



# The Night Sky

Grade 1

Earth and Space Science

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**Table of Contents****Unit Overview**

**Unit Description**  
**NGSS Alignment**

**Investigation 1: Why do people tell stories about the night sky?**

**Lesson 1.1:** Introduction to Folktales  
**Lesson 1.2:** Introduction to Night Sky Stories

**Investigation 2: What are night sky stories from different parts of the world?**

**Lesson 2.1:** Global Night Sky Stories  
**Lesson 2.2:** Comparing Global Night Sky Stories

**Investigation 3: What are the patterns in the night sky?**

**Lesson 3.1:** Observing the Stars  
**Lesson 3.2:** Locating the Stars  
**Lesson 3.3:** Observing the Moon

**Investigation 4: What is our night sky story?**

**Lesson 4.1:** Night Sky Folktale (Performance Task)

**Appendix**

**Glossary**  
**Connections to Museum Resources**

**Unit Overview****Unit Description**

In this unit, students will use the patterns found in night sky folktales from around the world to explore observable patterns of the moon and stars. Students will begin the unit by reading various night sky stories from many different cultures. Through those stories the students will start to identify common patterns across the stories, namely the appearance of the moon and stars at night and the changing position of the moon across the sky. From there, students will investigate whether or not they can identify the same patterns of the moon and stars in our current night sky. Students will use various media to make observations of the moon and stars, and then come to the conclusion that the patterns articulated in the folktales match what they were able to observe. Students will use their observations and experiences with the folktales to develop a Chicago-based folktale that incorporates the patterns of the night sky.

**Driving Phenomena**

The moon and stars follow patterns that can be identified, observed and predicted. Throughout human history, the predictable patterns of the moon and stars have commonly been a feature in folktales from different cultures. People have used these folktales as a guide for making meaning of the large and unknown celestial bodies in the sky. This unit uses this as a jumping off point for students to investigate the question: How have patterns in the night sky inspired people from different cultures throughout time?

**Driving Question**

How have patterns in the night sky inspired folktales throughout time?

**NGSS Performance Expectation**

This unit was aligned to the following Next Generation Science Standards (NGSS) Performance Expectations:

**1-ESS1-1**

Use observations of the sun, moon, and stars to describe patterns that can be predicted.



## NGSS Unit Alignment

The performance expectation **1-ESS-1** was developed using the following elements from the NRC Document A Framework for K-12 Science Education:

<p><b>Science and Engineering Practices</b></p> <p><b>Analyzing and Interpreting Data</b>          Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.</li> </ul>	<p><b>Disciplinary Core Ideas</b></p> <p><b>ESS1.A: The Universe and its Stars</b></p> <ul style="list-style-type: none"> <li>Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.</li> </ul>	<p><b>Crosscutting Concepts</b></p> <p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.</li> </ul> <p>-----</p> <p><i>Connections to Nature of Science</i></p> <p><b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b></p> <ul style="list-style-type: none"> <li>Science assumes natural events happen today as they happened in the past.</li> <li>Many events are repeated.</li> </ul>
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Connections to the three dimensions in this unit:

## SEP: Analyzing and Interpreting Data

Students will use observations of the night sky patterns to determine whether or not the stars can be seen predictably at night and if the changing position of the moon in the sky follows a predictable pattern.

## DCI: The Universe and its Stars

Students will use various media to observe the appearance of the stars in the sky at night and the position of the moon in the sky at various times a night, for multiple days. Students will use their observations to predict future patterns of the moon and stars.

CCC: **Patterns**

Students will make observations of the pattern of the appearance of the stars and moon, and the moon's position in the sky. They will use their observations as evidence to predict the pattern of the moon and stars. Students will also identify and describe patterns in night sky folktales from around the world that will serve as additional evidence for the patterns of the moon and stars.

**Additional NGSS elements present in this unit:**

## SEP: Planning and Carrying Out Investigations

Students will carry out an investigation in order to observe the appearance of the moon and stars in the sky and the position of the moon in the sky at various times, for multiple days.

**SEP: Obtaining, Evaluating, and Communicating Information**

Using their observations of the patterns of the night sky and the folktales from around the world, students will work together to create a Chicago-based night sky folktale.

**Investigation 1: Why do people tell stories about the night sky?****Lesson 1.1: Introduction to Folktales****Lesson Description****30 minutes**

Students will be introduced to the unit by discussing the reasons why people tell stories. Students will discuss the idea that people make up stories to help them explain things around them. These stories often feature the things that are a part of their daily lives and are important to them, like certain animals, people, or things found in surrounding nature.

**Objective**

Students will be able to understand what a folktale is and how people have used these stories to explain the world around them.

**Guiding Questions**

What is a folktale and why do people tell them?

**Materials****Per Class**

- Disney's *Moana* (2016)
- Smartboard/Projector
- Speakers
- Teacher Resource 1.1.A

**Materials Preparation**

- Set up *Moana* to the beginning of the film - stop at 4:35.

**New Vocabulary**

**Folktale** – A story passed down by generations

**Investigation 1: Why do people tell stories about the night sky?****Lesson 1.1: Introduction to Folktales****Engage****5 minutes**

1. Ask students to take a moment and think about their favorite story. Tell students to turn to a partner and share the name of their favorite story and what makes this story their favorite.
2. Have students think about their family and who tells them stories. Ask them why people tell stories. Listen for responses to include that stories: are fun to listen to/entertaining; make you laugh or feel emotions; let us explore something new or a different place/people/time; teach us a lesson or help us understand how something works; etc.
3. Tell students that once upon a time, before the internet or television were invented, people had to figure out other ways to answer questions about the world around them. They couldn't use a smartphone or computer to find information, and so instead people made up stories to help explain their world.

**Investigate****15 minutes**

1. Explain that these stories that people told about the world are called folk tales, and are stories that are passed down from generation to generation by word of mouth. They are stories that people like grandparents would tell to children, who would then they grow up and tell the same stories to their grandchildren. People would continue to tell these folktales for hundreds or thousands of years, even to this day.
2. Ask if students can provide an example of a folk tale they have heard before: Goldilocks and the Three Bears, Jack and the Beanstalk, The Pied Piper, etc.
3. Explain that many times folk tales are about the things that people are curious about, but can't quite explain, and so they make up stories to feel connected to what they are seeing.
4. Explain to students that they going to hear an example of a folk tale from a popular movie.
5. If possible, play the clip of the opening of the Disney movie *Moana* (play until 4:35) or read the transcript of the story from **Teacher Resource 1.1.A**.

## Reflect and Share

10 minutes

1. Ask students to discuss with a partner the following questions:
  - a. Who was telling the folktale? (Grandma Tala)
  - b. Who was she telling the story to? (the children)
  - c. What did the folktale explain? (how the island of Te Fiti formed from the ocean)
  - d. What does the folktale tell us about Moana and her people? (they live by the ocean; they fish; they believe in gods like Te Fiti, Maui, and Te Ka; they are worried about their island)
2. Bring students back together and discuss as a class. Explain that Moana's folktale was about the ocean and islands, and the story helped explain the natural world around her and her people.
3. Ask students to think about what else in nature might have inspired other folktales? What were people curious about when they looked at the world around them?
4. Guide students to the idea that folktales are often about the natural world like mountains, rivers, and the sky. Let students know that next they will learn about folktales which all focus on one place that has seemed very mysterious to people throughout history - the night sky.

## Teacher Resource 1.1.A

## Folk Tale Example: Grandma Tala's Story

**“Grandma Tala’s Story”**  
**Adapted from the Disney movie *Moana***

In the beginning there was only the ocean, until the Mother Island emerged. Her name was Te Fiti. Her heart held the greatest power ever known; it could create life itself! And Te Fiti shared it with the world.

But in time, some began to seek Te Fiti’s heart. They believed that if they could possess it, the great power of creation would be theirs. One day, the most daring of them all voyaged across the vast ocean to take it. He was a demi god of the wind and sea—he was a warrior, trickster, a shape shifter who could change form with the power of his magical fishhook. His name was Maui.

Without her heart, Te Fiti began to crumble, giving birth to a terrible darkness. Maui tried to escape but was confronted by another who wanted the heart: Te Kā, a monster of earth and fire. Maui was struck from the sky, never to be seen again. His magical fishhook and the heart of Te Fiti were lost to the sea.

Even now a thousand years later, Te Kā and the monsters of the deep still look for the heart, hiding in a darkness that will continue to spread, chasing away our fish and draining the life from island after island—until one day, the heart will be found by someone who will journey beyond our reef, find Maui, and deliver him across the great ocean to restore Te Fiti’s heart and save us all.

**Investigation 1: Why do people create folktales about the night sky?****1.2: Introduction to Night Sky Stories****Lesson Description****30 minutes**

Students will discuss the reasons why people create folktales about the night sky. Students will learn that people would make up stories to help them explain things like why we see the moon and stars at night. Students will listen to and then analyze two night sky folktales from Native American peoples, recognizing that both stories were inspired by what could be seen in the night sky.

**Objective**

Students will be able to identify common observable elements of the night sky by comparing and contrasting two Native American folk tales.

**Guiding Questions**

Why do people create folktales about the night sky?

