

# *Sky Legends* Teaching Resource

Ages: 7-12 (Grades 1-6)

#### Materials needed:

- Pencils
- Paper
- Markers, crayons, colored pencils (optional)

**Duration:** 1 hour (includes two 20–30-minute activities)

#### **Essential Questions:**

- What is a constellation?
- When and where can you see stars and/or constellations? What changes have you noticed in the number of stars you can see since you've been sheltering in place?
- What is a myth? How do myths develop? Why do people create myths?
- What is story structure?



### Part 1: Introducing Constellations

A **constellation** is often thought of as a cluster of **stars** grouped into a picture. It is important to remember that most of the stars in the night sky have no relationship to one another, but are scattered at varying distances throughout space. Over thousands of years, humans have used these randomly scattered stars to draw pictures in the sky in a game of connect-the-dots. Many cultures have created constellations to explain **natural phenomena**, track seasons, or tell stories.

Ancient Greeks and Romans saw images of gods, goddesses, and animals in the same sets of stars that have been given different meanings by other cultures across the globe. Some of the constellations most widely known today have been recognized in a similar form for **millennia**. For example, the "V" of stars that is thought to form the face of Taurus the bull today was seen as a jawbone in the ancient Middle East. Other constellations were created by European **stellar cartographers** in the early nineteenth century to fill areas of the southern hemisphere previously unmapped by the Greeks and Egyptians. While the early constellations were often of mythical creatures like Draco the dragon and superhuman warriors like Hercules, the more recent constellations are often of the devices useful to scientists and explorers of the past few centuries, including the level, octant, crucible, and compass.

Today, constellation has two meanings. Originally, it referred only to the connect-the-dots pictures many civilizations had created out of the stars. In 1919, the <u>International Astronomical Union</u> divided the sky into 88 official regions, which fill the sky and fit together like countries on a map. Each of these regions is named after the constellation it contains; thus constellation can refer to both an image and a region. About half of the 88 regions are ancient constellations like Leo the Lion and Orion, while the others are constellations created in the last 250 years.



#### Look and discuss:

- What do you see?
- What other details do you notice in these images?











# Part 2: Reading & Making Myths (Activity 1)

#### Duration: 30 minutes

#### Materials needed:

- Paper
- Pencil
- Story planning worksheet (This is optional. You can use the prompts from the lesson on a blank piece of paper if you prefer!)

#### Introduction:

Myths are a type of story, and all stories have a structure. **Story structure** is the order of events that happen in a story. When we read a constellation myth, by identifying the parts of the story, the characters, and the **resolution**, or problem, solved we can understand why the story was told and eventually written down. Because people in different areas of the world can look at the same stars and see the same constellations, it is possible for different myths about the same set of stars to exist.

#### Procedure:

- 1. Read The Myths of Ursa Major, The Big Bear on the next page. The constellation Ursa Major contains the group of stars commonly called the Big Dipper. The handle of the Big Dipper is the Great Bear's tail and the Big Dipper's cup is the Bear's side.
- 2. Discuss the following.
  - What happens in these myths? How are they similar? How are they different?
  - Who are the main characters in the Roman version of the story?
  - Who are the main characters in the Micmac and Iroquois version of the story?
  - How does each myth begin? This is called the **exposition**.
  - What are some of the main events or actions in the stories? These help create the story's **plot**.
- 3. Brainstorm and write: Use the included story planning worksheet or a plain piece of paper to brainstorm ideas for your own myth. Think about the characters, setting, beginning (exposition), middle

action, and end (resolution) of a story you want to tell. Think about supernatural events, magic, or superpowers your character(s) may possess. Write down your ideas and plans. Save your brainstorms for the next activity!

#### Example Myth: The Supernatural Pen by Bridget McCormick

This myth is about a supernatural pen.

The heroine of my myth is named Bridget. (character)

This story takes place in modern times in an everyday place. (setting)

One day, Bridget decided to take a walk. After a while, she noticed something up ahead. It was an object, shining silver in the sun. She got closer and saw that the object was a beautiful pen. She picked it up and brought it home. That night, Bridget awoke to a light in her room. The pen was glowing and bright. She felt pulled toward the pen and found herself picking it up. But - she couldn't put it down! All she could do was write. She couldn't stop. She wrote anything and everything. She wrote fiction and non-fiction. She wrote poems and letters to her friends. She wrote for three days straight, until she had terrible writer's cramp! She could not get the pen out of her hand, no matter how hard she tried to let go. (action)

On the fourth day, she decided to take a walk again. At least she would be away from any paper and could have a break from writing! She was moving along when it began to rain. She stretched open her hands, feeling sprinkling showers. To her surprise, as the rain fell, the pen started to fade away. Eventually, it disappeared. All it took was taking another walk, and Bridget's writer's cramp problem was finally solved! (resolution)

#### **Excerpts from the American Association of Variable Star Observers**

#### The Roman Myth

A Roman myth involves both bear constellations, Ursa Major and Ursa Minor. A beautiful maiden, Callisto, hunting in the forest, grew tired and lay down to rest. The god Jupiter noticed her and was smitten with her beauty. Jupiter's wife, Juno, became extremely jealous of Callisto. Some time later, Juno discovered that Callisto had given birth to a son and decided that Jupiter must have been the father. To punish her, Juno changed Callisto into a bear so she would no longer be beautiful. Callisto's son, called Arcas, was adopted and grew up to be a hunter, while Callisto continued to live in the forest.

