

Getting Started

Reporting Category 3

The student will demonstrate an understanding of components, cycles, patterns, and natural events of Earth and space systems.

TEKS

The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system.

5.8(C) Readiness Standard

Demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky.

Unpacking the Standard

In order to master this standard, students should understand the concepts related to day and night and the apparent movement of the Sun at the application level of Bloom's Taxonomy.

Prerequisite Standards

Prior to 5th Grade, students studied these science concepts which laid the foundation for understanding 5.8(C).

Grade Level	TEKS	Description
K	K.8(B)	Identify events that have repeating patterns, including seasons of the year and day and night.
	K.8(C)	Observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.
1	1.8(B)	Observe and record changes in the appearance of objects in the sky such as clouds, the Moon, and stars, including the Sun.
	1.8(C)	Identify characteristics of the seasons of the year and day and night.
2	2.8(D)	Observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.
3	3.8(C)	Construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions.
	3.8(D)	Identify the planets in Earth's solar system and their position in relation to the Sun.
4	4.8(C)	Collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time.

Unit 17

Readiness Standard – 5.8(C)

*Earth's Rotation***Science Teacher Express****Teacher Instructions**

Use this information to build your background knowledge or to review content.

Earth's Rotation

- Earth rotates around its axis once approximately every 24 hours. This equals one day.
- Earth rotates counter-clockwise.
- Earth spins at around 1600 kilometers per hour.
- While one half of Earth is lit by the Sun (daytime), the other half is dark (nighttime). Earth continuously rotates, causing daytime and nighttime.
- We are unaware of the movement of Earth because everything around us moves at the same speed. The same thing happens when we ride in a car or airplane. If you close your eyes, it feels as if you are sitting still.
- The 23.5 degree tilt of Earth's axis and the revolution of Earth around the Sun causes the four seasons: winter, spring, summer, and fall.
- One revolution of Earth around the Sun equals one year.

Sun

- Due to Earth's rotation, the Sun appears to move across the sky during the day. It appears to change position throughout the day.
- There are approximately 12 hours of daylight and 12 hours of night.
- The rotation of Earth is continuous, however the North and South Poles experience extended day and night. Depending on the time of year, the North and South Poles have daytime or nighttime for weeks. This means that during summer in the North Pole, there will be no darkness. At the same time, the South Pole will experience weeks without sunlight.
- Do not look directly at the Sun. It can cause damage to the eyes and even blindness.

Vocabulary Focus

Teacher Instructions

Use the vocabulary builder in the student edition and the vocabulary activity to review and practice the unit vocabulary terms.

The following are essential vocabulary terms for this unit.

apparent movement	day	night	Sun
axis	Earth	rotate	

Vocabulary Activity

Write the unit vocabulary words on index cards. Place the word cards in a basket. Give the basket to a student. Turn on music. While the music plays, each student passes the basket to the student seated beside him/her. When the music stops, the student holding the basket draws a word and reads it aloud. If the student can define the word, a point is awarded to the student. Continue play until all words have been correctly defined.

Suggested Formative Vocabulary Assessment

Assess student understanding of vocabulary by using the above vocabulary activity and the Science Vocabulary Builder page in the student edition.

Enrichment Connections

Children's Literature

Where Does the Sun Go at Night?: An Earth Science Mystery – Amy S. Hansen

The Day the Earth Stood Still: Earth's Movement in Space – Isabel Thomas

Why Does the Sun Set? – Terry Allan Hicks

Sun Up, Sun Down: The Story of Day and Night – Jacqui Bailey

Arctic Lights, Arctic Nights – Debbie S. Miller

Science Websites

Windows to the Universe: http://www.windows2universe.org/the_universe/uts/earth2.html

Office of Naval Research—Observing the Sky in Motion: <http://www.onr.navy.mil/focus/spacesciences/observingsky/motion1.htm>

The Rotation of Earth: <http://www.kidsgeo.com/geography-for-kids/0018-the-rotation-of-the-earth.php>

Reading Rainbow—My Shadow: <http://searchdiscoveryeducation.com/search>.

ReadingRainbowMyShadow

Unit 17

Readiness Standard – 5.8(C)

Earth's Rotation

Introduction

(student pages 183–184)

Teacher Instructions

Activity 1 is a teacher demonstration. In the second activity, students complete part of the activity during school and finish the other part of the activity at home. Evaluate student understanding throughout the activities as a formative assessment of learning.