**Materials****Per Class**

- Teacher Resource 1.2.A
- Butcher Paper
- Markers
- Projector/Smart Board
- 2 Slideshows (Teacher Resource 1.2.B and 1.2.C); Optional Transcripts (Teacher Resource 1.2.D)

**Materials Preparation**

- Print Teacher Resource 1.2.A and hang where it is easily visible
- Prepare to project the slideshows

**New Vocabulary**

**Character** – any person, animal, or figure represented in a story

**Investigation 1: Why do people create folktales about the night sky?****Lesson 1.2: Introduction to Night Sky Stories****Engage****5 minutes**

1. Ask students to recall what a folktale is and if they remember an example.
2. Remind students they discussed how folktales are often about the natural world and were created to help explain what people are curious about or don't understand.
3. Tell students that one thing in the natural world that has always made people curious is the night sky. Ask students to think about the night sky and to share what they think people might wonder about (i.e. the stars, moon, how dark it is, planets).
4. Explain that many folktales are about the night sky as a way to explain or explore things like the moon and stars. Before people really understood what they were looking at, the night sky seemed so big and dark and mysterious, so folktales helped people make sense out of what they saw each night and feel connected to the sky above them.

**Investigate****20 minutes**

1. Tell students they will hear two night sky folktales created a long time ago by native people living in Western America (point out the star on **Teacher Resource 1.2.A**). After listening to the stories, students will discuss what they think the storytellers saw in their world that inspired them to create the folktale.
2. Read out loud "How Coyote Was the Moon" and "Coyote Places the Stars" using the slideshows provided from **Teacher Resource 1.2.B** and **1.2.C**. If unable to use the slideshows, use the transcripts as provided on **Teacher Resource 1.2.D**.
3. After reading the stories, use the discussion prompts on **Teacher Resource 1.2.E** to facilitate a conversation about what students think inspired both folktales.
4. Record student responses on butcher paper.

## Reflect and Share

5 minutes

1. Have students share similarities and differences between both stories. Listen for responses to include: both stories take place at night; include the coyote; explain something about the night sky; one story is about the moon and the other the stars; etc.
2. Tell students to think about the character of the coyote. Ask if the coyote is really the moon every night. Then discuss if the coyote really tricked the other animals to be the stars. Guide them to recognize that no - the coyote is not really the moon and the dogs aren't really stars, similar to how Te Fiti didn't really turn into the islands in *Moana*.
3. Discuss how all three folktales are stories used to explain something curious like the night sky or islands, but in a way that seems familiar to the people hearing the stories. Explain that folk tales are a great way to understand what people observe and understand about the world around them.
4. Ask students if they think other people around the world have their own version of night sky stories.
5. Tell students they will explore this question next time.





**Teacher Resource 1.2.D****Native People's Night Sky Stories**

**“How Coyote Was the Moon”**  
**Adapted from the Kalispel Tribe; Idaho**

A long time ago, there was no moon in the sky. Night was very, very dark and it was hard to see anything. People complained because they were unable to visit each other's houses or get any work done after the sun went down.

The people called together all the animals and decided to ask one of the animals to become the moon. Fox raised her hand right away. She always wanted to help others, and so she climbed up into the sky. When night came, Fox curled herself into a tight ball, fluffed up her big, red tail in order to make herself into a perfect circle. But her fur was so bright and red, that the people couldn't sleep. Fox was too bright! So the people asked her to come down from the sky.

The people called the animals back, and this time the Crow said he would become the moon. He climbed up into the sky, fanned out his tail feathers, tucked in his head, and made himself into a perfect circle. But Crow's feathers were as dark as the night sky, and the people didn't have enough light to see after the sun went down. They were running into trees, animals, and even each other! So the people asked Crow to come down from the sky.

The people came together with the animals again, and this time Coyote said he would become the moon. His fur was not too bright or too dark, and he could easily curl up into a circle. He would be a perfect moon. Coyote climbed up into the sky, curled into a tight ball, tucked his nose under his tail, and fluffed up his fuzzy tail. He was a perfect moon! The people could see each other after dark and still get a good night's sleep. Everyone was so happy. Except for Coyote.

Coyote was bored. Each night, he would curl into a perfect circle, move from one part of the sky to the other, always lying in the same position, night after night. It was so boring to be the moon! One night, coyote began to look around at the people from the night sky. He could see what everyone was doing, and started making fun of people if they drooled in their sleep or if they snuck out of their bed to get a late night snack. The people didn't like being watched and teased. So they told Coyote to come down from the sky.

Then the people asked Rabbit if she could be the moon. Rabbit was nearly the same color as Coyote and also made a nice, round circle. Also, Rabbit didn't like teasing people and she didn't mind doing the same thing each night.

Rabbit is still the moon today. That is why on nights when the moon is round you can see Rabbit's nose and whiskers. Coyote was so sad to be replaced by Rabbit he started crying. This is why coyotes howl at the full moon today.

**Teacher Resource 1.2.D****Native People's Night Sky Stories**

**“Coyote Places the Stars”**  
**Adapted from the Wasco Tribe; Washington/Oregon**

One night, Coyote was walking through the fields when he came upon five wolf brothers and their friend, dog. They were all seated, looking at the sky.

“Why are you all just sitting here, looking up?” asked Coyote.

“It’s none of your business,” answered one of the wolves.

“So unpleasant!” thought Coyote to himself. He sat down beside them anyway. The wolf brothers and the dog paid no attention, but continued to stare up at the sky.

“Seriously, what do you see up there?” inquired Coyote.

“Nothing!” snapped the wolf brothers. Still they stared at the sky. Long minutes passed. No one made a move.

“Well, I don’t know why you are acting so strangely. I’m getting out of here,” muttered Coyote, and he got up to leave.

“If you must know,” growled the oldest wolf, “we see a bear up in the sky, and we are watching it.” Coyote sat down again and looked up at the sky. Sure enough, he saw among the stars the outline of a large bear!

After a few minutes, Coyote said, “Let’s all go up and take a close look at that bear.”

“How can we do that?” asked the dog.

“First, I will shoot that small star near the bear with my bow and arrows,” bragged Coyote. The others laughed as he shot the arrow, and they didn’t see where it landed. Then Coyote shot another arrow, and another. The wolves and dog stopped laughing. Coyote had made a chain of arrows hanging from the sky, and soon the chain reached where they were sitting.

“Now we can go and see that bear!” exclaimed Coyote. “Follow me.” And he began climbing up the arrow chain.

When all the animals had reached the sky, Coyote warned them, “Don’t get too close to that bear. You might make it angry.” So each of the wolves and their friend dog found a place in the sky where they could sit quietly and look at the bear. The bear just looked back at them. Coyote looked around at the others sitting there in the sky, and he sighed, “They make such a nice picture. I would like to keep them this way always,” he said to himself. Then he thought, “If I keep the sky as it is, people below will always look up and say, ‘Coyote made that beautiful picture for us!’” So Coyote climbed back down the chain of arrows, removing each arrow as he went.

When Coyote reached the ground again, he took his arrows and went back home. The wolf brothers and their friend dog still to this day as stars in the night sky, quietly watching the bear while the bear looks back.

**Teacher Resource 1.2.E**  
**Discussion Prompts**

**After reading each of the Native People Night Sky Stories, ask students the following discussion prompts. Record student responses on a separate piece of butcher paper for each story:**

- 1. What happened in the story?**
  - a. General description of the story plot
- 2. Who were the main characters in the story?**
  - a. *“Coyote Was the Moon”*- people, fox, coyote, crow, rabbit
  - b. *“Coyote Places the Stars”*- coyote, wolves, dog, bear
- 3. What did the people see in the night sky that led, or inspired them, to create this story?**
  - a. *“Coyote Was the Moon”*
    - i. The sun is in the sky during the day
    - ii. It is dark at night
    - iii. It is light during the day
    - iv. The moon is in the sky at night
    - v. The moon is sometimes shaped like a circle
    - vi. The moon can be bright/gives off light
    - vii. The moon appears to move (changes position) in the sky during the night
    - viii. The moon does the same thing every night
    - ix. It looks like there is a picture on the face of the full moon
    - x. Coyotes howl at the full moon
  - b. *“Coyote Places the Stars”*
    - i. The stars can be seen at night
    - ii. Stars can look like animals in the sky
    - iii. People saw a group of stars that they thought looked like a bear
    - iv. People saw other stars that could be the wolf brothers and their friend, dog
- 4. What did the story help people explain about the sky above them?**
  - a. *“Coyote Was the Moon”*
    - i. The moon does the same thing every night (shows up when it’s dark out, it appears to move across the sky during the night)
    - ii. Sometimes the moon is a circle and it looks like there’s a face on the moon’s surface
  - b. *“Coyote Places the Stars”*
    - i. The stars appear at night
    - ii. The stars make pictures that sometimes look like animals in the sky

## Investigation 2: What are night sky folktales from different parts of the world?

### Lesson 2.1: Global Night Sky Stories

#### Lesson Description

60 minutes

In small groups, students will read and/or listen to a night sky folktale from a different area of the world that features an animal of cultural importance. Students will then work together to analyze the story in order to pull out information about the plot, characters, and elements of the night sky present in the story.