One day Callisto saw Arcas and was so overjoyed at seeing her son that she rushed up to him, forgetting she was a bear. Arcas thought he was being attacked and shot an arrow at Callisto. Jupiter saw the arrow and stopped it from hitting Callisto. To save Callisto and her son from further damage from Juno, Jupiter changed Arcas into a bear also, grabbed them both by their tails, and swung them both into the heavens so they could live peacefully among the stars. The force of the throw caused the short stubby tails of the bears to become elongated.

#### The Hunt

The Micmac People of Nova Scotia and the Iroquois People along the St. Lawrence seaway share one story about the Big Bear. In this story, the rectangular portion of the Big Dipper represents a bear that is pursued by seven hunters; the three closest hunters are the stars that make the handle of the dipper. As autumn approaches, the four farthest hunters dip below the horizon and abandon the hunt, leaving the closest three hunters to chase the bear.

The hunters are all named after birds. The closest hunter to the bear is named Robin, the second closest is Chickadee, and the third is Moose Bird. Chickadee is carrying the pot in which the bear will be cooked. The second star in the handle is actually two stars [the famous double-star system] called Mizar and Alcor which represent Chickadee and the pot.

In autumn, as the bear attempts to stand up on two legs, Robin wounds the bear with an arrow. The wounded bear sprays blood on Robin, who shakes himself and in the process colors the leaves of the forest red. The bear is eaten, and the skeleton remains traveling through the sky on its back during winter. During the following spring a new bear leaves the den and the eternal hunt resumes once more.

## Worksheet: Plan Your Story!

ls your story about a person, an animal, or an object?
Who is your hero/heroine? (Who is your character?)
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When and where does the story take place? (What is the setting?)
What is he/she/it doing there?
What happens to your hero, animal, or object in the story? (What is the action?)
How does your story end? (What is the resolution?)
How or why does your hero, animal, or object end up in the night sky?

# Part 3: Design Your Own Constellation (Activity 2)

#### Duration: 20 minutes

#### Materials needed:

- Pencil
- Paper
- Markers, crayons, or colored pencils (optional)
- Toothpick (optional)
- Your story planning worksheet

#### Background information:

Use the same characters, events, setting, and details that you brainstormed in Activity 1 to complete your constellation story.

#### Procedure:

- 1. Start by drawing the hero, animal, or object from your myth on paper. Add as many details as you like.
- 2. Constellations in the night sky don't look like complete drawings or illustrations. You can think of the stars that are in a constellation as the thumb tacks that hold the imaginary image up in the sky.
- 3. Look at your drawing. Where can you add thumbtacks to make sure your image doesn't fall down at night? Try to place no more than 7 stars in your design.
- 4. Are any of your constellation's stars larger than the others?
- 5. Next, connect your stars using straight lines, creating the internal "skeleton" or basic framework of your character or object.
- 6. Complete your constellation myth design. Add a title. Draw other characters or objects from your story around your main character or object. Add detail, shading, and color if you like!
- 7. Optional: if you have a toothpick or something of similar size, use it to poke holes where you have placed the stars for your constellation design. If you hold your paper up to light or a window, your "stars" will "light up."
- 8. Complete your written story. Can you take all of the story elements and rewrite them onto one page?

#### Share your work:

Take a photo of your constellation and post it to Instagram using the hashtags #MuseumFromHome and #SkyLegends, and tag the Museum.



### Part 7: Glossary and Further Reading

Cartographer: A person who draws or produces maps.

**Constellation**: A group of stars that people have identified with an image, often representing a myth or legend. The root of the word comes from Latin, "con" meaning with, and "stella" meaning star, so a constellation is a picture made "with stars".

**Double-star system**: A pair of closely-spaced stars that to the unaided eye usually appear as a single star.

**Exposition**: Also known as the introduction. Introduces the characters, describes the setting and establishes the problem in a story.

**Galaxy**: A collection of stars, gas, and dust. Our solar System resides in the Milky Way galaxy.

**Latitude**: A geographic coordinate that specifies the north–south position of a point on the Earth's surface. Lines of constant latitude, or parallels, run east–west as circles parallel to the equator.

**Millennium**: A period of a thousand years. "Millennia" is the plural form.

**Myth/legend**: A story that is handed down from earlier times that is often used to explain natural phenomena or a people's customs, history, or ideals. Myths typically have supernatural or imaginary elements and/or their characters have supernatural abilities.

