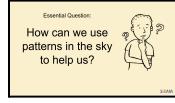
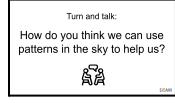
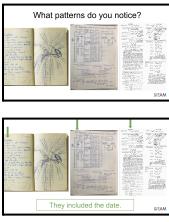


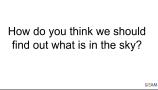
Unit of Inquiry Name: The Sky Above	Estimated Time: 60 minutes Lesson # 1
NGSS 3 Dimensional Lesson Concept: Use observations of the sun, moon, and stars in the sky to describe phenomena and patterns in the natural world.	Success Criteria: <ul style="list-style-type: none"> • I can make observations. • I can find patterns. • I can name objects in the sky.
SEP SEP4 - Analyzing and Interpreting Data: Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.	
DCI ESS1.A - The Universe and its Stars: Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.	
CCC CCC1 - Patterns: Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.	
Anchor Phenomenon: The sky changes in a 24 hour time period. (Dubai 24 Hour Timelapse)	
Lesson Investigative Phenomenon: The sun, moon and stars are objects in the sky that change.	
Question to Investigate: What is in the sky?	
Key Vocabulary: phenomenon, sky	
Habit of Mind #12: Responding with Wonderment and Awe: Student is curious about the world around them and finds interest. They are compelled, enthusiastic and passionate about learning and their place in the universe. (I am curious and have fun learning.)	

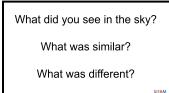
Materials Needed	Seesaw Activities	Prepare
<ul style="list-style-type: none"> • Resource Slides • Scientists' Notebooks • Dubai 24 Hour Timelapse • Option: Science Notebook Cover • Notebook Page: What is in the Sky? • The Sky Above Gallery Walk • Moon Observation Notebook • Extension Book: ABC Universe 	<ol style="list-style-type: none"> 1. The Sky Above Anchor Phenomenon 2. What is in the Sky? 3. Moon Observation Notebook 	<ul style="list-style-type: none"> • A t-chart titled, “Noticings and Wonderings”. • Decide how students will keep Science Notebooks throughout this project. If students use Science Notebook templates, add extra blank paper to the notebook for additional room for sense-making. • Option: Print What is in the Sky? for each student’s Science Notebook. • Decide how students will do The Sky Above Gallery Walk. • Print Moon Observation Notebook for each student or assign Seesaw Activity.

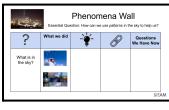
Stage	Teacher Does	Student Does
LAUNCH 10 min.		
	<p>Hello, STEAM students! Every day, we are scientists! But, in STEAM we add the TEAM to science by helping us learn science through technology, engineering, art and math. We are going to embark on a new STEAM journey!</p>	
	<p>Our project is called The Sky Above.</p> <p>Turn and talk: What do you know about the sky?</p> <p>Thank you for sharing what you know about the sky. We will make observations of the sky and look for patterns.</p>	Students turn and talk to share what they know about the sky. (1 minute)
	<p>As we start our new project, we want to practice our Habit of Mind of being curious and having fun while learning. Show HOM #12 Responding with Wonderment and Awe card.</p>	
	<p>Our essential question is: How can we use patterns in the sky to help us?</p> <p>Post essential question on Phenomena Wall.</p>	
	<p>Turn and talk: How do you think we can use patterns in the sky to help us? Listen to students' conversations and revoice their thinking to the class. (____ said we can use patterns to help us ____.)</p>	Students turn and talk to share how they think we can use patterns in the sky to help us. (2 minutes)
	<p>I am excited to introduce our new phenomenon for The Sky Above project. We will think about this phenomenon throughout our project and use it to help us explain how patterns in the sky help us.</p> <p>As you watch the video, think about what you notice in the sky and what you wonder about the sky. Show Dubai 24 Hour Timelapse.</p>	Students watch Dubai 24 Hour Timelapse . (1 minute)
	<p>Turn and talk: What did you notice about the sky? Chart student observations on the "Noticings and Wonderings" t-chart as they share with their partners. Write students' names in parentheses next to their observations. Revoice students' observations to the class.</p>	Students turn and talk about what they notice in the sky in the video. (2 minutes)

