away from the sun**, and receives **indirect sunlight** and colder temperatures. Places near the equator do not experience seasons like we do in Connecticut because they receive direct sunlight, and warm temperatures throughout the year. I do not agree with Sally because the sun does not orbit around the Earth. Finally, the sun does not move closer or farther away from the Earth.

Why do days get shorter as winter approaches in the North?

As winter approaches in the North, the sun's path in the sky gets shorter.



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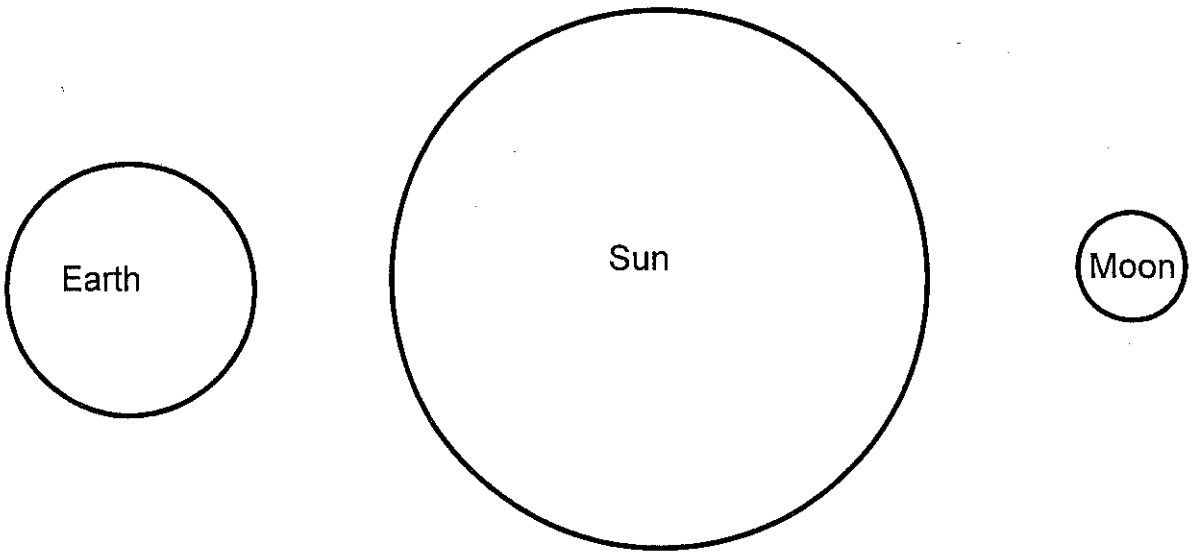
14. What is wrong with this picture?



The moon should be on the same side of the sun as the Earth.