#### Objective

Students will make observations of a night sky folktale from a different culture to analyze the patterns present in the story related to elements of the night sky.

#### Guiding Questions

Do people from other parts of the world have night sky folktales too?

#### Materials

##### Per class

- Teacher Resource 2.1.A
- Teacher Resource 2.1.B
- Teacher Resource 2.1.C

##### Per group

- One story from Student Resource 2.1.B
- One image from Student Resource 2.1.D for correlating story
- Discussion Guide from Teacher Resource 2.1.B for correlating story

##### Per student

- Student Resource 2.1.A Night Sky Journal
- Writing Utensil

#### Materials Preparation

- Print a copy of Teacher Resource 2.1.A and 2.1.B
- Print a copy of Student Resource 2.1.A - Night Sky Journal (stapled) for each student
- Print a copy of the Night Sky Journal (Stapled) for each student. The Journal comprises Student Resource 2.1.A, 2.1.C, 3.1.B, 3.3.A, 3.3.B, and 4.1.A.
- Print a story from Student Resource 2.1.B for each group
- Print a Discussion Guide from Teacher Resource 2.1.D for each group
- Print a copy of the illustrations from Student Resource 2.1.D

#### New Vocabulary

**Observe** – to look very closely and carefully

**Investigation 2: What are night sky folktales from different parts of the world?****Lesson 2.1: Global Night Sky Stories****Engage****15 minutes**

1. Remind students that they started learning about night sky folktales. Encourage students to recall what they remember about the native peoples' night sky folktales featuring the coyote.
2. Then ask students to think about what people might have observed about the night sky that helped them create the two folktales. Listen for students to say that people observed the moon and stars in the sky and that the moon and stars did the same thing each night.
3. Have students turn to a partner and discuss if they think other places around the world have their own folktales to explain or explore the night sky.
4. Tell students, as they probably discussed, that there are many night sky folk tales from all around the world. Explain that they will work together to figure out what is the same and what is different about all these stories.
5. Let students know that they will begin by reading a story from Rome. Have student identify Rome, Star #1, on the world map (**Teacher Resource 2.1.A**)
6. Read **Teacher Resource 2.1.B** out loud as a class. When the story is finished, show or project **Teacher Resource 2.1.C** and ask students to share what they notice. Pass out a Night Sky Journal (**Student Resource 2.1.A**) to each student. Direct them to the Night Sky Pattern chart.
7. Work together to complete the chart for "The Great Bear" folk tale.
8. Tell students that they will break into small groups. Each group will read a different night sky folktale, and together they will fill out the Night Sky Pattern chart and the Folktale Information chart for their story. Then they will share their story with the rest of the class.

## Investigate

15 minutes

*Teaching Tip: It is recommended that the investigation portion be done during a reading block. Each text is leveled so group students by ability.*

1. Place students into four leveled small groups based on each story's reading level.
  - "Emu in the Sky" - Grade 1 Reading Level
  - "Herd Boy and Weaving Girl" - Grade 2 Reading Level
  - "The Mantis and the Moon" - Grade 2.5 Reading Level
  - "The Reindeer, Girl, and the Moon" - Grade 3 Reading Level
2. Working with one group at a time, have students identify where their story is from on the map (**Teacher Resource 2.1.A**).
3. Have students read their selected story (or conduct a read-aloud). Show students correlating picture from **Student Resource 2.1.D**.
4. Use the discussion guide (**Teacher Resource 2.1.D**) to facilitate a conversation and check for story comprehension.
5. Have students complete **Student Resource 2.1.C** for their story. Remind students that they will use the Night Sky Pattern chart and Folktale Information chart to share their night sky folktale with the rest of the class.
6. Repeat procedure with each small group of students.

## Reflect and Share

5 minutes

1. Remind students they will have the opportunity to share the folktales they read with one another next time.
2. Explain that they will look for similarities and differences across the stories to see if they can find a pattern in what people all over the world have observed and wondered about in the night sky.
3. If time allows, permit students to decorate the front page of their Night Sky Journal.

**Teacher Resource 2.1.A**

**World Story Map**





**Teacher Resource 2.1.B**  
**Night Sky Folktale #1****“The Great Bear”**  
**Adapted from a Roman Folktale**

Once upon a time, a girl was walking in the woods. Her name was Callisto. Callisto was going to meet her friends, Jupiter and Juno. The three friends loved playing together.

Callisto found her friends and they played together for a long time. Then Callisto said she was tired. She sat down to rest. Then Jupiter said he was hungry. He left to get food for his friends. Juno was angry. She did not want to stop playing. She got so mad that she turned Callisto into a bear!

Callisto-the-Bear was scared. She ran off into the woods. Jupiter came back with some food for his friends. He asked Juno where Callisto was. Juno told Jupiter that Callisto went home. Jupiter shared his food with Juno. They played some more and then went home.

A few days later, Jupiter went into the woods to look for Callisto. No one had seen her in days. Suddenly, Jupiter saw a huge bear. Jupiter was very scared. But then he looked closely at the bear. He thought he knew the bear. “Callisto?” asked Jupiter. The bear growled, but in a friendly way. Jupiter knew it was his friend Callisto!

“Did Juno do this to you?” Jupiter asked. The bear nodded sadly. Jupiter wanted to help his friend. He could not turn her back into a human girl. But he wanted to keep her safe from Juno. So Jupiter took Callisto’s tail and threw her into the sky. Callisto landed in the sky and she turned into stars that made the shape of a giant bear. Callisto lived peacefully in the sky from that day on.

If Jupiter ever missed his friend, he would look up to see Callisto-the-Bear in the night sky.

**“The Great Bear”**  
**Adapted from a Roman Folktale**



Photo Credit: Stu10255, Wikimedia Commons, 2011

**Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

\_\_\_\_\_'s **Night Sky Journal**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**NIGHT SKY PATTERN CHART**

<b>Folk Tale</b>	<b>Stars seen at night?</b>	<b>Moon seen at night?</b>	<b>Moon appears to move?</b>	<b>Animal characters?</b>
<i>The Great Bear</i>				

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**FOLKTALE INFORMATION CHART****After reading the folktale, work with your group to fill out the chart:****Folktale Title:**

Who is the Main Character?
Where is the Setting?
What is the Problem?
What is the Solution?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**When can you see the stars?**

Observe the pictures of the sky in the day and at night. Make an “X” to record if you can see the stars or not.

<u>DAY</u>	<b>YES We can see the stars.</b>	<b>NO We cannot see the stars.</b>	<u>NIGHT</u>	<b>YES We can see the stars.</b>	<b>NO We cannot see the stars.</b>
#1			#1		
#2			#2		
#3			#3		
#4			#4		
#5			#5		

Using your observations, when can you see the stars in the sky (circle your answer):

DAY

NIGHT

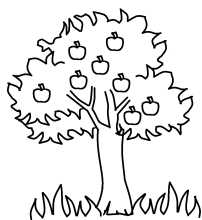
Name: \_\_\_\_\_

Date: \_\_\_\_\_

Observation: Day # \_\_\_\_\_

Notes: \_\_\_\_\_

Draw where you see the moon in the sky at each time.

*Dinner*  
**6pm***Midnight*  
**12am***Wakeup*  
**6am**

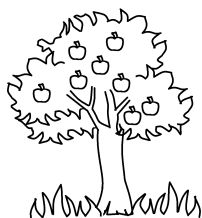
Name: \_\_\_\_\_

Date: \_\_\_\_\_

Observation: Day # \_\_\_\_\_

Notes: \_\_\_\_\_

Draw where you see the moon in the sky at each time.



*Dinner*  
6pm

*Midnight*  
12am

*Wakeup*  
6am



**Student Resource 3.3.A (Continued)**

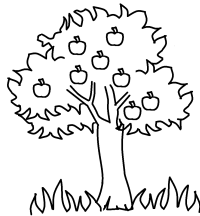
**Night Sky Journal**

**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Observation: Day # \_\_\_\_\_

Notes: \_\_\_\_\_

Draw where you see the moon in the sky at each time.



***Dinner***  
**6pm**

***Midnight***  
**12am**

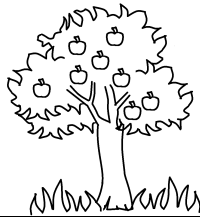
***Wakeup***  
**6am**

**Student Resource 3.3.A (Continued)****Night Sky Journal****Name:** \_\_\_\_\_**Date:** \_\_\_\_\_

Observation: Day # \_\_\_\_\_

Notes: \_\_\_\_\_

Draw where you see the moon in the sky at each time.

***Dinner***  
**6pm*****Midnight***  
**12am*****Wakeup***  
**6am**

**Student Resource 3.3.A (Continued)**

**Night Sky Journal**

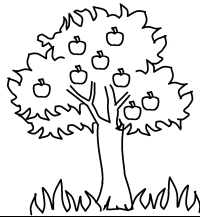
**Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

Observation: Day # \_\_\_\_\_

Notes: \_\_\_\_\_

Draw where you see the moon in the sky at each time.



***Dinner***  
**6pm**

***Midnight***  
**12am**

***Wakeup***  
**6am**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

What will the night sky look like in your folktale about the Chicago night sky?