Activity 1: Rotation

1. This activity is a teacher demonstration. Use an orange and a flashlight to represent the rotation of Earth.
2. A student volunteer can be used to hold the flashlight. Stick a push pin in the orange to represent Texas. Instruct student to point flashlight on one part of the orange and hold it steady. Then begin rotating the orange counter-clockwise to show different parts of it being hit by light. Explain and demonstrate that Earth also revolves around the Sun as it is rotating.
3. Ask students why different parts of the orange were hit by light when it was rotated. Explain that Earth rotates once approximately every 24 hours, causing day and night.
4. Students answer questions and complete an illustration of the demonstration on the student pages.

Materials**Activity 1: Teacher Demonstration**

- orange
- flashlight
- push pin
- pencils

Activity 2: Per Student

- pencils
- outdoor area
- sunglasses (optional)

Activity 2: Apparent Movement

1. Students learn about the change in appearance of the Sun due to Earth's rotation.
2. Students observe the appearance of the Sun in the sky at different times of the day. Instruct them to face south and to check the position at 8:00 A.M., 10:00 A.M., 12:00 P.M., 2:00 P.M., 4:00 P.M., and 6:00 P.M. Instruct students to describe the position and location of the Sun, using landmarks as a reference, and illustrate the position, labeling the time. **[Be sure to discuss safety first and tell students to never look directly at the Sun. Students may use sunglasses while observing the position, but still should not observe the Sun directly.]**
3. Students need to complete part of the investigation at school and the rest at home. Students may record the evening observations on a separate piece of paper and then copy the results into student books the following day.
4. On the student page, students record the position of the Sun in the sky throughout the day. They need to provide a description of the position. For example, the Sun will be overhead at noon.
5. After collecting the data, illustrate the position of the Sun throughout the day. Be sure students include the time of day the Sun appeared in each position.
6. After illustrating the Sun's apparent movement throughout the day, students will answer questions at the bottom of the page. Discuss their findings and clear up any confusion. Talk about why the Sun appears to move. Explain that Earth's rotation causes day and night. Some parts of Earth experience different amounts of sunlight at different times of the year.

Questions to Guide Inquiry

1. What causes day and night?
2. Why does the Sun appear to move across the sky?
3. If we repeated the investigation in 4 months, do you think our results would be the same?
4. Why or why not?

Guided Practice Strategies

(student page 185)

Teacher Instructions

As a class or in small groups, read through each question together and discuss the correct and incorrect responses, revealing common misunderstandings and misconceptions. Model strategies to help students think logically about each answer choice. Assess student understanding as the questions and answers are discussed.

Question 1

Which of the following causes the shadow to form in the picture above?

• Does Earth's rotation cause shadows cast by the Sun?

Yes, Earth's rotation, or spinning on its axis, causes the apparent movement of the Sun across the sky. Earth makes a complete rotation every 24 hours. The time of day determines how long the shadow is. Answer A is correct. Check the other answers to make sure answer A is the best choice.

• Does Earth's revolution cause the shadows cast by the Sun?

No, it takes Earth one year, or 365 days, to make a complete revolution around the Sun. This process does not explain the Sun's apparent movement. Answer B is incorrect.

• Does the Sun's revolution cause the shadows cast by the Sun?

No, the Sun revolves around the Milky Way Galaxy. This would not cause shadows. Answer C is incorrect.

• Does Earth's orbit cause the shadows cast by the Sun?

No, Earth's orbit is the path it travels around the Sun. The path does not cause the shadows. Answer D is incorrect.

Question 2

Approximately what time of day is it in the picture above?

• Is it 12:00 P.M. in the picture?

No, if it were 12:00 P.M. (noon), the Sun would most likely be directly above the tree, casting a very short shadow. Answer F is incorrect.

• Is it 8:00 A.M. in the picture?

Yes, the tree's shadow is long on the west side of the picture, which means the Sun is in the east, and it is morning. Answer G is correct.

Unit 17

Readiness Standard – 5.8(C)

Earth's Rotation

• Is it 6:00 P.M. in the picture?

No, the shadow would be cast on the opposite side because the Sun would be in the western sky. Answer H is incorrect.

• Is it 12:00 A.M. in the picture?

No, 12:00 A.M. is during the night. We would not see the Sun at all, and there would be no shadow. It would be dark. Answer J is incorrect.

