

**BENCHMARK SC.E.1.2.1**

<b>Strand</b>	<b>E</b>	Earth and Space
<b>Standard</b>	<b>1</b>	The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
<b>Benchmark</b>	<b>SC.E.1.2.1</b>	The student knows that the tilt of the Earth on its own axis as it rotates and revolves around the sun causes changes in season, length of day, and energy available.
<b>Item Type(s)</b>		MC, SR
<b>Benchmark Clarification</b>		The student identifies and describes how the position of Earth in relation to the Sun impacts Earth and knows the effects of energy available to organisms.
<b>Content Limits</b>		Items will assess one concept (i.e., night and day, seasons, length of day, or energy available) at a time.
<b>Stimulus Attributes</b>		None specified.
<b>Response Attributes</b>		None specified.
<b>Sample MC Item</b>		Keisha knows that Earth rotates on its axis. What evidence indicates Earth is rotating on its axis?  * A. There is a day and a night. B. There are 365 days in each year. C. There are four phases of the Moon. D. There are different seasons of the year.

**Sample SR Item**

In regions near the North and South Poles, the Sun does not set for several months in the summer. These areas, such as the northern parts of Alaska and Norway, are called the “land of the midnight Sun,” because the Sun remains visible for 24 hours a day.

Why is the Sun visible for so many hours during the day?  
Explain your answer.

**Correct and Complete Response**

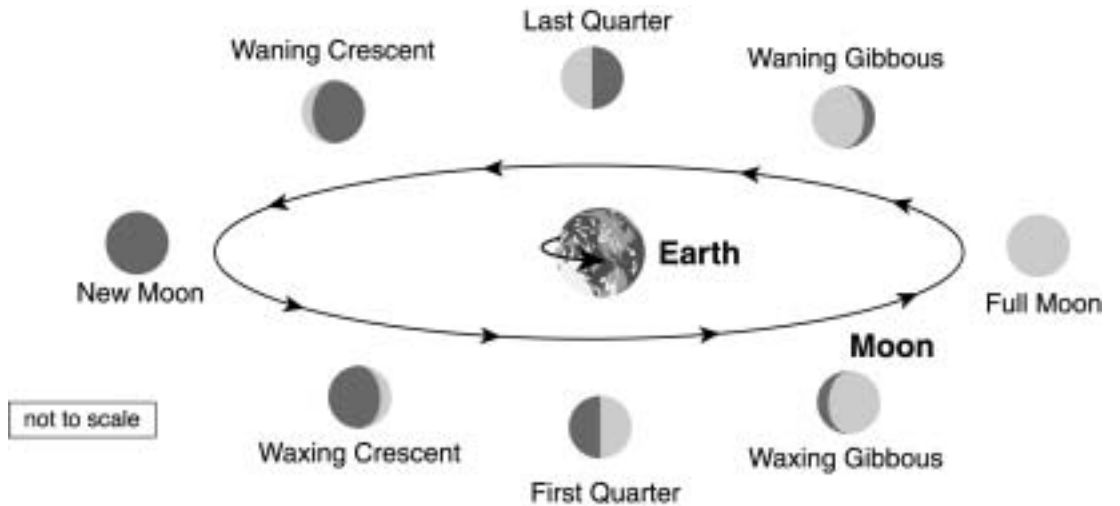
Earth tilts as it moves around the Sun. If the North Pole is tilted toward the Sun, it will be sunny all the time at the North Pole. The South Pole will be dark all the time because it is tilted away from the Sun.

**BENCHMARK SC.E.1.2.2**

<b>Strand</b>	<b>E</b>	Earth and Space
<b>Standard</b>	<b>1</b>	The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
<b>Benchmark</b>	<b>SC.E.1.2.2</b>	The student knows that the combination of the Earth's movement and the moon's own orbit around Earth results in the appearance of cyclical phases of the moon.
<b>Item Type(s)</b>		MC
<b>Benchmark Clarification</b>		The student identifies factors that change the amount of sunlight reflected from the Moon to Earth.
<b>Content Limits</b>		None specified.
<b>Stimulus Attributes</b>		Items will NOT provide the student with data in list form.  Items may provide the student with data in diagram or picture form.
<b>Response Attributes</b>		Items may require responses in a diagram or picture form.

## Sample MC Item

When Jorge looks at the Moon from Earth, he sees different phases of the Moon depending on the time of the month he observes the Moon.



Why does the Moon have different phases during the month?