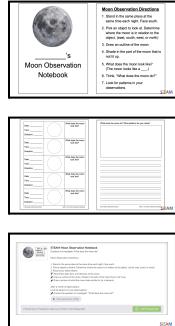
 Turn and talk: What do you wonder about the sky? 	<p>We are going to watch our phenomenon one more time. As we watch, this time think about what you wonder about the sky. Show Dubai 24 Hour Timelapse a second time. Turn and talk: What did you wonder about the sky? Chart student questions on the “Noticings and Wonderings” t-chart as they share with their partners. Write students’ names in parentheses next to their questions. Revoice students’ observations to the class.</p> <p>Consider assigning The Sky Above Anchor Phenomenon Seesaw Activity to record all students observations and questions.</p>	<p>Students turn and talk about what they wonder about the sky in the video. (1 minute) Students could also share their observations and questions using The Sky Above Anchor Phenomenon Seesaw Activity.</p>
	<p>Movement Break</p>	<p>Students engage in a movement break.</p>
<p>EXPLORE 40 min.</p>		
	<p>Scientists, thank you for responding with wonderment and awe as we explore this phenomenon. We will explore questions throughout this project and document how our thinking changes on our Phenomena Wall. We are going to start with our first question today! Read question: “What is in the sky?” Post question to investigate on the Phenomena Wall.</p>	
	<p>We will also document our thinking in our science notebooks. Let's look at some scientists' notebooks. As you look at the scientists' notebooks, think about what you notice in each notebook and how the scientists recorded their thinking.</p> <p>There are different ways to engage students in observing the notebooks:</p> <p>Option 1: Print out a set of the Scientists' Notebooks for each table. Invite students to make observations and look for patterns in how the scientists' recorded their thinking.</p> <p>Option 2: Invite partnerships to look at a digital copy of the Scientists' Notebooks.</p> <p>Option 3: Look at the scientists' notebooks as a class.</p>	

	<p>Jane Goodall is a primatologist. Primatologists are scientists who study primates such as gorillas, orangutans, chimpanzees, and lemurs. Jane Goodall studied chimpanzees. Look at her notebook. Turn and talk: What do you notice about how Jane Goodall recorded her thinking? Revoice students' conversations. ___ noticed ___.</p>	<p>Students turn and talk to share what they notice about how Jane Goodall recorded her thinking. (2 minutes)</p> <div data-bbox="1368 192 2002 421" style="border: 1px solid black; padding: 10px;"> <p>Expected Student Responses (ESR)</p> <ul style="list-style-type: none"> • Jane Goodall used pictures to record her thinking. She dated her entry. She wrote the time and questions. </div>
	<p>Let's look at another scientist's notebook. Elizabeth Eldon is a biologist in California. A biologist is a scientist who studies life. Look at her notebook. Turn and talk: What do you notice about how Elizabeth Eldon recorded her thinking? Revoice students' conversations. ___ noticed ___.</p>	<p>Students turn and talk to share what they notice about how Elizabeth Eldon recorded her thinking. (2 minutes)</p> <div data-bbox="1368 584 2002 780" style="border: 1px solid black; padding: 10px;"> <p>Expected Student Responses (ESR)</p> <ul style="list-style-type: none"> • Elizabeth Eldon organized her thinking into a chart. She also included the date. </div>
	<p>We've got one last scientist notebook to look at. This is Galileo Galilei's notebook. Galileo Galilei was an astronomer. Astronomers are scientists who study space which includes studying the stars and planets. We are going to become astronomers in The Sky Above project! Turn and talk: What do you notice about how Galileo Galilei recorded his thinking? Revoice students' conversations. ___ noticed ___.</p>	<p>Students turn and talk to share what they notice about how Galileo Galilei recorded his thinking. (2 minutes)</p> <div data-bbox="1368 943 2002 1139" style="border: 1px solid black; padding: 10px;"> <p>Expected Student Responses (ESR)</p> <ul style="list-style-type: none"> • Galileo Galilei separated his ideas with lines. He drew models. </div>
	<p>CCC1 - Patterns Recount the observations students shared from each scientist's notebook. What patterns do you notice?</p> <p>After students have shared the patterns they notice, ensure that students see that they each included the date, drew lines between their ideas, and drew models to represent their observations.</p>	<p>Students share patterns they noticed in the scientists' notebooks.</p> <div data-bbox="1368 1259 2002 1488" style="border: 1px solid black; padding: 10px;"> <p>Expected Student Responses (ESR)</p> <ul style="list-style-type: none"> • They included the date. • They drew lines between their thinking. • They made models. </div>

