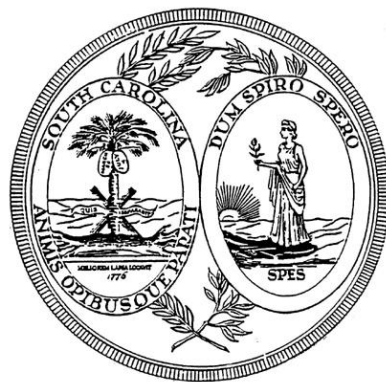


South Carolina Academic Standards and Performance Indicators for Science 2014



Instructional Unit Resource

4th Grade

South Carolina Academic Standards and Performance Indicators for Science 2014

Fourth Grade Science Instructional Unit Resource

As support for implementing the *South Carolina Academic Standards and Performance Indicators for Science 2014*, the standards for Fourth Grade have been grouped into possible units. In the Overview of Units below, the titles for those possible units are listed in columns. Refer to the Overview document to note these unit titles and how Standards, Conceptual Understandings, Performance Indicators, Science and Engineering Practices, and Crosscutting Concepts align. Following the Overview of Units, an Instructional Unit document is provided that delivers guidance and possible resources in teaching our new *South Carolina Academic Standards and Performance Indicators for Science 2014*. The purpose of this document is to provide guidance as to how all the standards in this grade may be grouped into units and how those units might look. Since this document is merely guidance, districts should implement the standards in a manner that addresses the district curriculum and the needs of students. This document is a living document and instructional leaders from around the state will continuously update and expand these resource documents. These documents will be released throughout the 2016-2017 school year with the intentionality of staying ahead of instruction. Teachers should also note that links to the Standards document, A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas, the SEP Support Document, and the Support Document 2.0 are embedded throughout the Instructional Unit format for reference.

Acknowledgments

Jean Baptiste Massieu, famous deaf educator, made a statement that is now considered a French proverb. “Gratitude is the memory of the heart. Indeed, appreciation comes when you feel grateful from the depths of your heart. The head keeps an account of all the benefits you received and gave. But the heart records the feelings of appreciation, humility, and generosity that one feels when someone showers you with kindness.” It is with sincere appreciation that we humbly acknowledge the dedication, hard work and generosity of time provided by teachers and instructional leaders across the state that have made and are continuing to make the Instructional Unit Resources possible.

Grade 4 Overview of Units

Unit 1		Unit 2		Unit 3		Unit 4	
EARTH SCIENCE: WEATHER AND CLIMATE		EARTH SCIENCE: STARS AND THE SOLAR SYSTEM		PHYSICAL SCIENCE: FORMS OF ENERGY – LIGHT AND SOUND		LIFE SCIENCE: CHARACTERISTICS AND GROWTH OF ORGANISMS	
Standard		Standard		Standard		Standard	
4.E.2		4.E.3		4.P.4		4.L.5	
Conceptual Understanding		Conceptual Understanding		Conceptual Understanding		Conceptual Understanding	
4.E.2A	4.E.2B	4.E.3A	4.E.3B	4.P.4A	4.P.4B	4.L.5A	4.L.5B
Performance Indicators		Performance Indicators		Performance Indicators		Performance Indicators	
4.E.2A.1	4.E.2B.1	4.E.3A.1	4.E.3B.1	4.P.4A.1	4.P.4B.1	4.L.5A.1	4.L.5B.1
4.E.2A.2	4.E.2B.2	4.E.3A.2	4.E.3B.2	4.P.4A.2	4.P.4B.2	4.L.5A.2	4.L.5B.2
	4.E.2B.3	4.E.3A.3	4.E.3B.3	4.P.4A.3	4.P.4B.3	4.L.5A.3	4.L.5B.3
			4.E.3B.4	4.P.4A.4		4.L.5A.4	
				4.P.4A.5			
*Science and Engineering Practices		*Science and Engineering Practices		*Science and Engineering Practices		*Science and Engineering Practices	
4.S.1A.2		4.S.1A.2		4.S.1A.2		4.S.1A.2	
4.S.1A.4		A.S.1A.4		4.S.1A.3		4.S.1A.4	
A.S.1A.6		A.S.1A.6		4.S.1A.4		4.S.1A.6	
A.S.1A.8		4.S.1A.7		4.S.1A.7		4.S.1A.7	
		4.S.1A.8		4.S.1A.8		4.S.1A.8	
				4.S.1B.1			
*Crosscutting Concepts		*Crosscutting Concepts		*Crosscutting Concepts		*Crosscutting Concepts	
1,2,3,4,5,7		1,2,4,7		1,2,3,4,5		1,2,5,6	

