

<p>Big Idea: Can we predict how the sky will change over time?</p> <p>Guiding Questions: What patterns of change can be predicted when observing the sun, moon, and stars? What is the relationship between the amount of daylight and the time of year?</p> <p>21st Century Themes/Skills:</p>							
DCI (Disciplinary Core Ideas)	Science and Engineering Practices	Cross Cutting Concepts	Student Learning Objectives	Differentiated Activities (Consider the 5 Es)	Resources/Technology	Formative Assessments	Benchmark Assessment
Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)	Plan and conduct investigations collaboratively to produce evidence to answer a question. (1-PS4-1),(1-PS4-3)	Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1),(1-ESS1-2)	Students will recognize when the Sun and Moon can be seen. Students will differentiate between big and small objects. Students will differentiate between objects that are near and objects that are far. Students will observe and describe the pattern and features of day and night. Lesson Questions: When can we see the Sun and the Moon? How would you describe day and night? What kinds of objects can be seen in the sky in the day or at night? Can you name three objects that are far	ENGAGE: Cast a shadow of yourself or an object against the wall. Point out the light source that you use. Then point out the shadow. Ask students if they know what the image against the wall is called. Elicit what they know about shadows. Ask students to talk about the kinds of things they do at night and the kinds of things they do during the day. Ask them to describe what night looks like and what day looks like. Create a list on the board or on chart paper of the things they see and do during the day, and the things they see and do at night. Provide guiding questions such as: What are some objects in the sky that are far from Earth? Do you see these objects in the daytime or at night? About how big do you think these objects are? Ask students how they feel when it is dark outside. Have them share why they feel that way. Encourage specific words, such as "dark," "light," "see," or other descriptive terms and action words. Use students' responses to judge what they already know about dark and light and to identify any misconceptions they may have. Make note of misconceptions to address during the lesson.	Unit 1 Resources	Assess students' understanding of objects in the sky by completing one or both of these activities: Day and Light: Provide students with paper and crayons. Take students outside and have them look at the sky. Ask them to draw any object they see in the sky. Have them exchange papers with a partner and circle the objects that give off light. Venn Diagram: Draw or project a blank Venn Diagram onto the board or wall. Post different photos and pictures of objects that can be seen in the night sky and day sky. Label one circle "day" and the other circle "night." Invite students to post pictures in the appropriate	

Big Idea:
Can we predict how the sky will change over time?
Guiding Questions:
What patterns of change can be predicted when observing the sun, moon, and stars?
What is the relationship between the amount of daylight and the time of year?

21st Century Themes/Skills:

DCI (Disciplinary Core Ideas)	Science and Engineering Practices	Cross Cutting Concepts	Student Learning Objectives	Differentiated Activities (Consider the 5 Es)	Resources/Technology	Formative Assessments	Benchmark Assessment
			from Earth? How big are objects that are seen from Earth?	<p>EXPLORE 1: Present students with the Lesson Questions and have them complete the first section of the Scientific Explanation: Objects in the Sky Student Sheet using these questions. Students may type their responses directly into the digital resource, or they may write or draw their responses on a printed copy of the resource. The digital resource includes a link to a PDF version of the Student Sheet.</p> <p>Guide students to think about what they already know about each question, and record their prior knowledge in the Prior Knowledge section. Encourage students to think about and record how they know what they do (evidence and reasoning). Introduce the Evidence section, explaining to students that they will fill this in as they go through the rest of the lesson.</p> <p>Have students begin the Evidence section with information gathered during Engage.</p> <p>EXPLORE 2: Review the video segment Day and Night with students. Discuss what students know about day and night, light and dark from the previous session. Relate what they learned in the video to make a transition to this next concept about distance and size as they relate to light.</p> <p>Tell students that you will demonstrate a hand shadow activity. Ask students to watch for different sizes of shadows. Explain that you will explore how different sized objects change in size, depending on their distance from the light source. Make the classroom as dark as possible before beginning the demonstration. Tape a large sheet of white paper between two chair backs, leaving a space between the chairs. The paper forms the screen. Position the screen near the front of the classroom. Shine the lamp at the back of the paper screen. In front of the light and behind the screen, form your hand into different shapes to make hand shadow creatures, such as dogs, rabbits, or deer. Encourage students, sitting in front of the screen, to guess the animal.</p> <p>Change the size of the shadow by drawing your hand closer to the screen and then pulling it farther away. Have students do a think-pair-share to explain what is happening with the shadows. Then have students share their ideas with the entire class.</p> <p>Experiment with different objects from the classroom (a roll of tape, a pencil, a small book, a pair of scissors) to make a variety of shadow shapes. (Note: Transparent objects, such as clear plastic rulers, will not be as effective.)</p> <p>Tell students that they will now make their own shadows by completing the Hands-On Making Shadows. In this activity, students place various objects near a light source and observe the shadow formed.</p> <p>Create an "I Wonder" chart where students can ask questions about the events they observe during the investigation. They may record the questions before, during, and after the activity.</p> <p>Once the activity is complete, encourage the students to write a question on their student activity sheets that they have after observing the light and shadows. As students work, assess their understanding using the Teacher Observation Checklist.</p> <p>After the activity, regroup and allow students to discuss their observations. Write the following vocabulary word on the board or chart paper: shadow.</p> <p>Tell students: A shadow is created by light against an object. Shadows are larger when the object is closer to the light. Shadows are smaller when the object is farther from the light. Review what students have learned about light and shadows. Make the comparison of the lamp or light source to the Sun as a light source.</p> <p>EXPLORE 3: Review with students what they know about the Sun. Ask them to think about how they know when it is night, and how they know when it is day. Next, view the video Shadows, Sun Rises, and Sun Sets with students.</p> <p>After viewing, ask students: When your shadow is long, what does this tell you about the Sun? How about when your shadow is short? What does this tell you about the Sun? What happens to the Sun's rays at midday? What are the best times to be outside in the Sun? How can you keep safe in the Sun?</p> <p>video segment Shadows, Sun Rises, and Sun Sets (1-35)</p> <p>When can we see the Sun and the Moon? How would you describe day and night? What kinds of objects can be seen in the sky in the day or at night?</p> <p>Analyzing and Interpreting Data To consolidate learning about objects we can see in the sky during the day or night, write the following vocabulary words on the board or on chart paper: Sun, star, Moon, and cloud.</p> <p>Have students write these words on a sheet of paper and then explore them in the Interactive Glossary, focusing on the animations. As students explore, instruct them to draw diagrams to illustrate each word. Circulate to check students' work. Read the following aloud as a review: The Sun is a star. Earth moves around the Sun. The Sun looks big to us because it is closer to Earth than other stars. A star is a ball of gas that gives off light and heat. Stars look small to us on Earth because they are very far away. The Moon orbits Earth. It can be seen at night and sometimes during the day. A cloud forms from drops of water in the air.</p> <p>Have students complete the Hands-On Activity: Night and Day. In this activity, students draw a picture of either the day or night sky. Then, they pair with a student who has sketched the opposite to compare and contrast the two.</p> <p>As students talk, use the Teacher Observation Checklist to assess the students' ability to describe the objects in the sky. Students can use the student activity sheet to plan the activity and analyze what they have learned.</p>	<p>Video Segment: Day and Night</p>	<p>circles. For example, a rainbow can be seen in the day sky, so its photo should be placed in the "day" circle. The Moon can be seen either in the day or in the night sky, so its picture can be placed in the intersection of the two circles.</p> <p>Graphic Organizer: Venn Diagram 1-ESS1-1</p> <p>ESS1A</p> <p>Patterns</p> <p>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</p> <p>Analyzing and Interpreting Data</p> <p>W.1.8</p> <p>Have students complete the Constructed Response (CR) Items titled Primary Assessment: Objects in the Sky. Note that the final three pages consist of selected-response items; you may assign these separately using the Student Version: Selected Response.</p> <p>You may also wish to assign the online concept assessment, located in the Evaluate tab of the Core Interactive Text, and use the results in the student reports to guide you in assigning any remediation to students.</p>	