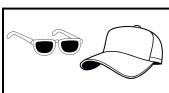
	<p>While scientists' notebooks have some similarities, they are also all different. There's not one way to make a science notebook. Science notebooks are a scientist's brain on paper. Scientists track how their thinking and observations change over time to help make sense of phenomena.</p>	
	<p>Scientists, we're going to make our own science sense-making notebooks! We will record our observations of the sky throughout this project. Our first question to investigate is: "What is in the sky?"</p> <p>Let's get our Science Notebooks ready to record our thinking. Like the professional scientists, we want to make sure that we always include the date. Guide students in creating a Science Notebook for The Sky Above project or distribute Science Notebook Covers and What is in the Sky?</p>	<p>Students make their Science Notebook for The Sky Above Project and prepare their "What is in the sky?" notebook page or use the template in the Science Notebook Cover and What is in the Sky?. (5 minutes)</p>
	<p>SEP4 - Analyzing and Interpreting Data DCI - ESS1.A: the Universe and its Stars</p> <p>Now that we have our science notebooks ready, we are ready to investigate! Astronomers, our question to investigate is: "What is in the sky?" How do you think we should find out what is in the sky?</p> <p>What do you think you will see when we go outside and look at the sky? Remind students to not look directly at the sun because it is harmful to their eyes. Let's go outside and observe the sky to find out!</p> <p>Facilitate student thinking around phenomena in the sky:</p> <div style="border: 1px solid black; padding: 10px; background-color: #f0f0f0;"> <p style="text-align: center;">Facilitator Questions</p> <ul style="list-style-type: none"> ● What do you see? ● What makes you say that? ● Have you seen it before? ● What does it remind you of? </div> <p>Provide students a few minutes to observe the sky, then ask students to record their observations in their science notebooks.</p>	<p>Students share how they think the class should find out what is in the sky. (1 minute)</p> <p>Students go outside to observe the sky. Students draw their observations in their Science Notebooks. (10 minutes)</p>

	<p>Invite students to share their science notebooks with another scientist. Turn and talk: What observations did you make?</p> <p>Return to the classroom.</p> <p>We saw what is in the sky outside right now, but have you noticed the sky changes? Let's see what else we can see in the sky.</p>	<p>Students turn and talk to share the observations they recorded in their science notebooks. (2 minutes)</p>
 <p>Gallery Walk "What is in the sky?" 1. Look at 3 pictures and then 2. Write down what is similar to what you saw outside. 3. What do you see that is different from what you saw outside in the sky?</p>	<p>We are going to go on a gallery walk of the sky above! As we gallery walk, we are going to look at each picture from top to bottom and side to side. Using our observation skills of a scientist, notice what is similar to what you saw today in the sky, and what is different than what you saw in the sky. Lead students on a digital gallery walk (The Sky Above Gallery Walk). Ask students to look quietly for a minute to gather their own thoughts. After a silent minute of observations, invite students to talk about what is similar and what is different than what they saw in the sky today.</p> <div data-bbox="312 687 1311 959" style="border: 1px solid black; padding: 10px;"> <p>Note: A digital gallery walk can be done by having one picture set up on each computer and having students walk around to look at the different pictures on the computers or it can be done by having each partnership click through the set of pictures at a computer. It can also be done whole class using the Resource Slides. If doing it whole class, then be cognizant of how long students have been sitting and find ways for them to move throughout the room.</p> </div>	<p>Students do The Sky Above Gallery Walk. Students look silently for the first minute and then share what they notice is similar to and different from what they saw in the sky outside with a partner. (4 minutes)</p>
 <p>What did you see in the sky? What was similar? What was different?</p>	<p>Call the students back to the carpet. What did you see in the sky in the pictures? What did you see that was similar to what we saw outside? What did you see that was different from what we saw outside?</p>	<p>Students share what they noticed was similar and what was different with the class. (3 minutes)</p> <div data-bbox="1353 1122 2008 1372" style="border: 1px solid black; padding: 10px;"> <p style="background-color: #e0e0e0; padding: 5px;">Expected Student Responses (ESR)</p> <ul style="list-style-type: none"> ● A similarity is the sun. I saw the sun outside and in the pictures. ● A difference is the stars. I saw stars in the pictures, but I didn't see stars outside. </div>