Question 3

Earth rotates on its axis approximately once every 24 hours, causing the day/night cycle and —

• When Earth rotates on its axis, does it cause the phases of the Moon to appear?

No, the phases of the Moon are caused by the revolution of the Moon around Earth. Answer A is incorrect.

• Does the rotation of Earth also cause Earth to orbit around the Sun?

No, when Earth orbits around the Sun, Earth is said to revolve, not rotate. Answer B is incorrect.

• When Earth rotates on its axis, does it cause the apparent movement of the Sun across the sky?

Yes, because of Earth's rotation, the Sun appears to move across the sky. Answer C is correct.

• Does rotation cause the four seasons?

No, seasons are caused by the tilt of Earth's axis and Earth's orbit around the Sun. Answer D is incorrect.

Question 4

Which of the following would be the best example to explain Earth's rotation?

• Would a merry-go-round be a good example to show how Earth rotates?

Yes, if we imagine we are riding a merry-go-round we can see it spins just like Earth does on its axis, but everything else stays in place. Answer F is correct. Check the other answers to make sure answer F is the best answer.

• Is a funnel like Earth rotating?

No, a funnel has a hole in it and does not spin like Earth does. Answer G is incorrect.

• Is a doorknob a good example of Earth rotating?

No, a doorknob turns but it does not spin completely and in one direction like Earth. Answer H is incorrect.

• Is a swing a good example of Earth's rotation?

No, a swing moves in a back and forth motion. Answer J is incorrect.

Question 5

In what direction does the Sun appear to move across the sky?

- **Why does the question use the words, “the Sun appear to move?”**

The Sun only seems to move across the sky. This apparent movement is caused by Earth rotating on its axis.

- **Does the Sun appear to move from west to east?**

No, because Earth rotates counter-clockwise, the Sun appears to rise in the east and set in the west. Answer A is incorrect.

- **Does the Sun appear to move from north to south?**

No, as stated above, the Sun appears to move from east to west. Answer B is incorrect.

- **Does the Sun move from east to west?**

Yes, answer C is correct, as stated above.

- **Why is answer D incorrect?**

The Sun does not appear to move from south to north. It appears to move from east to west.

Question 6

Which of the following is an ancient tool invented to determine the time of day?

- **What does the word ancient mean?**

Ancient means very, very old.

- **Is a watch a very, very old tool invented to determine the time of day?**

No, though watches were invented about 500 years ago it is not the oldest tool invented to determine the time of day. Answer F is incorrect.

- **Is a clock a very, very old tool invented to determine the time of day?**

No, clocks are an older invention than a watch, but a clock is not the oldest tool invented to determine the time of day. Answer G is incorrect.

- **Is a sundial the oldest tool invented to determine the time of day?**

Yes, sundials were invented at least a thousand years before clocks or watches. Answer H is correct.

- **Is a compass the oldest tool invented to determine the time of day?**

No, a compass is not used to tell time. It can help with direction. Answer J is incorrect.

Unit 17

Readiness Standard – 5.8(C)

*Earth's Rotation***Intervention****Teacher Instructions**

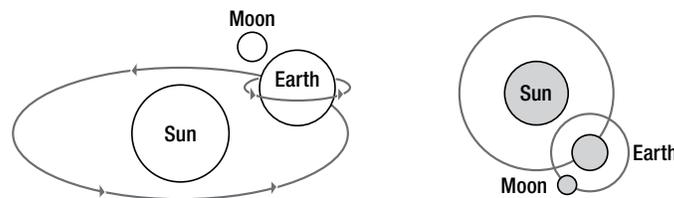
After assessing student learning, use the following activities to provide remediation.

Coin Model

Distribute a quarter and a dime to each student. Ask students to use the quarter to represent the Sun and the dime to represent Earth. With the coin model, have students demonstrate how Earth's rotation causes the day/night cycle.

Differing Views

Students need exposure to many different models that demonstrate the movements of Earth. Find or draw examples of Earth's movements from varying viewpoints. Some examples are shown below.

**Extending Student Thinking****Teacher Instructions**

After assessing student learning, use the following activities to provide enrichment.

Shadow Tag

Play a game of shadow freeze-tag. To play the game, go outside on a sunny day. Select a person to be "it." The person who is "it" freezes other players by making his/her shadow touch the shadow of another person. Players who are not "it" may "unfreeze" people by touching their shadow to the frozen player's shadow. When all players have been frozen, a new person is chosen to be "it."