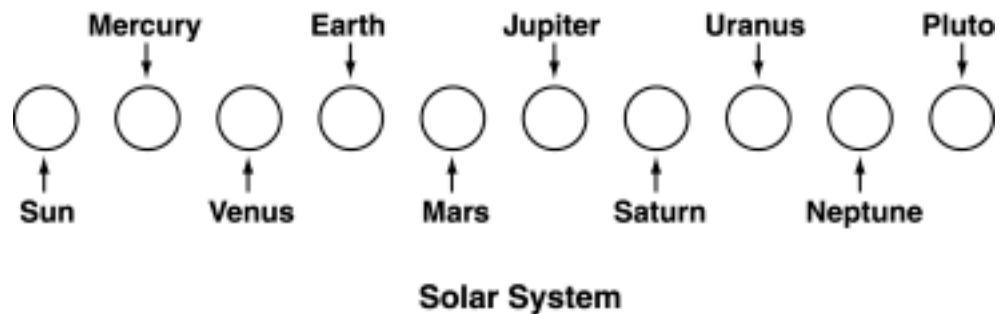
- \* A. The Moon revolves around Earth each month.
- B. The Moon does not have sunlight for one week each month.
- C. The Moon disappears behind the Sun for one week each month.
- D. The Moon revolves around the Sun on an axis once every month.

**BENCHMARK SC.E.1.2.3**

<b>Strand</b>	<b>E</b>	Earth and Space
<b>Standard</b>	<b>1</b>	The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
<b>Benchmark</b>	<b>SC.E.1.2.3</b>	The student knows that the sun is a star and that its energy can be captured or concentrated to generate heat and light for work on Earth.
<b>Item Type(s)</b>		MC
<b>Benchmark Clarification</b>		The student identifies the ways that solar energy is collected and used on Earth.
<b>Content Limits</b>		None specified.
<b>Stimulus Attributes</b>		Item may provide the student with data in diagram or picture form.
<b>Response Attributes</b>		None specified.
<b>Sample MC Item</b>		<p>Plastic cups of different colors (red, light blue, black, and white) are filled with water and placed in direct sunlight. A thermometer is placed in each cup. The water in which cup will show the <b>highest</b> temperature after 60 minutes?</p> <p>A. the red cup *B. the black cup C. the white cup D. the light blue cup</p>

**BENCHMARK SC.E.1.2.4**

<b>Strand</b>	<b>E</b>	Earth and Space
<b>Standard</b>	<b>1</b>	The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.
<b>Benchmark</b>	<b>SC.E.1.2.4</b>	The student knows that the planets differ in size, characteristics, and composition and that they orbit the sun in our Solar System. This benchmark also assesses SC.E.1.2.5. <sup>7</sup>
<b>Item Type(s)</b>		MC
<b>Benchmark Clarification</b>		The student compares and contrasts properties of the planets in our solar system.
<b>Content Limits</b>		Items will NOT require memorization of solar system data.
<b>Stimulus Attributes</b>		Items may provide the student with data on planets in chart or diagram form.
<b>Response Attributes</b>		None specified.
<b>Sample MC Item</b>		Miranda made a model of our solar system for her class. She arranged the planets in the order shown below.



How can Miranda improve her model of the solar system?

- A. Add other planets.
- B. Make rings around Venus.
- C. Move Earth next to the Sun.
- \*D. Change the sizes of the planets.

<sup>7</sup> The complete text for SC.E.1.2.5 is “The student understands the arrangement of planets in our Solar System.”

**BENCHMARK SC.E.2.2.1**

<b>Strand</b>	<b>E</b>	Earth and Space
<b>Standard</b>	<b>2</b>	The student recognizes the vastness of the universe and the Earth's place in it.
<b>Benchmark</b>	<b>SC.E.2.2.1</b>	The student knows that, in addition to the sun, there are many other stars that are far away.
<b>Item Type(s)</b>		MC
<b>Benchmark Clarification</b>		The student identifies the Sun as a medium-sized star in a galaxy containing billions of stars.
<b>Content Limits</b>		Items may assess the student's understanding of light-years.
<b>Stimulus Attributes</b>		None specified.
<b>Response Attributes</b>		None specified.
<b>Sample MC Item</b>		<p>At night, thousands of stars are visible from Earth, but during the day we can see only one star, the Sun. Why is the Sun the only star visible to us during the day?</p> <p>A. The other stars shine only at night.          B. The clouds hide the other stars during the day.          *C. The Sun's light prevents the other stars from being seen.          D. The other stars give off white light, which can only be seen at night.</p>