**Teachers have the discretion to enhance the selected SEP's and CCCs.*

Unit Title
Earth Science: Stars in the Solar System
Standard
http://ed.sc.gov/scdoe/assets/file/agency/ccr/Standards-Learning/documents/South_Carolina_Academic_Standards_and_Performance_Indicators_for_Science_2014.pdf
4.E.3 The student will demonstrate an understanding of the locations, movements, and patterns of stars and objects in the solar system.

Conceptual Understanding					
4.E.3A. Astronomy is the study of objects in our solar system and beyond. A solar system includes a sun, (star), and all other objects that orbit that sun. Planets in our night sky change positions and are not always visible from Earth as they orbit our Sun. Stars that are beyond the solar system can be seen in the night sky in patterns called constellations. Constellations can be used for navigation and appear to move together across the sky because of Earth's rotation.					
New Academic Vocabulary					
Some students may need extra support with the following academic vocabulary in order to understand what they are being asked to understand and do. Teaching these terms in an instructional context is recommended rather than teaching the words in isolation. A great time to deliver explicit instruction for the terms would be during the modeling process. Ultimately, the student should be able to use the academic vocabulary in conversation with peers and teachers. These terms are pulled from the essential knowledge portion of the Support Doc 2.0 (http://ed.sc.gov/instruction/standards-learning/science/support-documents-and-resources/) and further inquiry into the terms can be found there.					
Solar system	Planet	Constellations	Astronomy	Location	Pattern
Sextants	Telescopes	Astrolabe	Orbit	Pattern	Sun
Earth	Star	Ursa Major	Ursa Minor	Orion	Equator
Poles	Northern hemisphere	Southern hemisphere			

Performance Indicators

Text highlighted below in **orange** and **italicized/underlined** shows connections to SEP's.

4.E.3A.1 **Develop and use models** of Earth's solar system to exemplify the location and order of the planets as they orbit the Sun and the main composition (rock or gas) of the planets.

4.E.3A.2 **Obtain and communicate information** to describe how constellations (including Ursa Major, Ursa Minor, and Orion) appear to move from Earth's perspective throughout the seasons.

4.E.3A.3 **Construct scientific arguments** to support claims about the importance of astronomy in navigation and exploration (including the use of telescopes, astrolabes, compasses, and sextants).

*Science and Engineering Practices

Support for the guidance, overviews of grade level progressions, and explicit details of each SEP can found in the Science and Engineering Support Doc (http://ed.sc.gov/scdoe/assets/File/instruction/standards/Science/Support%20Documents/Complete_2014SEPsGuide_SupportDoc2_0.pdf). It is important that teachers realize that the nine science and engineering practices are not intended to be used in isolation. Even if a performance indicator for a given standard only lists one of the practices as a performance expectation, scientists and engineers do not use these practices in isolation, but rather as part of an overall sequence of practice. When educators design the learning for their students, it is important that they see how a given performance expectation fits into the broader context of the other science and engineering practices. This will allow teachers to provide comprehensive, authentic learning experiences through which students will develop and demonstrate a deep understanding of scientific concepts.

4.S.1A.2 **Develop, use, and refine models** to (1) understand or represent phenomena, processes, and relationships; (2) test devices or solutions; or (3) communicate ideas to others.

4.S.1A.7 **Construct scientific arguments** to support claims, explanations, or designs using evidence from observations, data, or informational texts.

4.S.1A.8 **Obtain and evaluate** informational texts, observations, data collected, or discussions to (1) generate and answer questions; (2) understand phenomena; (3) develop models; or (4) support explanations, claims, or designs. **Communicate** observations and explanations using the conventions and expectations of oral and written language.

*Cross Cutting Concepts (<http://www.nap.edu/read/13165/chapter/8>)

The link above provides support from the Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas (2012). The text in **blue** and **italicized/underlined** below provides a brief explanation of how the specific content ties to the CCC's.