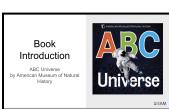
	<p>Option: Invite students to record their responses using the What is in the Sky? Seesaw Activity.</p>	<p>Option: Students can share their thinking using the What is in the Sky? Seesaw Activity.</p>
REFLECT 10 min.		
	<p>Astronomers, you did a great job of investigating our question, “What is in the sky?” Let’s review what we did and what we figured out. We went outside and made observations of the sky, and then we did a gallery walk of pictures of the sky and compared them to what we saw outside. What did we figure out? Add student thinking to the “What We Figured Out” section of the Phenomena Wall. Record students’ names in parentheses after their thoughts.</p>	<p>Students share what they figured out. (3 minutes)</p>
 	<p>Let’s connect this back to our phenomenon. At the start of the lesson, some of you may have wondered where this phenomenon takes place. It is in the city of Dubai. Dubai is a city in the United Arab Emirates.</p>	
	<p>We will work to explain what’s happening in this video and use it to help us think about how patterns in the sky help us. Let’s watch it again with today’s question to investigate in mind. As you watch, think, “What is in the sky? Show Dubai 24 Hour Timelapse.</p> <p>Turn and talk: What was in the sky? Add student thinking to the Phenomena Wall under “Connection to Phenomenon”.</p> <p>Think about what you figured out during our investigation outside and our gallery walk of pictures of the sky inside. Refer to “What We Figured Out” section of the Phenomena Wall. Turn and talk: What are you wondering about the sky in the video? Revoice students’ questions. Add students’ questions to the Phenomena Wall under “Questions We Have Now.”</p>	<p>Students watch Dubai 24 Hour Timelapse and think about what is in the sky. (1 minute)</p> <p>Students turn and talk to share what they say in the sky in the video. (1 minute)</p> <p>Students turn and talk to share their questions about the sky in the video. (2 minutes)</p>

	<p>Note: These lessons will lead to students thinking about light pollution. You might ask: "Was there anything you didn't see that you expected to see in the sky?" to encourage students to think about the lack of stars seen in the night sky in the video.</p>	
	<p>Many of you noticed the moon in the video. We will observe the moon every night to help us answer your questions about the moon. We will bring the notebook back to class after 2 weeks of observation to share our observations with our fellow astronomers. As you observe the moon, think about what the moon does. You will investigate the question, "What does the moon do?" on your own first and then we will investigate it together. Send students home with their Moon Observation Notebook or invite students to use the Moon Observation Notebook Seesaw Activity. Notify parents about the Moon Observation Notebook and ask them to set a time with their child to go outside and observe the moon each night before going to bed. Note: If students use the Seesaw activity, they will need to select "draft" rather than the green check so that they continue to edit their notebook throughout the month.</p>	<p>Students take home their Moon Observation Notebook to conduct nightly observations of the moon or begin recording their observations in the Moon Observation Notebook Seesaw Activity.</p>

Health Extension

	<p>Encourage students to bring sunglasses and a hat to school for the next week as they make observations of the sun to encourage sun protection practices. (Grade 1 Health Education Content Standard: 7.3.P: Demonstrate proper ways of protecting oneself from the sun and ways to select and apply sunscreen)</p>	<p>Students bring their sunglasses and hat to school to practice a health conscious lifestyle.</p>
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Literacy Extension

	<p>Introduce ABC Universe to the class as a new addition to the class library. We have become astronomers in The Sky Above project. We know that astronomers study space. I want to introduce a new book to you that might help you answer some of the questions you have about space. It is called ABC Universe. It was written by the American Museum of Natural History. Flip through a few of the pages to give students a preview of the book</p>	<p>Students preview ABC Universe. Students access ABC Universe from the class library during independent reading.</p>
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	and to increase their excitement for reading it. Add the book to the class library and create norms around using it so everyone will get a chance to read it.	
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Lesson 1 Phenomena Wall

Anchor Phenomenon: The sky changes in a 24 hour time period. (Dubai 24 Hour Timelapse)				
Essential Question: How can we use patterns in the sky to help us?				
Question to Investigate	What We Did	What We Figured Out	Connection to Phenomenon	Questions We Have Now
What is in the sky?	We observed the sky. We compared our observations to pictures of the sky.	We can see the sun, moon, and stars in the sky.	We saw the sun and moon in the sky in Dubai.	(List questions students provide.)

The Sky Above project was designed by Lacy Szuwalski and Zoë Randall.

Please join the Unit 1 Curriculum Discussion at <https://forms.gle/i57hagdD4xxDyQqU9> to provide feedback and submit students' work.