1.) In the folktale, the stars will appear: (circle your answer)

In the day only

In the night only

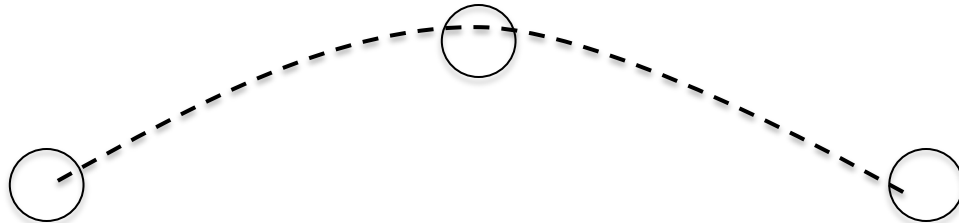
In both day and night

2.) In the folktale, the moon will: (circle your answer)

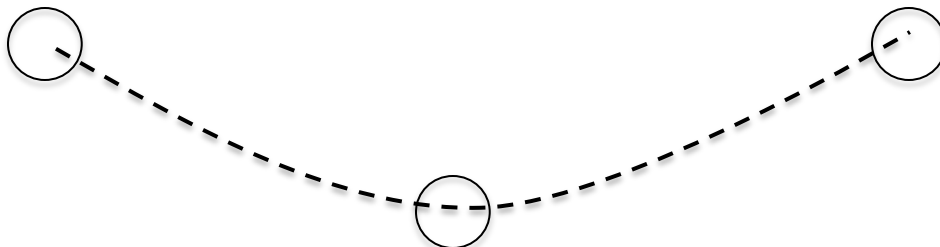
Change position in the sky

Stay in the same place

3.) In the folktale, the moon will: (place an "X" next to the picture that best shows the moon's pattern)



Pattern #1: \_\_\_\_\_



Pattern #2: \_\_\_\_\_



Name: \_\_\_\_\_ Date: \_\_\_\_\_

**4.) Do the moon and stars follow these same patterns in real life? (*Circle your answer*)**

Yes

No

**5.) How do you know? What evidence have you collected that helps you think this?**

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**6.) How else could you learn about the patterns of the moon and stars?**

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**Student Resource 2.1.B  
Night Sky Folktale #2****“Emu in the Sky”  
Adapted from an Aboriginal Australian Folktale**

Once there was a sister and a brother. The brother told the sister to look for eggs. They liked to eat emu eggs. Emu eggs are hard to find. Emus are smart birds. Emus hide their eggs.

Every night the sister looked for emu eggs. But she could not find any. The brother was mad at the sister. He wanted to eat eggs. One night the brother looked for eggs. He saw footprints in the dirt. He followed the footprints. He found a big emu and a nest of eggs!

The brother ran to the eggs. The emu pushed the brother down. The emu asked “Why are you here?” “I am hungry,” said the brother.

The emu did not want the brother to eat the eggs. The emu picked up the eggs and ran away. Emus do not fly. The brother ran after the emu. The emu was scared. It did not want the brother to eat the eggs.

The emu hid the eggs. Then it jumped so high it went into the night sky. The emu landed in the stars. The brother could not find the emu or the eggs. The emu is still safe in the stars today.

**“The Herd Boy and the Weaving Girl”  
Adapted from a Chinese Folktale**

A long time ago, there was an Ox who lived in the sky. The Ox was made of stars. Every night, the Ox liked looking at the people on Earth. One day, the Ox saw a boy who looked sad. The boy took care of a group of cows. A group of cows are called a herd. The cows were his only friends. His family called him “Herd Boy.” The Ox was sad for Herd Boy. The Ox wanted to help Herd Boy find a friend.

The Ox looked at the people on Earth and saw a girl. The girl was by herself. She was weaving a blanket. Her family called her “Weaving Girl.” The Ox decided to come down from the stars to help Herd Boy meet Weaving Girl.

The Ox came down to Earth. He found Herd Boy. The Ox told Herd Boy about Weaving Girl. Herd Boy was excited to have a new friend. The Ox took Herd Boy to find Weaving Girl. Herd Boy and Weaving Girl decided they wanted to be friends!

The Ox was so happy. He was ready to go back home to the night sky. Herd Boy and Weaving Girl waved goodbye to the Ox. The Ox went home and turned back into the stars.

**Student Resource 2.1.B****Night Sky Folktale #4**

**“The Mantis and the Moon”  
Adapted from a South African Folktale**

There was once a mantis that tried to catch the moon. He wanted to sit on the moon and ride it across the sky. He wanted the other animals to say, “There is mantis on the moon. He is so smart and brave. We should be his friend.”

But the mantis was a tiny insect and the moon was very far away. How could he reach it with his short wings? Mantis watched the moon. First, it appeared in the sky. Next, it got bigger and higher in the night sky. Then it moved fast and disappeared as the sun started to rise.

Mantis thought of a plan. He waited all day. When it was getting dark, he saw the moon in the sky. The moon looked like it was caught in a tree. Mantis flew to the tree. But moon was still above him. He flew to a higher tree. But the moon was still above him.

Mantis was sad. He would never catch the moon. He climbed down and started to walk. He followed the moon as it moved across the night sky. Suddenly, mantis came to a pond. He saw the reflection of the moon in the water. Mantis jumped in and said “I caught you, moon!”

But all he caught was water. Mantis was so sad. He climbed out of the water. He wanted to make friends, but maybe catching the moon was not the best plan. He decided to be brave and talk to the other animals.

Mantis made many friends. Together they watched the moon in the sky each night.



**Student Resource 2.1.B**  
**Night Sky Folktale #5****“The Reindeer, Girl, and the Moon”**  
**Adapted from a Russian Folktale**

The Moon loved watching the people on Earth. Each night he would watch everyone laugh and play. One night, the Moon was sad. He wanted to laugh and play too! He left the sky and went down to Earth.

On Earth, the Moon saw a girl. She was walking with a magical reindeer. She was holding a big bag full of pinecones. The girl was also playing an instrument called a flute. The Moon loved the flute. He wanted to take the flute from the girl. The Moon followed the girl and the reindeer so he could take the flute.

The reindeer was smart. He saw the Moon following them. The reindeer told the girl, “The Moon is behind us. He wants to steal your flute, but I will help you.”

The Moon was about to steal the flute. The reindeer used his magic and turned the girl into a big pile of snow. The Moon did not know where the girl and her flute went. The Moon started walking away.

The reindeer turned the pile of snow back into the girl. The girl threw the bag of pinecones over the Moon. She said, “I caught you, Moon!” The Moon was sad. The Moon said, “Please let me go. I will not take your flute.”

The girl said, “I will let you go. If you promise to go back to the night sky.” The Moon was still sad. The reindeer said, “You have to go back to the sky. But you can move across the sky during the night. Then you can see everyone laughing and playing.”

**“Emu in the Sky”**

*Adapted from an Aboiginal People Folk Tale; Australia*



**“The Herd Boy and the Weaving Girl”**  
*Adapted from a Chinese Folk Tale*



**“The Mantis and the Moon”**  
*Adapted from a South African Folk Tale*



**“The Reindeer, Girl, and the Moon”**  
*Adapted from a Russian Folk Tale*



**Teacher Resource 2.1.D****Night Sky Folktale #2: Discussion Prompts**

After reading the Night Sky Story, ask students the following discussion prompts. You may decide to record student responses on butcher paper to remind students of their answers for the next lesson.

- 1. What happened in the story?**
  - a. General description of the story plot*
- 2. Who were the main characters in the story?**
  - a. Emu*
  - b. Brother*
  - c. Sister*
- 3. What did the people see in the night sky that led, or inspired them, to create this story?**
  - a. Stars*
  - b. A group of stars looked like an emu*
- 4. What did the story help people explain about the sky above them?**
  - a. The stars appear at night*
  - b. The stars make pictures in the sky*
  - c. Sometimes pictures in the stars look like animals in the sky*
  - d. The same stars can be seen each night*
- 5. Why do you think the storytellers chose this animal for their story?**
  - a. The emu was important to Aboriginal people*
  - b. The emu could be seen/found in Australia*
  - c. The emu is awake at night (nocturnal)*
  - d. People would hunt for/eat emu eggs*
  - e. The emu was fast and couldn't fly*
  - f. They saw a group of stars in the sky that reminded them of an emu*

**Teacher Resource 2.1.D****Night Sky Folktale #3: Discussion Prompts**

After reading the Night Sky Story, ask students the following discussion prompts. You may decide to record student responses on butcher paper to remind students of their answers for the next lesson.