1. **Patterns:** The National Research Council (2012) states that "Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them" (p.84). **Constellations are fixed patterns in the night sky, and their movement across the night sky is predictable as the seasons pass.**

4. **Systems and system models:** The National Research Council states “Defining the system under study- specifying its boundaries and making explicit a model of that system-provides tools for understanding and testing ideas that are applicable throughout science and engineering” (p.84). [A model of the solar system will show how the gravitational pull of the sun will keep all planets in orbit.](#)

**Teachers have the discretion to enhance the selected SEP’s and CCC’s.*

Prior Knowledge

- 1.E.3A – Objects in the sky move in predictable patterns
- 1.E.3A.3 – Basic knowledge of how technology helps humans study the sun, moon, and stars

Subsequent Knowledge

- 8.E.4A.1 – Position of the Sun in the universe
- 8.E.4B.1 – Characteristics and movement of objects in the solar system
- 8.E.4.A.1 – Explain the distances between stars and galaxies
- 8.E.4B.5 – Technology helps provide information about objects in the solar system and universe
- H.E.2B.1 – Properties of Earth and other planets
- H.E.2B.3 – Determine the motion of orbiting objects in the solar system
- H.E.2.A.2 – Classify stars and explain their life cycles
- HE.2A.5 – Advanced telescopes and computer modeling help explore the universe

Possible Instructional Strategies/Lessons

Strategies and lessons that will enable students to master the standard and/or indicator.

- 4.E.3A.1
 - Making Models of the Solar System: Students make several models of the solar system to learn the positions of the planets in the solar system as well as relative distances and sizes. This resource can be at <http://www.scholastic.com/teachers/lesson-plan/making-models-solar-system>.

- Stars and the Solar System: Students will learn techniques for measuring solar shadows and drawing the positions of the Sun and Moon over time. By doing appropriate movements with their bodies, they discover which way Earth rotates, why we see different constellations at different times of day and year, and how the Earth's tilt causes seasons. They will also model Moon phases while in the "Sky Time" circle. This resource can be found at <http://rpsec.usca.edu/workshops/SISSI/SISSI3-5AikenJune2015/lessons/G4StarsSolarSystemLessonPlanSISSI.pdf>.

- 4.E.3A.2

- Constellation Patterns: In this lesson, students will evaluate how constellations appear to move across the sky. This resource can be found at <https://api.betterlesson.com/mtp/lesson/635651/print>.
- Pictures in the Sky: In this lesson, students will be able to explain how constellations move across the sky. This resource can be found at https://www.teachervision.com/tv/printables/TCR/1557345872_12-13.pdf.

- 4.E.3A.3

- Navigation By the North Star: In this lesson, students can make their sextant. This resource can be found at http://www.science-teachers.com/north_star.htm.
- Create an Astrolabe: In this lesson, students can make an astrolabe. This resource can be found at <http://exploration.marinersmuseum.org/resources/>.

Resources

- 4.E.3A.1

- Our Solar System- Inner Planets: This slideshow highlights the inner planets of the solar system. This resource can be found at <http://studyjams.scholastic.com/studyjams/jams/science/solar-system/solar-system-inner.htm>.
- Our Solar System- Outer Planets: This slideshow highlights the outer planets of the solar system. This resource can be found at <http://studyjams.scholastic.com/studyjams/jams/science/solar-system/solar-system-outer.htm>.

- A.E.3A.2
 - Astronomy-Orion: This Youtube Video introduces constellations. This resource can be found at <https://www.youtube.com/watch?v=89VFb9t69nM>.
 - Ursa Major, Ursa Minor, Pegasus, Orion: This source is a Prezi transcript of Ursa Major, Ursa Minor, Pegasus, and Orion. This resource can be found at <https://prezi.com/unz1svonukvi/ursa-major-ursa-minor-pegasus-orion/>.
 - Constellation Legends: This site foretells the legend of Ursa Major, Ursa Minor (pg. 30), and Orion (pg.21). This resource can be found at <http://www.tcoe.org/scicon/instructionalguide/constellations.pdf>.
- 4.E.3A.3
 - Hubble's Greatest Snap: This Youtube Video shows images taken from the Hubble Telescope. This resource can be found at <https://www.youtube.com/watch?v=PcHICww6JL0>.
 - Galileo and His Telescope: This is a reading passage about the telescope with discussion questions. This resource can be found at http://www.k12reader.com/reading-comprehension/Gr3_Wk19_Galileo_and_his_Telescope.pdf.
 - Navigation Tools: This video shows early navigation tools such as compass, astrolabe, octant and back staff, telescopes, and the need to solve the longitude problem (time). This resource can be found at <http://www2.needham.k12.ma.us/eliot/technology/lessons/explorers/tools.htm>.