Big Idea: Can we predict how the sky will change over time? Guiding Questions: What patterns of change can be predicted when observing the sun, moon, and stars? What is the relationship between the amount of daylight and the time of year? 21st Century Themes/Skills:							
DCI (Disciplinary Core Ideas)	Science and Engineering Practices	Cross Cutting Concepts	Student Learning Objectives	Differentiated Activities (Consider the 5 Es)	Resources/Technology	Formative Assessments	Benchmark Assessment
Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)	Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)	Science assumes natural events happen today as they happened in the past. (1-ESS1-1)		EXPLAIN 1: Have students use the evidence that they collected in the Explore session to complete the sections of the Scientific Explanation: Objects in the Sky Student Sheet titled "Claim" and "Explanation." Students may type their responses directly into the digital resource, or they may write or draw their responses on a printed copy of the resource. The digital resource includes a link to a PDF version of the Student Sheet. Have groups of 2–4 students share their explanations with each other. Students should then revise or enhance their explanations based on group discussion. Regroup as a class. Ask students to explain the differences between night and day. Elicit from students all of the objects that they can see in the day and night sky that they have learned from the previous sessions. Remind students that some objects can be seen in the sky in the day and at night. Write or sketch each of the objects in random order on the board or chart paper. Have students classify the objects as night or day objects by identifying each object and then having students stand up if the object can be seen in the night sky. Have students sit down if the object can be seen in the sky during the day. Read the passage Day and Night aloud to students. After you have read the passage, call out different words from the passage and ask students to associate them with day or with night. For example, say "Sun." Have students say "day." Continue with "sunlight," "darkens," "stars," and "Moon." When you finish, ask students to name other objects that can be seen in the day or night. Then have the rest of the class say whether each object is associated with day or night. Have students complete the Hands-On Activity: Near and Far to help students use models to explore how things on the ground and in the sky look differently when they are far away or up close	Video Segment: The Night Sky and Sunrise		
				EXPLORE 3: Remind students of the Lesson Questions and have them review what they have written on the Scientific Explanation: Objects in the Sky Student Sheet or its PDF version. Explain to students that they will gather more evidence about the following Lesson Questions: What kinds of objects can be seen in the sky in the day or at night? Can you name three objects that are far from Earth? How big are objects that are seen from Earth? Ask students to recall what objects they see in the night sky. Students should be aware that the Moon looks big and is close to Earth, while stars appear small and far away. Explain that students will now focus on the changing positions of stars when viewed from Earth. Have students complete the Hands-On Activity: Star Patterns. Begin as a class by reviewing the procedure, which is listed on p. 1 of the Teacher's Guide. Then, divide the class into four groups. As groups complete the activity, students should record notes and draw pictures in their Student Activity Sheets. After groups have completed the activity, instruct students to answer the Analysis and Conclusions questions.	Video Segment: Shadows, Sunrises, Sunsets		
				EXPLAIN 2: Have students use the evidence that they collected in the Explore session to add to the sections of the Scientific Explanation: Objects in the Sky Student Sheet titled "Claim" and "Explanation." Students may type their responses directly into the digital resource, or they may write or draw their responses on a printed copy of the resource. The digital resource includes a link to a PDF version of the Student Sheet. Have groups of 2–4 students share their explanations with each other. Students should then revise or enhance their explanations based on group discussion.	#ERROR!		
				ELABORATE: Read the passage Up in the Sky aloud. Note that this passage is available as an e-book for practicing readers. Pause after each sentence and make sure students understand the vocabulary as you read. Explain the comparison between the size of objects in the sky and their distance to Earth. To help students understand the concept of distance and size, have students hold up a small object, such as a paper clip, an eraser, or a coin, close to their faces. Then point to an object that is outside the classroom window, such as a car, or a swing on the playground. Explain to students that a car is much bigger than the paper clip, eraser, or coin, but the paper clip, eraser, or coin looks bigger because it is closer to us. Point out that the car looks smaller because it is farther away. Explain that the same is true of objects in the sky. Stars are bigger than the Moon, but they look smaller because the Moon is much closer to us. Provide picture cards with objects in the sky that can be seen from Earth, such as the Moon, the Sun, clouds, airplanes, and birds. Have students sort the cards in order from biggest to smallest.	Video Segment: Why Seasons Happen		

Can we predict how the sky will change over time?

What patterns of change can be predicted when observing the sun, moon, and stars?

What patterns of change can be predicted when observing the sun, moon, and stars?

What is the relationship between the amount of daylight and the time of year?

[illegible]