**1. What happened in the story?**

- a. General description of the story plot*

**2. Who were the main characters in the story?**

- a. Ox*
- b. Herd Boy*
- c. Weaving Girl*

**3. What did the people see in the night sky that led, or inspired them, to create this story?**

- a. Stars*
- b. A group of stars that looked like an ox in the sky*

**4. What did the story help people explain about the sky above them?**

- a. The stars appear at night*
- b. The stars make pictures in the sky*
- c. Sometimes pictures in the stars look like animals in the sky*
- d. The same stars can be seen each night*

**5. Why do you think the storytellers chose this animal for their story?**

- a. The ox was important to Chinese people*
- b. The ox could be seen/found in China*
- c. The ox was a helpful animal (used to carry heavy items)*
- d. The ox was seen as a kind and gentle animal*
- e. They saw a group of stars in the sky that reminded them of an ox*

**Teacher Resource 2.1.D****Night Sky Folktale #4: Discussion Prompts**

After reading the Night Sky Story, ask students the following discussion prompts. You may decide to record student responses on butcher paper to remind students of their answers for the next lesson.

**1. What happened in the story?**

- a. General description of the story plot*

**2. Who were the main characters in the story?**

- a. Mantis*
- b. Moon*

**3. What did the people see in the night sky that led, or inspired them, to create this story?**

- a. The moon*
- b. The moon seems to move across the sky*

**4. What did the story help people explain about the sky above them?**

- a. The moon appears in the sky*
- b. The moon can appear at night*
- c. The moon is too high to reach from a tree*
- d. The moon appears to rise in one part of the sky and set in another*
- e. The moon appears to move in the same way each night*

**5. Why do you think the storytellers chose this animal for their story?**

- a. The mantis was important to South African people*
- b. The mantis could be seen/found in South Africa*
- c. The mantis was a little insect surrounded by larger animals*
- d. The mantis was seen as determined and brave*



**Teacher Resource 2.1.D****Night Sky Folktale #5: Discussion Prompts**

After reading the Night Sky Story, ask students the following discussion prompts. You may decide to record student responses on butcher paper to remind students of their answers for the next lesson.

- 1. What happened in the story?**
  - a. General description of the story plot*
- 2. Who were the main characters in the story?**
  - a. Reindeer*
  - b. Girl*
  - c. Moon*
- 3. What did the people see in the night sky that led, or inspired them, to create this story?**
  - a. The moon*
  - b. The moon seems to move in the sky*
- 4. What did the story help people explain about the sky above them?**
  - a. The moon can regularly be seen in the sky*
  - b. The moon changes location in the sky during the night*
  - c. The moon appears in one part of the sky and appears to move across the sky*
- 5. Why do you think the storytellers chose this animal for their story?**
  - a. The reindeer was important to Russian people*
  - b. The reindeer could be seen/found in Russia*
  - c. The reindeer is found in snowy places*
  - d. The reindeer was seen as a helpful and smart animal*

**Investigation 2: What are night sky folktales from different parts of the world?****Lesson 2.2: Comparing Global Night Sky Folktales****Lesson Description****30 minutes**

Students will share information about the night sky folktale they deconstructed in the previous lesson. As a class, students will compare and contrast the folktales in order to determine that, while each story is different, there are common features like the moon, stars, and animals. In analyzing across the stories, students will identify that the folktales feature patterns including the changing position of the moon across the sky, the appearance of stars at night, and animals of cultural importance.

**Objective**

Students will use observations of night sky folktales from different cultures to describe common elements including the role the moon, stars, and animals play in each story.

**Guiding Questions**

What are the similarities and differences between the night sky folktales from around the world?

**Materials****Per class**

- Teacher Resource 2.1.A and 2.2.C
- Butcher Paper
- Tape
- Marker(s)

**Per student**

- Student Resource 2.1.A - Night Sky Journal

**Materials Preparation**

- Recreate the chart on Teacher Resource 2.2.A on butcher paper
- Project or tape up a copy of Teacher Resource 2.1.A
- Print Teacher Resource 2.2.C
- Re-use pictures from Student Resource 2.1.D

**New Vocabulary**

**Pattern** – when something happens or occurs in a regular and repeated way

**Investigation 2: What are night sky folktales from different parts of the world?****Lesson 2.2: Comparing Global Night Sky Folktales****Engage****15 minutes**

1. Remind students that in the last lesson they read different folktales about the night sky from different areas of the world.
2. Inform students that today they will share the stories from the previous lesson with one another, and then they will compare the stories to see what is the same and what is different.
3. Have students return to their groups from the previous lesson. Tell students that they will have five minutes to talk in their small groups about their story before they present their folktale. Encourage the group to select one or two students to be “Lead Storyteller.”
4. Let students know that each group will have two minutes to present their story to the rest of the class. After they have presented, one student from the group will point out the star on the map (**Teacher Resource 2.1.A**) to indicate what area their story is from and another student will tape the picture that goes along with their story to the butcher paper chart.
5. Distribute each group’s folktale, corresponding picture, and each student’s Night Sky Journal (**Student Resource 2.1.A**).
6. Tape **Teacher Resource 2.1.A** and the Night Sky Pattern chart (see **Teacher Resource 2.2.A** for set-up) on the wall.

**Investigate****10 minutes**

1. Have students present their story, one group at a time.
2. After all the groups have presented, use **Teacher Resource 2.2.B** to facilitate a discussion.

## Reflect and Share

5 minutes

1. Have students reflect on some of the similarities and differences between the folktales. Explain that while there were some major differences, there were certain things that were present or happened in all the stories.
2. Guide students to the class Night Sky Pattern chart. Work with students to fill in the chart based on the elements present in each story.
3. Explain that something that happens regularly can be called a pattern, and that there are some patterns in the way the stories feature the moon, stars, and animals. Then ask students to look at the patterns across the stories.
4. Listen for students to recognize that the folk tales:
  - About the stars – told how the stars could be seen at night
  - About the moon – told how the moon can be seen at night and it appears to move across the sky
  - All had an animal main character
5. Ask students to consider where the original storytellers got these patterns, and if these patterns are something we can still see? Have student think about how could we find out if the patterns about the moon and stars can be observed today.
6. Tell students that they will investigate these questions next time.

*Teaching Tip: When discussing the patterns in the night sky folktales, pay careful attention to the language used when describing the pattern of the moon in the sky. While many of the stories indicate that the moon moves across the sky, it is common scientific understanding that we do not actually witness the moon moving but rather it is the spin of the Earth on its axis that makes it appear as if the moon is moving. According to NGSS, this understanding will be developed as students progress in their education and therefore it is not imperative to introduce concepts such as the Earth's spin with 1st graders. It is important, however, that the phenomena of the moon in the sky is described as "appears to move" or "changes position in the sky" as to prevent students from developing a misconception that the moon is moving.*

## The Night Sky


Earth and Space Science Grade 1

### Teacher Resource 2.2.A Chart Set-Up and Example

#### Night Sky Pattern Discussion Chart: Set-Up

Story	Stars seen at night?	Moon seen at night?	Moon appears to move?	Animal character?	Animal Picture

#### Final Chart: *Example*

Story	Stars seen at night?	Moon seen at night?	Moon appears to move?	Animal character?	Animal Picture
<i>The Great Bear</i>	<b>YES</b>	---	---	<b>YES</b>	
<i>Emu in the Sky</i>	<b>YES</b>	---	---	<b>YES</b>	
<i>Herd Boy and Weaving Girl</i>	<b>YES</b>	---	---	<b>YES</b>	
<i>Mantis in the Moon</i>	---	<b>YES</b>	<b>YES</b>	<b>YES</b>	
<i>Reindeer, Girl, and the Moon</i>	---	<b>YES</b>	<b>YES</b>	<b>YES</b>	

**Teacher Resource 2.2.B**  
**Discussion Prompts**

After all the groups have shared their night sky folktale, ask the following questions. Record student responses on butcher paper.

- 1. What was similar, or the same, across all the folktales?**
  - a. The stories were all about the night sky*
  - b. Each story had an animal as a main character*
  - c. Each story explained something about the moon or stars*
- 2. What was different across the stories?**
  - a. Some stories were about the moon and others were about the stars*
  - b. Each story had a different animal*
- 3. In the folk tales about the moon: What does the moon look like? What does it do?**
  - a. It can be a big circle*
  - b. It can give off light (but it's not too bright)*
  - c. It's far away*
  - d. It appears to move in the sky throughout the night*
  - e. It starts in one part of the sky and seems to travel to the other part of the sky*
- 4. In the folk tales about the stars: When can the stars be seen? What do they look like in the sky?**
  - a. The stars can be seen at night*
  - b. The stars are bright*
  - c. The stars are far away*
  - d. The stars form shapes that can look like animals*
- 5. What did the animals do in the stories?**
  - a. Helped people (Ox, Reindeer)*
  - b. Ran away from people (Bear, Emu)*
  - c. Tried to make friends (Mantis)*
- 6. Why do you think the storytellers picked these animals for their folk tales?**
  - a. The animals were important to them*
  - b. They could see/find these animals where they live*
  - c. These animals represented different personality traits (that helped the storytellers tell the story well)*

## The Night Sky

Earth and Space Science Grade 1

### Investigation 3: What are the patterns of the night sky?

#### Lesson 3.1: Observing the Stars

### Lesson Description

30 minutes

Students will discuss and make predictions of what they think the night sky looks like every night, including when they can see the stars. Students will compare and contrast pictures of the day and night sky in order to determine when they can observe the appearance of stars. Students will determine whether or not the appearance of the stars only in the night sky means that stars disappear during the day or are just unable to be seen.