Sample Formative Assessment Tasks/Questions

Additional sample formative assessment tasks/questions for grade bands are located at the end of each of the SEP Support Doc.

(http://ed.sc.gov/scdoe/assets/File/instruction/standards/Science/Support%20Documents/Complete_2014SEPsGuide_SupportDoc2_0.pdf)

- 4.E.3A.1

The planets in the list below appear in alphabetical order. Use the list to create a model of Earth's solar system to exemplify the order of the planets as they orbit the sun. Earth, Jupiter, Mars, Mercury, Neptune, Saturn, Venus, Uranus

- 4.E.3A.2

Use your knowledge of science and information from the passage below to describe how and why constellations appear to move from Earth's perspective throughout the year.

Stars surround Earth in all directions, but we can only see stars at night when it is dark. They appear to move across the night sky, but the positions of the stars don't change at all. The movement of Earth makes it seem like they move. Our view of the stars changes constantly. Stars appear to move because of the Earth's rotation on its axis and its revolution around the Sun.

Seasons change as Earth revolves around the Sun. The constellations we view in one season cannot always be seen in another season. You can only see stars when you are on the dark side of Earth. In summer Orion is in the direction of the Sun so we cannot see it. In winter nothing blocks our view of Orion so it can be seen.

People who live in the Northern Hemisphere do not see the same constellations as people who live in the Southern Hemisphere. If you live in the Northern Hemisphere, stars appear to rotate around the North Star. This is because the North Pole points to the North Star.

Why are the constellations we see in the summer sky different from constellations we see in the winter sky?

- 4.E.3A.3

Fill in the chart below with information that explains how the listed astronomy tools are used for navigation and exploration.

Tool	What it does
Telescope	
Astrolabe	
Compass	
Sextant	

Unit Title

Earth Science: Stars in the Solar System

Standard

http://ed.sc.gov/scdoe/assets/file/agency/ccr/Standards-Learning/documents/South_Carolina_Academic_Standards_and_Performance_Indicators_for_Science_2014.pdf

4.E.3 The student will demonstrate an understanding of the locations, movements, and patterns of stars and objects in the solar system.

Conceptual Understanding

4.E.3B. Earth orbits around the Sun, and the Moon orbits around Earth. These movements together with the rotation of Earth on a tilted axis result in patterns that can be observed and predicted.

New Academic Vocabulary

Some students may need extra support with the following academic vocabulary in order to understand what they are being asked to understand and do. Teaching these terms in an instructional context is recommended rather than teaching the words in isolation. A great time to deliver explicit instruction for the terms would be during the modeling process. Ultimately, the student should be able to use the academic vocabulary in conversation with peers and teachers. These terms are pulled from the essential knowledge portion of the Support Doc 2.0 (<http://ed.sc.gov/instruction/standards-learning/science/support-documents-and-resources/>) and further inquiry into the terms can be found there.

Moon phases	New moon	Quarter(half) moon	Full moon	Crescent moon	Sun
Moon	Earth	Orbits	Rotate	Axis	Pattern
Stars	Seasons	Location	Movement	Rotation	Axis
West	East	Observation	Shadows	Tilt	Revolution
Seasonal changes	Seasons				

Performance Indicators

Text highlighted below in **orange** and ***italicized/underlined*** shows connections to SEP's.

- 4.E.3B.1 **Analyze and interpret data** from observations to describe patterns in the (1) location, (2) movement, and (3) appearance of the Moon throughout the year.
- 4.E.3B.2 **Construct explanations** of how day and night result from Earth's rotation on its axis.
- 4.E.3B.3 **Construct explanations** of how the Sun appears to move throughout the day using observations of shadows.
- 4.E.3B.4 **Develop and use models** to describe the factors (including tilt, revolution, and angle of sunlight) that result in Earth's seasonal changes.