Math Connection

Research the Internet and collect data for the sunrise and sunset times for the past year. Create a data table using the information collected. Answer the following questions.

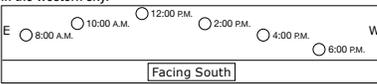
- Does the Sun always rise and set during the same time of day?
- Are the sunrise and sunset times different during different seasons?
- What might cause the differences in sunrise and sunset times?
- What day of the year was the longest?
- What day of the year was the shortest?

Earth's Rotation

Unit 17

Readiness Standard – 5.8(C)

Answer Codings
(student pages 183–186)

Page #	Question #	Answer	Process TEKS	Bloom's Original/Revised	DOK Level	ELPS
183	Activity 1	<p>The orange represented Earth.</p> <p>The flashlight represented the Sun.</p> <p>As Earth rotated, the side of Earth facing the flashlight was lit, while the other half was dark.</p> 	<p>5.1(A)</p> <p>5.1(B)</p> <p>5.2(C)</p> <p>5.2(D)</p> <p>5.2(F)</p> <p>5.2(G)</p> <p>5.3(C)</p>	Comprehension/Understand	2	<p>(c)1.C</p> <p>(c)1.E</p> <p>(c)2.C</p> <p>(c)2.E</p> <p>(c)2.1</p> <p>(c)3.H</p> <p>(c)5.B</p> <p>(c)5.G</p>
184	Activity 2	<p>8:00 A.M. Landmarks may vary. The Sun should be in the eastern sky.</p> <p>10:00 A.M. Landmarks may vary. The Sun should be higher in the eastern sky.</p> <p>12:00 P.M. Landmarks may vary. The Sun should be overhead.</p> <p>2:00 P.M. Landmarks may vary. The Sun should be high in the western sky.</p> <p>4:00 P.M. Landmarks may vary. The Sun should be lower in the western sky.</p> <p>6:00 P.M. Landmarks may vary. The Sun should be low or setting in the western sky.</p>  <p>As Earth rotates, the Sun appears to move across the sky from east to west.</p> <p>As Earth rotates, part of Earth is facing the Sun, while the other is in darkness. If Earth did not rotate, one side would always experience day, and the other would be in constant darkness.</p>	<p>5.1(A)</p> <p>5.1(B)</p> <p>5.2(C)</p> <p>5.2(D)</p> <p>5.2(F)</p> <p>5.2(G)</p> <p>5.3(A)</p>	<p>Application/Apply</p> <p>Analysis/Analyze</p>	3	<p>(c)1.C</p> <p>(c)1.E</p> <p>(c)2.C</p> <p>(c)2.E</p> <p>(c)2.1</p> <p>(c)3.H</p> <p>(c)5.B</p> <p>(c)5.G</p>
185	1	A		Comprehension/Understand	2	(c)4.1
	2	G	5.2(D)	Comprehension/Understand	2	(c)4.1
	3	C		Knowledge/Remember	1	(c)4.1
	4	F		Synthesis/Create	2	(c)4.J
	5	C		Knowledge/Remember	1	(c)4.1
	6	H	5.3(D)	Application/Apply	1	(c)4.1
186	1	D		Synthesis/Create	2	(c)4.J
	2	F		Knowledge/Remember	1	(c)4.J
	3	B		Knowledge/Remember	1	(c)4.1
	4	H		Comprehension/Understand	2	(c)4.1
	5	A		Comprehension/Understand	2	(c)4.1
	6	G		Comprehension/Understand	2	(c)4.J

Unit 17

Readiness Standard – 5.8(C)

Earth's Rotation

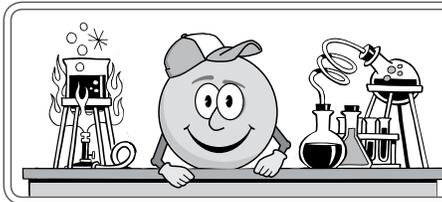
Answer Codings
(student pages 187–192)