### Objective

Students will make observations to describe the patterns of appearance of the stars in the night sky.

### Guiding Question

When can we observe the stars in the sky?

### Materials

#### Per class

- Teacher Resource 3.1.A
- Teacher Resource 3.1.B
- Flashlight

#### Per group

- Student Resource 3.1.A

#### Per student

- Writing Utensil
- Student Resource 3.1.B

### Materials Preparation

- Print one day/night image from Student Resource 3.1.A for each group
- Make copies of Student Resource 3.1.B for each student
- Prepare to show or project Teacher Resource 3.1.A

### New Vocabulary

**Investigate** – to explore, or search for information, in order to answer a question

**Prediction** – a statement of what might or will happen in the future

**Investigation 3: What are the patterns of the night sky?****Lesson 3.1: Observing the Stars****Engage****5 minutes**

1. Remind students that they learned about many different folktales about the night sky from around the world. Ask students to recall what patterns were the same across all the stories (the moon and stars appear at night, the moon's position in the sky changes during the night, and animals were main characters).
2. Tell students that most of these folktales were created a long time ago, but people still tell them today. Discuss with students what things we can see today in the night sky. (Moon, stars, clouds, different shades of blue/black, planets, etc.)
3. Ask students to discuss with a partner what kinds of things they see during the day. (Sun/bright light, lots of different colors depending on the time of day or weather)
4. Tell students that there are a lot of differences between the day and night sky. Remind students that many of the night sky folktales they read were about stars and the animal shapes those stars seemed to make to the storytellers. Ask students whether they think stars can be seen at night or in the day.
5. Elicit student responses and then ask them to think about how we could find out if their guess, or prediction, is correct. Guide students to the idea that they could make observations of the sky to identify when they can see the stars.

**Investigate****15 minutes**

1. Have students think about how they could make observations (Go outside at night and day to look for the stars; visit a planetarium; look at pictures/videos). Ask students what they think some challenges may be about observing the sky at night. (We should be sleeping at night; it's too cloudy; etc.)
2. Explain to students that it can be very difficult to see the stars in Chicago because of something called light pollution. Tell students that Chicago gives off so much light at night (street lights, homes, buildings, etc.) that it doesn't usually get dark enough to see the stars.
3. Tell students that lots of people are just as interested in the stars as they are, and so there are videos and pictures from other people (including scientists and other students) that can be used to help us make observations of the sky.
4. Place students in small groups and explain that they will observe a picture of the sky near a farm just outside of Chicago. Distribute one day/night picture from **Student Resource 3.1.A** and each student's Night Sky Journal.
5. Explain that each group has a different day and night to observe. Tell students to discuss if they can observe the stars in the daytime and/or the nighttime picture. They should then record their observations of their assigned day/night in their Night Sky Journal (**Student Resource 3.1.B**).



## Reflect and Share

5 minutes

1. After recording their observations for their assigned day/night, have each group share out. Instruct students to fill in their own journals from the other group's share-out so each student has observation data for all five days/nights.
2. Ask students to recall their observations and answer if stars can be seen in the day or only at night. Listen for students to recognize that they can only see the stars during the night. Tell students this must mean we can only see the animals in the stars from the night sky stories we read at night as well! Show the picture of the Great Bear in the sky (**Teacher Resource 3.1.A**)
3. Ask students if they think the stars are still in the sky during the day or if they somehow disappear? Elicit student responses. Explain that students will investigate this question more in the next lesson.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**GROUP 1**

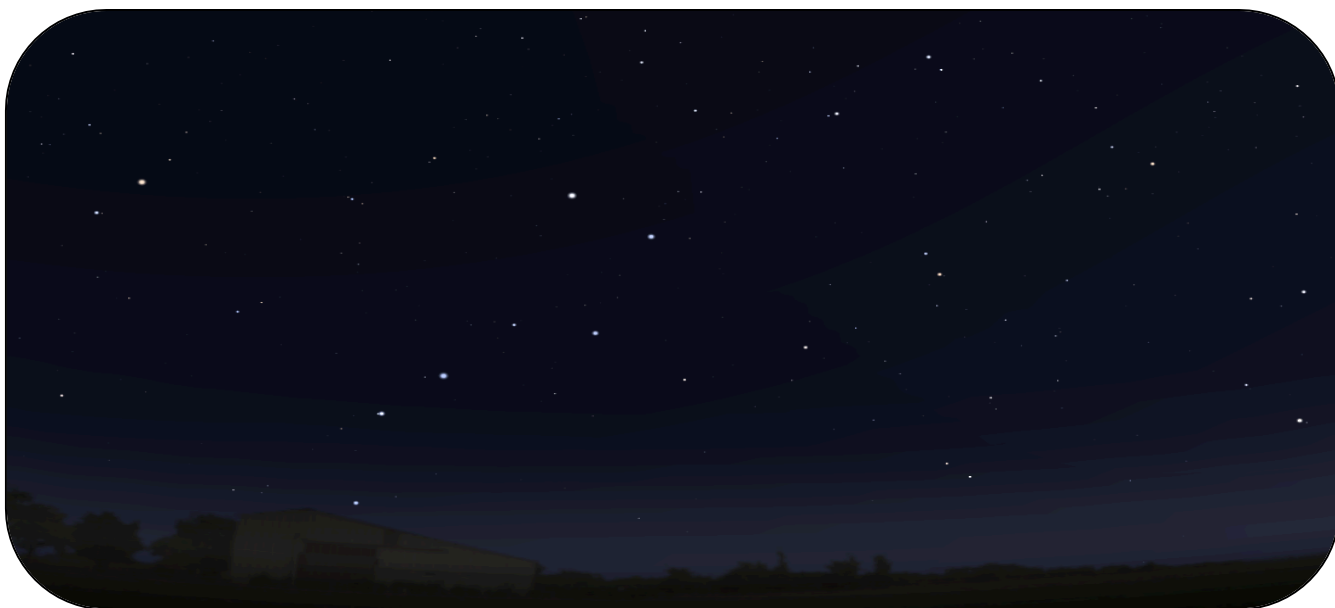
Closely observe the two pictures below.  
Record when you can see the stars in your Night Sky Journal.

**Day 1**

(January 13, 2017 at 12pm)

**Night 1**

(January 13, 2017 at 8pm)



**Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**GROUP 2**

**Closely observe the two pictures below.  
Record when you can see the stars in your Night Sky Journal.**

**Day 2**

**(January 14, 2017 at 12pm)**



**Night 2**

**(January 14, 2017 at 8pm)**



Name: \_\_\_\_\_ Date: \_\_\_\_\_

**GROUP 3**

**Closely observe the two pictures below.  
Record when you can see the stars in your Night Sky Journal.**

**Day 3**

(January 15, 2017 at 12pm)



**Night 3**

(January 15, 2017 at 8pm)



**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**GROUP 4**

**Closely observe the two pictures below.  
Record when you can see the stars in your Night Sky Journal.**

**Day 4**

**(January 16, 2017 at 12pm)**



**Night 4**

**(January 16, 2017 at 8pm)**



Name: \_\_\_\_\_ Date: \_\_\_\_\_

**GROUP 5**

**Closely observe the two pictures below.  
Record when you can see the stars in your Night Sky Journal.**

**Day 5**

**(January 17, 2017 at 12pm)**



**Night 5**

**(January 17, 2017 at 8pm)**



## The Night Sky

Earth and Space Science Grade 1

### Teacher Resource 3.1.A The Great Bear



Photo Credit: Stellarium Software

## The Night Sky

Earth and Space Science Grade 1

### Investigation 3: What are the patterns of the night sky?

#### Lesson 3.2: Locating the Stars

### Lesson Description

20 minutes

Students will observe a demonstration that models how the stars are always present in the sky, but we are unable to see them because of the light from the sun. Through this demonstration, students will build an understanding that stars follow the same pattern that can be observed, described, and predicted.

### Objective

Students will engage in a demonstration in order to determine patterns of when the stars can be observed in the sky.

### Guiding Questions

Do the stars disappear during the day?

### Materials

#### Per Class

- Teacher Resource 3.2.A
- Flashlight

### Materials Preparation

#### Materials Preparation

- This activity works best if the room can get relatively dark when the overhead lights are off, and so if possible cover the windows with black paper or use the blinds accordingly



**Investigation 3: What are the patterns of the night sky?****Lesson 3.2: Locating the Stars****Engage****2 minutes**

1. Refer students back to their Night Sky Journals and ask them to recall the pattern they discovered while viewing the photos of the sky at night and in the day.
2. Remind students that they ended the last class by discussing whether or not the stars are always in the sky (even during the day when we can't see them) or if they somehow disappear.
3. Explain that they will observe a demonstration to help understand what's really going on with the stars.

**Investigate****15 minutes**

1. Facilitate the activity on **Teacher Resource 3.2.A**.

**Reflect and Share****3 minutes**

1. After the demonstration, have students share what they learned about the stars. Listen for them to recognize that the stars are always present in the sky, we just cannot see them during the day because of the light from the sun.
2. Remind students that the night sky folktales were often about the stars, but that many of the stories focused on the moon as well. Ask students to think about whether or not they think the moon in the stories is based on real-life observations of the moon.
3. Explain to the students that they will make observations of the moon in the sky next time to determine if the patterns in the folktales are accurate.

