

## SCIENCE GRADE 6

### A. Open-Ended (OE) 4 points

Mean: 1.78

Standard: II.c.A.4.a

Strand: Content of Science

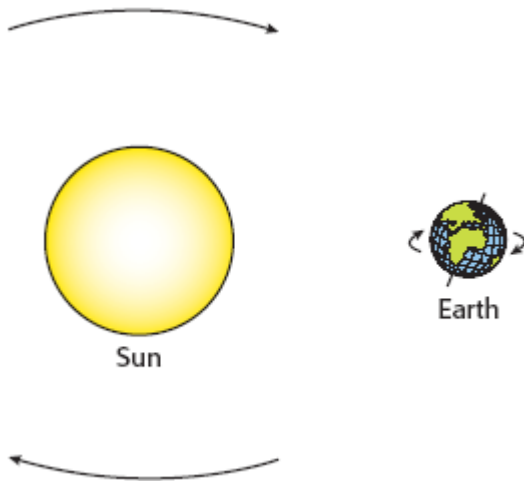
Content Standard: Earth and Space Science: Understand the structure of Earth, the solar system, and the universe, the interconnections among them and the processes and interactions of Earth's systems.

Benchmark: Describe how the concepts of energy, matter, and force can be used to explain the observed behavior of the solar system, the universe, and their structures.

4. Know that the regular and predictable motions of the Earth-moon-sun system explain phenomena on Earth including:

a. Earth's motion in relation to a year, a day, the seasons, the phases of the moon, eclipses, tides, and shadows

The illustration shows Earth going around the sun in space. As Earth goes around the sun, it also moves around its own axis.



- A. Explain what causes night to change to day on Earth.
- B. Explain why January is a winter month in the Northern Hemisphere.

A.

B.

## B. Rubric

### Top score response:

Part A. The student gives a response that Earth rotates or spins around on its own axis and as it rotates it changes from night to day. The side of Earth facing away from the sun is now facing the sun.

Part B. The Northern Hemisphere is tilted away from the Sun during the winter months. This limits the amount of sunlight the northern hemisphere receives during winter.

<b>Score</b>	<b>Description</b>
<b>4</b>	The student demonstrates thorough understanding of the relevant scientific concepts and/or procedures. The student completes the task correctly, using scientifically sound procedures and provides clear and complete explanations and interpretations. The response may contain minor flaws that do not detract from the demonstration of thorough understanding.
<b>3</b>	The student demonstrates an understanding of the relevant scientific concepts and/or procedures. The student completes most of the task correctly, but the scientific procedures, explanations and/or interpretations are incomplete or only partially supported. The response may contain minor flaws that indicate some misunderstanding of the scientific concepts and/or procedures.
<b>2</b>	The student demonstrates partial understanding of the relevant scientific concepts and/or procedures. The response includes some correct information, but indicates a lack of essential understanding of the scientific concepts and/or procedures. Explanations and/or interpretations are incomplete or only partially supported. The response may contain flaws that indicate misunderstanding of the task or of the scientific concepts and/or procedures.
<b>1</b>	The student demonstrates a minimal understanding of the relevant scientific concepts and/or procedures. The student has reached an inadequate conclusion and/or provided reasoning that is faulty or incomplete. The response is incomplete and exhibits many flaws, but does contain some correct work that addresses the task.
<b>0</b>	The student demonstrates no understanding of the relevant scientific concepts and/or procedures. The response is incorrect or irrelevant to the skill or concept being measured, or no response is provided.

## C. Student Responses

High

32

A. The earth when it goes around the sun the earth spins at a tilted angle...so as it spins it turns to and from the light

B. January is a winter month <sup>in the Northern hemisphere</sup> because the world is tilted away from the sun

32

A.

The Earth spinning on its axis causes it to turn from night to day because when it spins it turns away from the sun + it turns day or night.

B.

Because the earth is tilted on its side and the sun doesn't hit the northern hemisphere as much.

A. What causes night to change to day is the earth moving on its axis

B. January is the month of winter because the earth's northern axis is pointed away from the sun

### Mid

A. Well earth spins when it is night the side we are on is in back so we get no sunlight.

B. Because the Northern Hemisphere is farther away from the sun so it will be winter.

A. What causes night to change to day on Earth, is that when the Earth moves on one side where it's not facing the sun is night. When the other side turns we are facing the sun. So it is day.

B. January is a winter month in the Northern Hemisphere because the Northern Hemisphere does not get much sun so it is cold.

A. In order for part of earth to see day the earth has to turn its axis to face the sun. Then it keeps on turning so other parts can get sun.

B. The Northern Hemisphere is a part on earth that doesn't get as much light as others and is in a blind spot of the sun.

A. What changes night to day is. Where you are, the earth rotates, and when it rotates the place you are at goes around to the sun the rotates to the moon.

B.

January is a winter month in the Northern Hemisphere because the Earth is at an angle, and the sun doesn't get that much light on the northern side of Earth.

A. night changes to day on earth because the earth revolves around the sun, but at the same time the earth is spinning on its axis.

B.

January is a winter month in the northern hemisphere because January is when the northern hemisphere is farthest away from the sun.

## Low

32

A. When United States is looking at the sun in Asia is night and when in Asia is day in United States is night. The earth is the one that's spinning more.

B. When is January some other planet is in front.

32

A. The Earth rotates on its own axis and orbits the sun that causes the seasons of the year

B. In the Northern Hemisphere is on the lower part of Earth and causes it to be cold

<sup>a</sup> The way that night turns to day is because Earth is spinning and it's going around the sun. When the Earth spins, every time around that makes a different place morning.

<sup>b</sup> January is a winter month because when the earth spins on its axis, the northern hemisphere is farther away from the sun.