Page #	Question #	Answer	Process TEKS	Bloom's Original/Revised	DOK Level	ELPS
187	7	C	5.2(D)	Analysis/Analyze	3	(c)4.J
	8	G	5.3(C)	Comprehension/Understand	2	(c)4.I
	9	C	5.3(D)	Knowledge/Remember	1	(c)4.I
	10	F	5.3(A)	Application/Apply	1	(c)4.I
188	11	B	5.3(D)	Knowledge/Remember	1	(c)4.I
	12	G	5.2(D)	Analysis/Analyze	2	(c)4.J
	13	A	5.2(D)	Comprehension/Understand	2	(c)4.I
	14	J	5.2(D)	Comprehension/Understand	2	(c)4.K
189	Critical Thinking	Day Earth rotating on its axis causes the apparent motion of the Sun. 24 hours Everything around us is also spinning at the same rate. The same thing happens when riding in a car. We only detect movement because we see the surroundings moving. If you close your eyes in the car, you do not feel as if you are moving. Answers may vary.	5.2(D)	Application/Apply	2	(c)1.E (c)4.K
	Formative Assessment	Answers may vary, but might include limitations in materials used, size, scale, etc.	5.3(D)			
190	Science Journal	Stories may vary.		Synthesis/Create	3	(c)5.B (c)5.F (c)5.G
191	Vocabulary	Ideas may vary.		Comprehension/Understand	2	(c)1.C (c)1.E (c)2.C (c)2.E
192	Homework	Answers may vary.	5.1(A) 5.1(B) 5.3(D)	Synthesis/Create	3	(c)1.A (c)1.C (c)1.E (c)5.B (c)5.F (c)5.G

Name _____

Readiness Standard 5.8(C)

Unit 17 Introduction



Motivation Station: Mike's Cool Science Fact

Earth actually takes 23 hours, 56 minutes, and 4 seconds to make one complete rotation. While Earth is rotating, it is also revolving around the Sun. It takes an extra 4 minutes for Earth to rotate to the same spot it was the day before while it is also revolving. This makes a day 24 hours long.

After this lesson I will be able to:

- **Demonstrate** that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky.

Descriptive Investigations

Activity 1: Rotation

Watch as your teacher presents a demonstration of Earth's rotation.

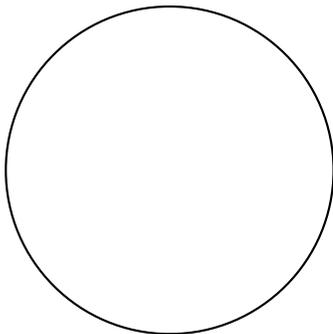
What did the orange represent?

What did the flashlight represent during the experiment?

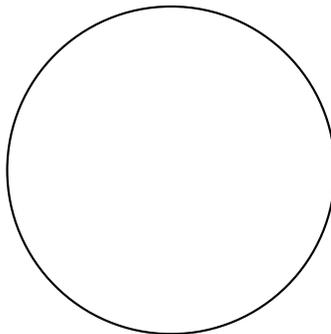
What happened during the demonstration?

Illustrate the demonstration by drawing the position of the light hitting Earth during the demonstration.

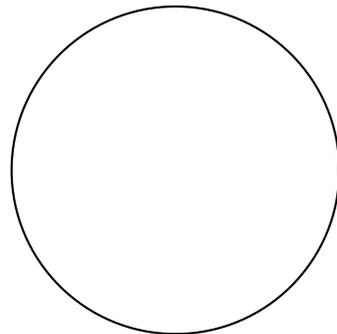
Texas during the day



Texas at night



Texas at sunset





Unit 17 Introduction

Name _____

Readiness Standard 5.8(C)

Activity 2: Apparent Movement

Never look directly at the Sun.

On the table, record the position of the Sun in the sky throughout the day. Face south when you make your observations. This activity begins at school and is completed at home.

Time	Position
8:00 A.M.	Description
10:00 A.M.	Description
12:00 P.M.	Description
2:00 P.M.	Description
4:00 P.M.	Description
6:00 P.M.	Description

Illustrate the position of the Sun throughout the day. Face south for each observation. Be sure to include the time of day the Sun appeared in each position, and include drawings of nearby landmarks.

Why does the Sun appear to change its position throughout the day?

How does Earth's rotation cause day and night? What would happen if Earth did not rotate?

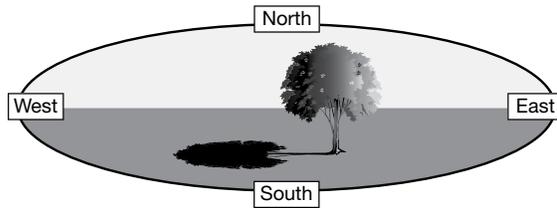
Name _____

Readiness Standard 5.8(C)

Unit 17 Guided Practice



The picture below represents a June day. Use the picture below and your knowledge of science to answer questions 1 and 2.