**Teacher Resource 3.2.A  
Star Demonstration****Are the stars still in the sky during the day?**

1. Ask students: If we can only see the stars at night, does this mean the stars aren't in the sky during the day? Elicit student responses.
2. Ask students: What gives us light during the day? Listen for students to say the Sun.
3. Direct students to the overhead classroom lights. Tell students to pretend that the classroom lights represent the sun. Next hold up a flashlight and explain to students that the flashlight represents a star in the sky.
4. Turn off the overhead classroom lights and turn on the flashlight. Ask students: Can you see the star? (Yes!)
5. Next, while keeping the flashlight on, turn the overhead classroom lights (the Sun) back on. Ask students: Can you see the star now? Listen for students to recognize that they can no longer see the star (or they can see it very faintly).
6. Turn the overhead classroom lights back off so that students can see the light from the flashlight again.
7. Repeat this process a few times, keeping the flashlight on at all times.
8. Ask students: What do you think? Are the stars are in the sky during the day? Listen for students to say that yes, the stars are still in the sky but we are unable to see them because the Sun is so bright.

*Teaching Tip: Students may identify that the Sun is also a star. Discuss with the students why it may be that we can see this star during the day, while we cannot see other stars in the daytime sky. Guide students to the idea that the Sun is much larger and brighter than the other stars in our sky, and so when we can see the Sun in the sky (daytime) it outshines every other star.*

**Investigation 3: What are the patterns of the night sky?****Lesson 3.3: Observing the Moon****Lesson Description****35 minutes**

Using media, students will make observations of the night sky to track the pattern of the appearance of the moon and the moon's position in the sky throughout the selected observation times. Students will record their observations in their Night Sky Journal.

**Objective**

Students will make observations to describe the pattern of the moon in the night sky.

**Guiding Questions**

What can we observe about the moon in the night sky?

**Materials****Materials**

- Per class
- Teacher Resource 3.3.A
- Teacher Resource 3.3.B
- Teacher Resource 3.3.C
- Teacher Resource 3.3.D
- Butcher Paper
- Markers

**Per student**

- Writing Utensil
- Night Sky Journal

**Materials Preparation**

- Prepare to show or project Teacher Resource 3.3.C

**Investigation 3: What are the patterns of the night sky?****Lesson 3.3: Observing the Moon****Engage****5 minutes**

1. Have students recall what they observed about the stars in the sky. Listen for students to remember that they concluded that stars, and thus the animal shapes from the stories, can only be observed in the night sky.
2. Ask students to think about the other element in many of the folktales? (The moon)  
Encourage students to share common patterns of the moon across the stories. Listen for students to remember that in the folk tales the moon could be seen at night and it seemed to move across the sky, rising in one part and setting in another.
3. Ask students if they think this pattern really happens every night. Elicit student responses and tell students they will make observations using pictures to find out.

**Investigate****20 minutes**

1. Pass out each student's Night Sky Journal and explain that they will add moon observations to their journals. Have students find **Student Resource 3.3.A**.
2. Using **Teacher Resource 3.3.A**, walk students through the process of observing the moon through pictures (**Teacher Resource 3.3.B**) and then recording their observations in their journal. (See **Teacher Resource 3.3.C** for an example recording).
3. When students have completed observations for all five nights, ask the students what they noticed about the moon's position in the sky. Listen for students to recognize the moon rises/starts in one part of the sky, appears to move in an arc, and sets/disappears in the other part of the sky.
4. Ask students if this pattern happens each night and listen for them to recognize that yes, this pattern is the same in each of the observation pictures.
5. If time permits, show one or two of the video links provided on **Teacher Resource 3.3.A** for additional evidence.

## Reflect and Share

5 minutes

1. Refer students to **Student Resource 3.3.B** in their Night Sky Journal. Give students a few minutes to reflect on the observations they made about the moon and then record their thoughts.
2. Discuss with students about whether their observations of the moon are consistent with the night sky folk tales about the moon.
3. Remind students that the folk tales they read were from all over the world. Ask student to think about if they have ever heard a folk talk about the night sky in Chicago?
4. Explain that they will discuss this question more next time. Collect each student's Night Sky Journal.

*Teaching Tip: Through the moon pictures and/or personal experiences, students may share observations or wonderings about the moon that are outside the scope of this unit. For example, students may share that the moon can be different shapes and that sometimes they can see the moon during the day. It may be helpful to create a parking lot on butcher paper where these observations and questions can be recorded for future investigation. This strategy helps validate students thoughts and wonderings while also keeping them focused on the current investigation. Additionally, the wonderings may provide a great launching off point for the next science unit. Refer to **Teacher Resource 3.3.E** for additional resources to support students in learning about the phases of the moon.*

**Teacher Resource 3.3.A  
Moon Observation Guide****Are the stars still in the sky during the day?**

1. Have students open to a blank observation page in their journal. Show students the picture labeled Day #1. You may decide to only show where the moon is located at dinner (and cover up the remaining two moon images).
2. Tell students to imagine they are standing near the trees in the picture, looking up at the sky. Give students a moment to quietly observe the picture.
3. Ask students: At dinnertime, where is the moon in the sky in relation to your body? Encourage students to hold up their left arm in the direction of where they think the moon would be at dinnertime (6pm), according to the picture.
4. Look for students to recognize that the moon would be on their left-hand side and near the horizon (low in the sky). Tell students to label their journal page as Day #1 and then draw a circle where the moon can be found in the sky at dinnertime.
5. Then ask: At midnight, where is the moon in the sky in relation to your body? Encourage students to hold up their left arm in the direction of the moon at midnight, according to the picture. Tell students to draw a circle where the moon can be found in the sky at midnight.
6. Next ask: In the morning, around when you wake up, where is the moon in the sky in relation to your body? Encourage students to hold up their left arm in the direction of the moon at wakeup (6am), according to the picture. Tell students to draw a circle where the moon can be found in the sky at wakeup.
7. Hang up Observation Photo.
8. Repeat process for Day #2-5, using a blank recording sheet each time.
9. If time allows, tell students that you also collected several videos of the moon in the sky (see video options below). Watch one or more of the videos, pausing to record student observations on a sheet of butcher paper.

**Video Options**

- Moon Crossing the Sky – <https://safeshare.tv/x/95a9pXj03Rs>
- Super Moon Rising – <https://safeshare.tv/x/XvaMOKOXItQ>
- Crescent Moon Rising – <https://safeshare.tv/x/Epy98JSvLmk>

**Observation: Day #1 (January 13, 2017)**



*Dinner 6pm*



*Midnight 12am*



*Wake-up 6am*



**Observation: Day #2 (January 14, 2017)**



***Dinner 6pm***



***Midnight 12am***



***Wake-up 6am***



**Observation: Day #3 (January 15, 2017)**



***Dinner 6pm***



***Midnight 12am***



***Wake-up 6am***

**Observation: Day #4 (January 16, 2017)**



*Dinner 6pm*



*Midnight 12am*



*Wake-up 6am*



**Observation: Day #5 (January 17, 2017)**



***Dinner 6pm***



***Midnight 12am***



***Wake-up 6am***

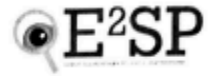
## The Night Sky

Earth and Space Science Grade 1

Teacher Resource 3.3.C

Example Student Observation

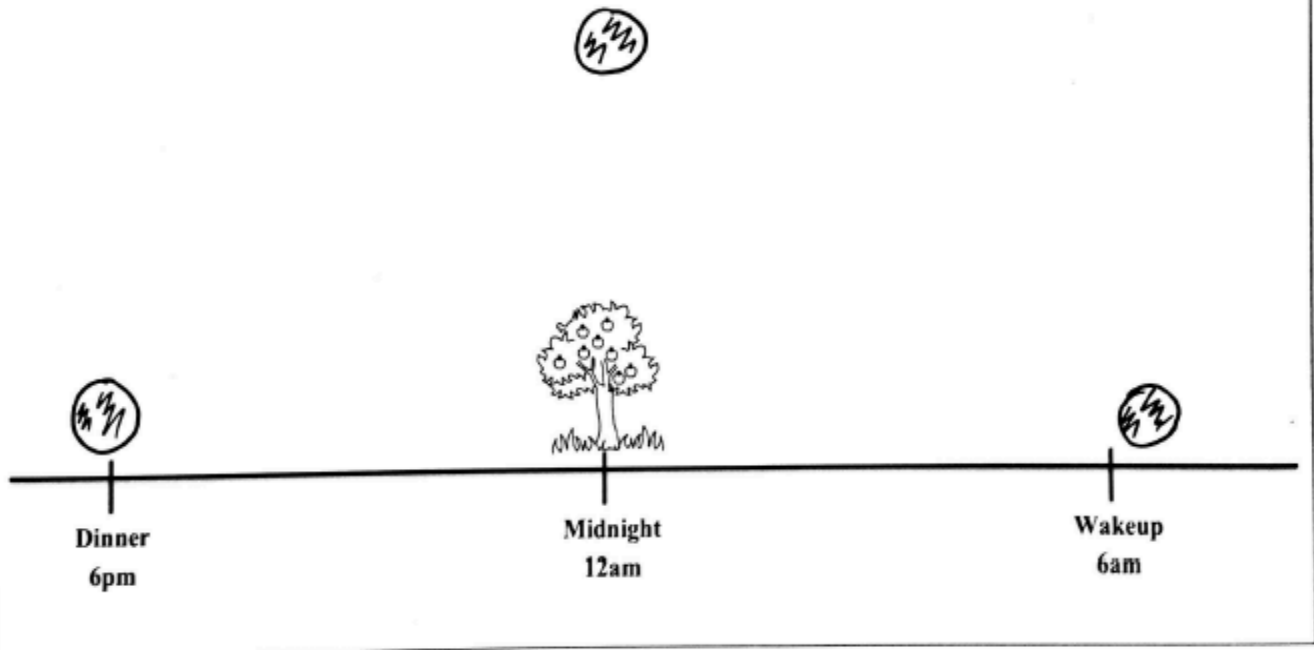
Night Sky Journal  
Student Resource 3.3.A



Observation: Day # 2

Notes: Moon starts in one part of the sky and ends in the other part of the sky.