*Science and Engineering Practices

Support for the guidance, overviews of learning progressions, and explicit details of each SEP can found in the Science and Engineering Support Doc (http://ed.sc.gov/scdoe/assets/File/instruction/standards/Science/Support%20Documents/Complete_2014SEPsGuide_SupportDoc2_0.pdf). It is important that teachers realize that the nine science and engineering practices are not intended to be used in isolation. Even if a performance indicator for a given standard only lists one of the practices as a performance expectation, scientists and engineers do not use these practices in isolation, but rather as part of an overall sequence of practice. When educators design the learning for their students, it is important that they see how a given performance expectation fits into the broader context of the other science and engineering practices. This will allow

teachers to provide comprehensive, authentic learning experiences through which students will develop and demonstrate a deep understanding of scientific concepts.

4.S.1A.4 Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation or graphing) to (1) reveal patterns and construct meaning or (2) support explanations, claims, or designs.

4.S.1A.6 Construct explanations of phenomena using (1) scientific evidence and models; (2) conclusions from scientific investigations; (3) predictions based on observations and measurements; or (4) data communicated in graphs, tables, or diagrams.

4.S.1A.2 Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships; (2) test devices or solutions; or (3) communicate ideas to others.

***Cross Cutting Concepts** (<http://www.nap.edu/read/13165/chapter/8>)

The link above provides support from the Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas (2012). The text in **blue** and ***italicized/underlined*** below provides a brief explanation of how the specific content ties to the CCC's.

1. **Pattern:** The National Research Council (2012) states that “Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them” (p.84). *Patterns occur as the moon changes phases over a 29 day period.*

2. **Cause and Effect: Mechanism and explanation:** The National Research Council states “Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts” (p.84). *Because the Earth rotates, half of the Earth experiences day while the other half experiences night.*

4. **Systems and system models:** The National Research Council states “Defining the system under study- specifying its boundaries and making explicit a model of that system-provides tools for understanding and testing ideas that are applicable throughout science and engineering” (p.84). *A model of the Sun and Earth will show the seasonal changes that occur throughout the year.*

7. **Stability and change:** The National Research Council states “For natural and built systems alike, conditions of stability and determinants of rates of change or evolution of a system are critical elements of study” (p.84). *As the Earth rotates, the sun appears to move in the sky and the length of shadows change throughout the day.*

**Teachers have the discretion to enhance the selected SEP's and CCC's.*

4TH grade Instructional Unit Resource SCDE | Office of Standards and Learning

Prior Knowledge
• 1.E.3 – Motion of the moon across the night sky • 1.E.3A.1 – Seasonal patterns of sunrise and sunset • 1.E.3A.4 – Effect of sunlight on Earth’s surface. • 1.P.2A.3 – Shadows change when the light source changes position
Subsequent Knowledge
• 8.E.4 – Observable physical characteristics of the moon • 8.E.4B.3 – Axial tilt causes seasons, length of day, and surface heating patterns • 8.E.4B.4 – Interactions between the Sun, Moon, and Earth cause Earth phenomena • H.E.2 – Technical composition of the moon and its orbit in relation to other moons in the solar system • H.E.5A.2 – Seasons as tilt and angle of solar incidence
Possible Instructional Strategies/Lessons
Strategies and lessons that will enable students to master the standard and/or indicator.
• 4.E.3B.1 ○ <u>Phases of the Moon:</u> This webquest allows students to understand why the moon changes phases. This resource can be found at http://mrscienceut.net/phasesofthemoonwebquest.html. ○ <u>The Lunar Cycle:</u> In this lesson plan, students learn about the Moon's changing appearance and how orbital motion causes the Moon’s phases. This resource can be found at http://illinois.pbslearningmedia.org/resource/ess05.sci.ess.eiu.lp_lunarcycle/the-lunar-cycle/. ○ <u>Activity-Modeling Moon Phases:</u> This lesson allows students to use the Sun, Earth, and Moon to see why the moon phases occur. This resource can be found at http://clarkplanetarium.org/wp-content/uploads/ModelingMoonPhases2.pdf. ○ <u>The Moon’s Phases:</u> Teachers can use this lesson plan to teach about the Moon’s phases. This resource can be found at https://www.teachervision.com/moon/printable/38941.html.