- 1 The Sun appears to change position or move across the sky during daylight hours. Which of the following causes the shadow to form in the picture above?
 - Ⓐ Earth's rotation
 - Ⓑ Earth's revolution
 - Ⓒ Sun's revolution
 - Ⓓ Earth's orbit

- 2 Approximately what time of day is it in the picture above? **5.2(D)**
 - Ⓕ 12:00 P.M.
 - Ⓖ 8:00 A.M.
 - Ⓗ 6:00 P.M.
 - Ⓙ 12:00 A.M.

- 3 Earth rotates on its axis approximately once every 24 hours, causing the day/night cycle and —
 - Ⓐ the Moon phases
 - Ⓑ the orbiting of Earth around the Sun
 - Ⓒ the Sun's apparent movement across the sky
 - Ⓓ the four seasons

- 4 Which of the following would be the best example to explain Earth's rotation?
 - Ⓕ Merry-go-round
 - Ⓖ Funnel
 - Ⓗ Doorknob
 - Ⓙ Swing

- 5 In what direction does the Sun appear to move across the sky?
 - Ⓐ West to east
 - Ⓑ North to south
 - Ⓒ East to west
 - Ⓓ South to north

- 6 Many cultures have different methods of telling what time of day it is. Which of the following is an ancient tool invented to determine the time of day? **5.3(D)**
 - Ⓕ Watch
 - Ⓖ Clock
 - Ⓗ Sundial
 - Ⓙ Compass

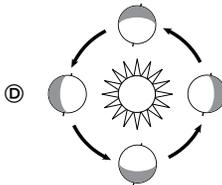
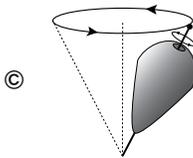
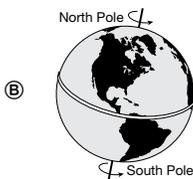
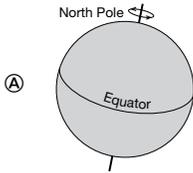


Unit 17 Check for Understanding

Name _____

Readiness Standard 5.8(C)

1 Which of these does **NOT** demonstrate how Earth rotates on its axis to cause day and night?



2 Earth's rotation causes the day and night cycle. It also causes —

- (F) the Sun to appear to move
- (G) the Sun to remain in orbit
- (H) the Sun to orbit Earth
- (I) all of the above

3 Earth rotates on its axis once every —

- (A) month
- (B) 24 hours
- (C) year
- (D) 12 hours

4 A person standing in Alabama notices the Sun is rising. At the same moment, a person in Japan sees that the Sun has just set. Which statement correctly describes how it can be sunrise and sunset at the same moment?

- (F) The Sun's rotation around Earth enables part of Earth to have sunlight while the other part is in darkness.
- (G) The Sun has moved from one location to the other during the course of a day.
- (H) Earth's rotation on its axis enables part of Earth to have sunlight while the other part is in darkness.
- (I) Earth has circled around the Sun during the course of a day.

5 Which statement correctly describes the Sun's apparent movement across the sky?

- (A) As Earth spins on its axis, it makes the Sun appear to move across the sky.
- (B) As the Sun spins around Earth, it moves across the sky.
- (C) Earth rotates around the Sun every 24 hours, making the Sun appear to move across the sky.
- (D) The Sun rotates around Earth every 12 hours, making the Sun appear to move across the sky.

6 A student looks outside and observes the Sun in the western sky. Which of the following times could it be?

- (F) Sunrise
- (G) Sunset
- (H) Noon
- (I) Midnight

Name _____

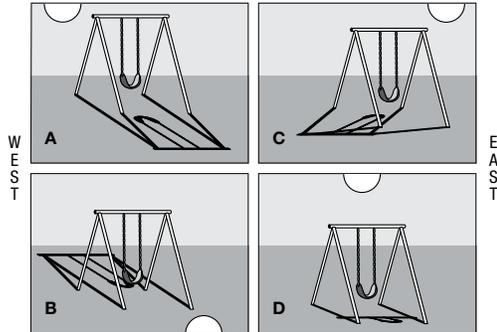
Readiness Standard 5.8(C)