Draw where you see the moon in the sky at each time.



**Teacher Resource 3.3.D  
Moon Observation Guide**

While having a complete understanding of why the moon appears in phases is not required in first grade according to the Next Generation Science Standards, your students may want to share observations about how they have seen the moon change shape. If your students want to investigate this phenomenon further, here are some additional books and online resources to refer to as students explore these concepts.

**Books**

*Faces of the Moon* by Bob Crelin

*Earth, Moon, and Sun* by Robin Birch

*Jump into Science: Moon* by Steve Tomecek

*The Moon Seems to Change* by Dr. Franklyn M. Branley

**Online Resources**

Lunar and Planetary Institute: [https://lpi.usra.edu/education/resources/s\\_system/moon.shtml](https://lpi.usra.edu/education/resources/s_system/moon.shtml)

Science NetLinks Lunar Cycle: <https://sciencenetlinks.com/lessons/lunar-cycle>

Phase of the Moon Online Game: [https://softschools.com/science/space/phases\\_of\\_moon/](https://softschools.com/science/space/phases_of_moon/)

## The Night Sky

Earth and Space Science Grade 1

### Investigation 4: What is our night sky folktale?

#### Lesson 4.1: Night Sky Folktale (Performance Task)

### Lesson Description

45 minutes

Students will plan and develop a night sky folktale that features patterns of the moon and stars, and features local Chicago-based connections. This lesson is the performance task for this unit.

### Objective

Students will communicate observed patterns in the night sky, specifically the appearance of the moon and stars at night and the apparent motion of the moon in the sky, as they plan to write a local night sky folktale patterned after traditional stories that feature a local animal as a main character.

### Guiding Questions

What is our night sky folktale that includes our observations of the moon and stars?

### Materials

#### Per Class

- Chart Paper
- Markers

#### Per Student

- Night Sky Journal
- Writing Utensil
- Teacher Resource 4.1.A (scoring rubric)

### Materials Preparation

- Print one copy of Teacher Resource 4.1.A for each student

### New Vocabulary

**Illustration** – a picture that goes along with a story

**Investigation 4: What is our night sky folktale?**

**Lesson 4.1: Night Sky Folktale (Performance Task)**

**Engage**

**5 minutes**

1. Ask students to recall the patterns of the night sky that they were able to observe and record in their Night Sky Journals. Listen for student to specifically discuss how they observed that the stars appear at night, the moon appears at night, and the moon changes position in the sky.
2. Remind students about the night sky folktales they read from other areas of the world and that they discovered how the stories highlighted certain patterns about the stars and moon.
3. Ask students to consider whether or not their observations of the stars and moon match the patterns they discovered in the night sky stories. Listen for students to recall that their observations did in fact match the patterns found in the night sky stories.
4. Ask students to think about what also was similar across the night sky folktales. Listen for them to recognize that each story had a main character (usually an animal) and there was a problem or a challenge the main character had to overcome.
5. Explain to students that they have collected lots of observations about the moon, stars, and night sky folktales from around the world. Ask students if they have ever heard a night sky folktale about Chicago? What would that story be? Who could write it?
6. Guide students to the idea that with their knowledge of the night sky and folktales, as a class they could work together to write a night sky folktale about Chicago!

**Investigate**

**20 minutes**

1. Explain that before the class comes together to write their night sky folktale they first need to spend some time thinking of ideas for their story.
2. Give each student their Night Sky Journal and refer them to **Student Resource 4.1.A**. Tell students that they will first determine what the night sky will look like in their story and then they will plan out the story together.
3. Discuss the resource with students so they understand how to complete it.
4. When students are finished, collect the Night Sky Journals and let them know that their ideas will be used in creating a class story about the Chicago night sky. Use **Teacher Resource 4.1.A** to assess each student's understanding of the patterns of the moon and stars.

**– Optional Lesson Break –**

5. Remind students that they will work together to develop a class night sky folk tale about Chicago.
6. Review with students the main elements of the night sky that should be present in the story: the appearance of the stars, the appearance of the moon, and the moon's changing position.
7. Have students as a class determine options and then vote to decide on the following elements of the story:
  - a. Main Character
  - b. Setting (specific place in Chicago)
  - c. Problem
  - d. Solution
8. On a piece of butcher paper or the board, write down the following headers: beginning, middle, and end. Work with students to build out a few sentences for each section of the story, reminding them to keep in mind that their story needs to include the patterns of the moon and stars as well as the story elements they decided upon.
9. Encourage students to share their ideas as they collaboratively work together to develop a Chicago-based night sky folktale.
10. After the story is finished, if time allows, give students time to create their own illustration of the night sky folktale.

*Teaching Tip: Writing the story may be facilitated in a number of ways based on student comfort level with writing including: whole class story development (as it's written), small group work, writing stations, etc. You may also consider folding this portion of the lesson into regular ELA class time.*

## **Reflect and Share**

**5 minutes**

1. When students are finished with their folktales ask them to think about how they would like to share their night sky folktale with others (read the story at a school presentation, send the story to the school principal, make copies and send home to share with families, etc.)
2. Have students explore ways to continue making night sky observations based on questions they may now have about patterns of the moon and stars after this unit.



**The Night Sky****Earth and Space Science    Grade 1****Teacher Resource 4.1.A  
Performance Task Rubric**

Student Name: \_\_\_\_\_

**Total Score: \_\_\_\_\_ / 7 points**

<b>Question</b>	<b>1 point / Meets Standard</b>	<b>0 points / Does Not Approach</b>
Q1: In the folktale, the stars will appear:	Night Only	All other responses / no response
Q2: In the folktale, the moon will:	Change Position	All other responses / no response
Q3: In the folktale, the moon will	Picture #1	All other responses / no response
Q4: Do the moon and stars follow the same pattern in real life?	Yes	All other responses / no response

<b>Question</b>	<b>2 points / Exceeds Standard</b>	<b>1 point / Meets Standard</b>	<b>0 points / Does Not Approach</b>
Q5: How do you know? What evidence have you collected that helps you think this?	Answer includes references to star picture observations and moon picture observations as well as personal observations of the stars and moon as evidence for patterns in real life	Answer includes references to star picture observations and moon picture observations as evidence for patterns in real life	All other responses / no response
Q6: How else could you learn about the patterns of the moon and stars?	N/A	Answer includes any references to potential resources such as (but not limited to): books, videos, ask an expert, make more observations, etc.	No response

**Glossary**

**Character-** any person, animal, or figure represented in a story

**Folktales** – a story passed down by generations

**Illustration** – a picture that goes along with a story

**Investigate** – to explore, or search for information, in order to answer a question

**Observe** – to look very closely and carefully

**Pattern** – when something happens or occurs in a regular and repeated way

**Prediction** – a statement of what might or will happen in the future

## Connections to Museum Resources

## Museum Resource Information

If you are interested in using museum resources in your classroom to support this unit, review the information below and consider bringing in museum objects and/or specimens based on the suggested recommendations.

***N. W. Harris Learning Collection at the Field Museum:*** From a skunk specimen to SUE's tooth to a ceremonial mask from Cameroon, the *N. W. Harris Learning Collection at The Field Museum* gives educators and parents a chance to take the Museum's collection to their classroom or home. Visit: [harris.fieldmuseum.org](http://harris.fieldmuseum.org)

**Teacher Leadership Center at the Peggy Notebaert Nature Museum:** The Teacher Leadership Center's popular loan program includes the following materials which can be borrowed free of charge for two weeks at a time: Inquiry Kits from the Illinois Department of Natural Resources (IDNR) and the Nature Museum, EnviroScapes, and National Geographic Book Packs. Visit: [naturemuseum.org](http://naturemuseum.org)

## Suggested Recommendations

**Lesson 4.1 Night Sky Folktale**

**Item:** Wild in Chicago Experience Box at the Field Museum's N. W. Harris Learning Collection

**Use:** If students would like to include local animals in their night sky folktale, have them explore the specimens from the experience box in order to become familiar with the types of animals that can be commonly seen in the Chicago area