- 4.E.3B.2
 - The spinning Earth: Spinning into Darkness and Light: In this lesson, students will explore the cycles of day and night that result from its shape and rotation about an axis. This resource can be found at <http://www.learnnc.org/lp/editions/earth-sun/6571>.
 - 7 Science Experiments to Spark Your Child's Curiosity: In this lesson, students can model day and night on earth. This resource can be found at <http://letslassothemoon.com/2013/04/15/understanding-night-day/>.
- 4.E.3B.3
 - Light and Shadows: Shadow Tracing: This lesson will allow students to construct explanations of how shadows change in length and direction as the sun appears to move across the sky. This resource can be found at <http://www.learnnc.org/lp/editions/earth-sun/6568>.
 - 4th Grade Shadow Discovery Stations: This lesson allows students to move through different stations collecting evidence about shadows. This resource can be found at <http://borchardtlibrary.edublogs.org/2013/10/18/4th-grade-shadow-discovery-stations/>.
 - Changing Shadows: Giving students the opportunity to observe their shadows throughout the day gives them a chance to observe evidence of Earth's rotation firsthand. This resource can be found at <https://www.nsta.org/publications/press/extras/files/nexttime/ChangingShadows.pdf>.
- 4.E.3B.4
 - Day and Night (Part 1): Students use models to explain what causes the seasons on Earth to occur. This resource can be found at <http://ngearthpatternsandchange.weebly.com/lesson-1-day-and-night-part-1.html>.

Resources

- 4.E.3B.1
 - Moon Phases: Students discover the connection between the Moon's phases and the relative positions of the Moon, Earth, and Sun. They also explore how the Moon's illuminated surface seems to grow and shrink over the course of a month. In addition, they learn the difference between crescent and gibbous, and follow the Moon's journey from new moon to full moon and back again. This resource can be found at <https://educators.brainpop.com/bp-topic/moon-phases/>.
 - Phases of Moon Study Guide for 4th Grade Science: This resource provides teachers and students a variety strategies to understand the phases of the Moon. This resource can be found at <http://ilovenewton.com/phases-moon-night-stars-study-guide-4th-grade/>.
- 4.E.3B.2 and 4.E.3B.4
 - FREEBIE: Rotation vs. Revolution - Partner Game: Students read fact cards and decide if the statement describes an element of rotation or an element revolution! Students show their work on a recording sheet that is provided. This resource can be found at <https://www.teacherspayteachers.com/Product/FREEBIE-Rotation-vs-Revolution-Partner-Game-417681>.
 - Earth's Rotation & Revolution: Crash Course Kids 8.1: In this episode of Crash Course Kids, emphasis is placed on the Earth's rotation and revolution and how these things contribute to night and day and how the Earth's tilt gives us seasons. This resource can be found at <https://www.youtube.com/watch?v=l64YwNI1wr0>.
- 4.E.3B.3
 - Daytime Shadows: The animation shows how shadows change during the day in the northern hemisphere. This resource can be found at <http://www.schoolobservatory.org.uk/astro/esm/shadows>.
- 4.E.3B.4
 - Seasons: This video animation illustrates how the combination of the tilt of Earth's spin axis and the orbit of the earth about the Sun creates the geometry responsible for the Earth's seasons. This resource can be found at

Sample Formative Assessment Tasks/Questions

Additional sample formative assessment tasks/questions for grade bands are located at the end of each of the SEP Support Doc.

(http://ed.sc.gov/scdoe/assets/File/Instruction/standards/Science/Support%20Documents/Complete_2014SEPsGuide_SupportDoc2_0.pdf)

- 4.E.3B.1

Look at the pictures of the Moon that represent how it is changing over two weeks. Draw a picture in the box next to the question mark to shows what the moon would look like during the phase marked by the question mark.