Unit 17 Check for Understanding



Scientific Investigation and Reasoning Skills: Questions 7–14

7 Which picture was taken at 9:00 A.M.? **5.2(D)**



- Ⓐ Diagram A
- Ⓑ Diagram B
- Ⓒ Diagram C
- Ⓓ Diagram D

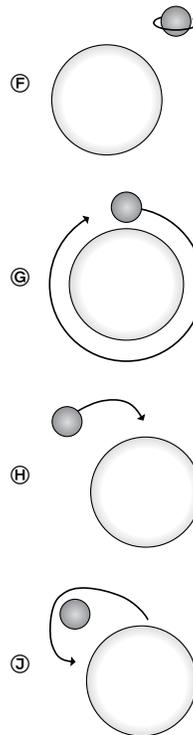
8 Models are not perfect, but models have been used for many years by scientists to help explain ideas. Scientists use models to make predictions about the future as well as understand the vast world in which we live. Why would a physical model demonstrating Earth's rotation be considered less than perfect? **5.3(C)**

- Ⓐ Models are an exact copy of the object or idea they represent.
- Ⓑ Models have limitations in representing the object or idea.
- Ⓒ Models are identical to the object or idea they represent.
- Ⓓ Models match the object or idea they represent exactly.

9 Astronomers are scientists who study the universe. To an astronomer, the word "rotate" means — **5.3(D)**

- Ⓐ orbit around another object
- Ⓑ move in opposite directions
- Ⓒ spin around an axis
- Ⓓ revolve around another object

10 A science teacher evaluates students' understanding of the causes of day and night. Students are asked to draw a diagram to show the process. Which of the following student diagrams correctly shows the process that causes the day/night cycle? **5.3(A)**





Unit 17 Check for Understanding

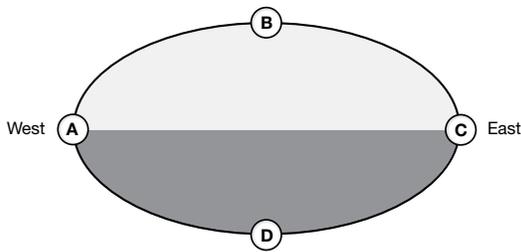
Name _____

Readiness Standard 5.8(C)

11 Many cultures believed the Sun traveled around Earth. In the 1500s, a man named Copernicus proposed that Earth traveled around the Sun. A scientist named Galileo found evidence to support Copernicus' idea. Earth revolves around the Sun, but it also makes a complete rotation. How long does it take Earth to make one complete rotation on its axis? **5.3(D)**

- Ⓐ 365 days
- Ⓑ 1 day
- Ⓒ 1 month
- Ⓓ 1 week

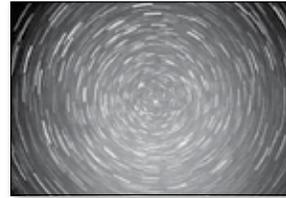
12 Observe the diagram below.



Which of the following shows where the Sun's position should be at 12:00 P.M.? **5.2(D)**

- Ⓕ Position A
- Ⓖ Position B
- Ⓗ Position C
- Ⓙ Position D

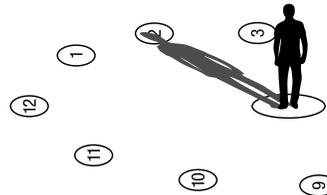
13 The picture is a photograph of the night sky over a period of many hours.



Why does the night sky appear to move in a circular pattern as shown in the photograph? **5.2(D)**

- Ⓐ Earth rotates on its axis once a day.
- Ⓑ The night sky rotates over Earth.
- Ⓒ Stars travel in a circular direction around Earth.
- Ⓓ Earth rotates on its axis once every 12 hours.

14 In an activity, students make a large human sundial. The sundial uses the Sun to tell the approximate time of day.



How is this possible? **5.2(D)**

- Ⓕ The Sun moves across the sky each day because it spins around Earth.
- Ⓖ The sundial measures the distance from Earth to the Sun as it moves across the sky.
- Ⓗ Earth moves around the Sun each day, making the Sun appear to move across the sky.
- Ⓙ The position of the Sun in the sky appears to change during the day because Earth rotates on its axis.