- 4.E.3B.2

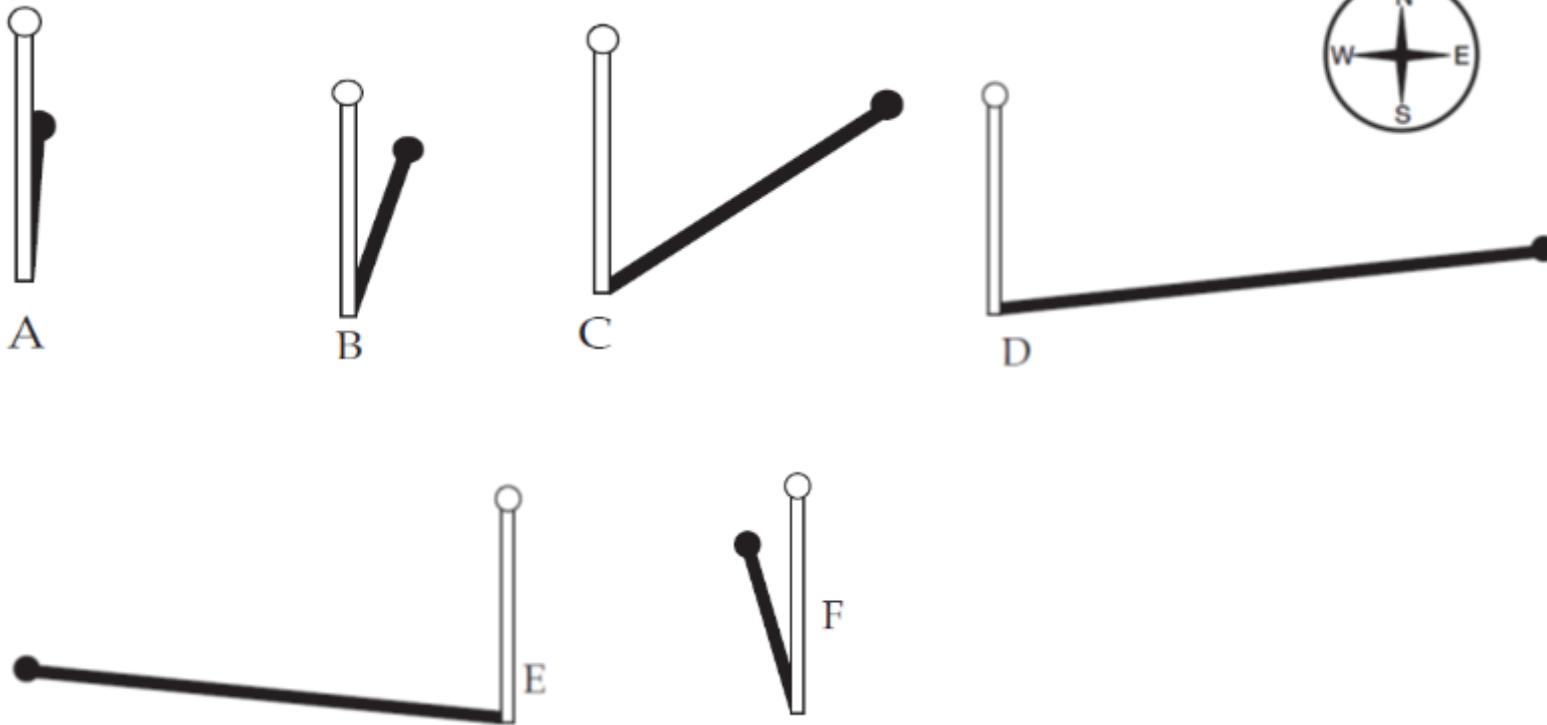
The diagram below shows the Sun and Earth. Letter X shows a location on the Earth's surface.



Location X is shown during the day. Explain why it will be night at Location X in 12 hours.

4.E.3B.3

Below are the shadows of a flagpole at different times of the day.



Put the shadows in order from early morning to late afternoon. Record your answers below. Explain your answer.

_____, _____, _____, _____, _____, _____
 early morning shadow late afternoon shadow

- 4.E.3B.4

Draw a diagram to create a model that shows how seasons change on Earth based on Earth's tilt and revolution as it orbits the sun. Be sure you show each of the four seasons and indicate the tilt of the Earth by drawing an axis through Earth. Explain why Earth has different seasons during the year.

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