Name _____

Readiness Standard 5.8(C)

Unit 17 Critical Thinking



Analyzing Rotation



Observe the picture of Earth, and draw where the Sun would be located to create the view shown.

1. Does the picture show day or night where you live? _____

2. Why does the Sun appear to move across the sky during the day?

3. How long does it take for Earth to rotate one time? _____

4. If Earth is constantly spinning, why do we not feel the movement?

5. How many times has Earth rotated since your last birthday? _____

Formative Assessment

Describe some advantages and disadvantages of the models you used to demonstrate Earth's rotation?

Name _____

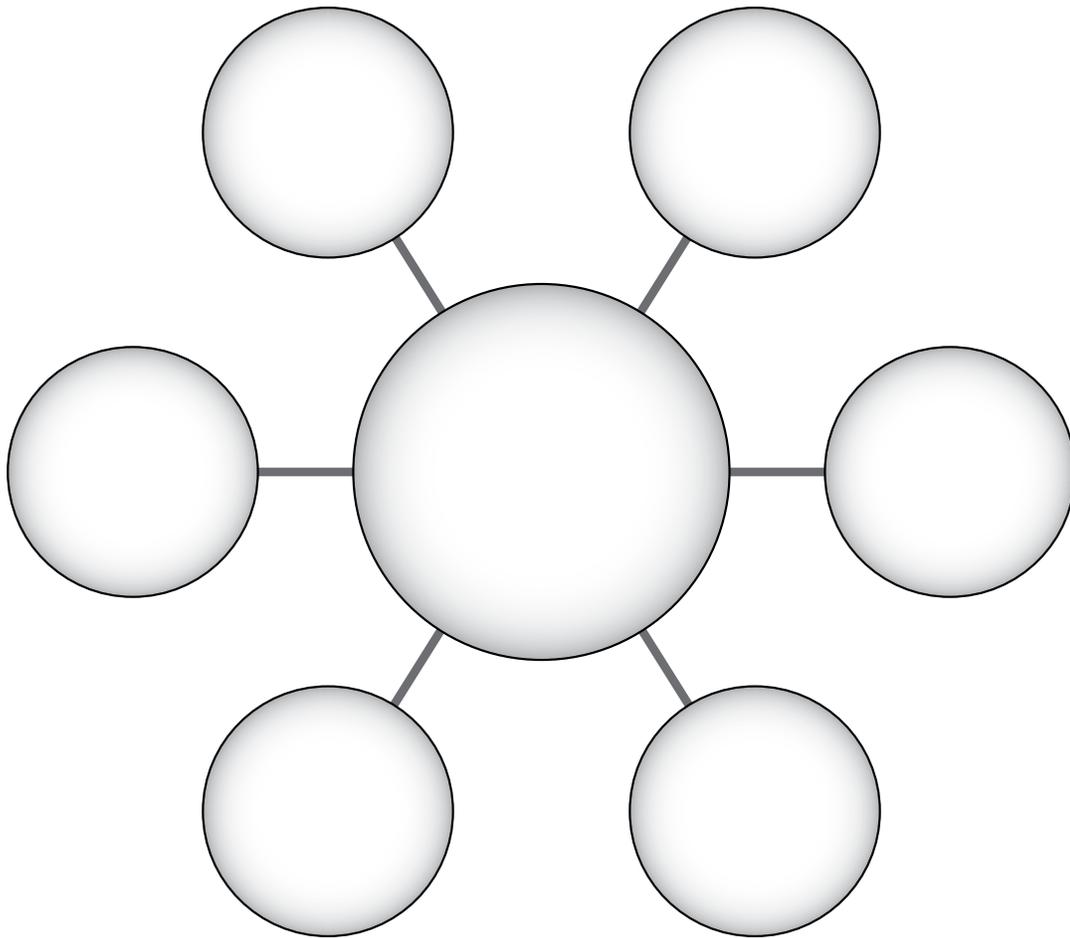
Readiness Standard 5.8(C)

Unit 17 Vocabulary Activity



Science Vocabulary Builder

With a partner, create a vocabulary poster describing Earth's rotation on its axis. Explain facts about the cycle of day and night, the Sun's apparent movement across the sky, and facts about Earth's rotation. Display posters around the classroom, and have a picture walk to see what classmates have created. Include these vocabulary words on your poster: day, night, rotation, axis, apparent movement, and Sun. Use the organizer below to brainstorm ideas for the poster.



Notes