**Natural phenomena**: A phenomenon is an observable fact or or event. Natural phenomena occur in nature, for example, lightning in the sky or a rainbow after a rainstorm.

**Plot**: A literary term used to describe the events that make up a story, or the main part of a story. These events relate to each other in a pattern or a sequence.

**Resolution**: The part of a story's plot where the main problem is resolved or worked out.

Setting: An environment or surrounding in which an event or story takes place.

**Solar System**: A star orbited by celestial bodies. The sun is the star for the solar system that includes Planet Earth.

**Star**: A body of gas held together by its own gravity that produces heat and light.

**Stellar**: Relating to a star or stars.

**Story structure**: How a story is organized, including the beginning, middle action, and ending, along with characters and setting.

**Supernatural**: Something that cannot be explained by science or naturally occurring events.

**Urania (Ourania)**: In Greek mythology, the muse of astronomy.

# Part 5: Q&A and Further Resources for Educators & Parents

#### What is a constellation?

A constellation is a group of stars that people have identified with an image.

#### Who created the constellations? Why? How did they get their names?

Many cultures have created constellations to explain phenomena, track seasons, or tell stories. Ancient Greek and Romans saw images of gods, goddesses, and animals in the same sets of stars that have been given different meanings by other cultures across the globe.

## How many constellations can you list? Can you remember the stories behind the constellations?

There are 88 official constellations. The International Astronomical Union has put a boundary around each set of stars so that every area of the sky falls within one of the official constellations.

## Is it easier to spot stars in certain places? Have you ever been to a place where you noticed it was easier or more difficult to spot stars?

When there is less artificial light from buildings and streetlights (known as "light pollution") it is easier to see stars. You may have noticed less light pollution during this time of sheltering at home, and perhaps you can notice more details in the night sky as a result.

#### Do people around the world see the same constellations at night?

People around the world see different constellations in the night sky, depending on the season and their location on Earth. People who live at similar geographic **latitude** will see the same constellations at night. 36 constellations can be seen from locations at latitude north of the equator moving toward the North Pole. Fifty-two constellations can be seen from locations at latitude south of the equator toward the South Pole. Stars at night move across the night sky from east to west. As the Earth orbits around the Sun, constellations move slowly to the west over the course of a year and we see different parts of the sky at night because, as the seasons change, we are looking in a different direction in space.

#### What happens to the stars during the day? Why can't we see them?

Stars do not go anywhere during the day, it is just more difficult to see them because the light of the sun is so bright. Similarly, a tiny light on the top of a building or in the classroom would be easier to see when it is dark out than when it is light.

#### **Further Reading:**

<u>International Astronomical Union</u> <u>Lunar and Planetary Institute - Constellations</u> <u>American Museum of Natural History: A Kid's Guide to Stargazing</u>

#### YouTube:

Super Stars (Constellations): Crash Course Kids #31.1 Constellation Location: Crash Course Kids #31.2 The Zodiac Constellations: Crash Course Kids #37.1

### Part 6: Standards

#### Common Core Learning Standards

#### **English Language Arts**

**Reading Literature:** 

Key Ideas and Details: CCSS.ELA-LITERACY.RI.1-4.1 Range of Reading and Level of Text Complexity: CCSS.ELA-LITERACY.RI.1-4.1

Reading Informational Text:

Key Ideas and Details: CCSS.ELA-LITERACY.RI.1-4.1 Range of Reading and Level of Text Complexity: CCSS.ELA-LITERACY.RI.1-4.10

Foundational Reading Skills:

Print Concepts: CCSS.ELA-LITERACY.RF.1.1 Phonological Awareness: CCSS.ELA-LITERACY.RF.1.2 Phonics and Word Recognition: CCSS.ELA-LITERACY.RF.1-4.3 Fluency: CCSS.ELA-LITERACY.RF.1-3.4

Writing:

Texts Types and Purposes: CCSS.ELA-LITERACY.W.1-4.1-2 Research to Build and Present Knowledge: CCSS.ELA-LITERACY.W.1-4.7-9

Speaking and Listening:

Comprehension and Collaboration: CCSS.ELA-LITERACY.SL.1-4.1-3 Presentation of Knowledge and Ideas: CCSS.ELA-LITERACY.SL.1-4.4-6

Language:

Conventions of Standard English: CCSS.ELA-LITERACY.L.1-4.1-2 Knowledge of Language: CCSS.ELA-LITERACY.L.1-4.3 Vocabulary Acquisition and Use: CCSS.ELA-LITERACY.L.1-4.4-6

#### New York State Learning Standards

#### Mathematics, Science and Technology

Standard 1: Analysis, Inquiry and Design

Standard 4: Science

#### **English Language Arts**

Standard 1: Language for Information and Understanding

#### **The Arts**

Standard 1: History of the United States and New York

Standard 3: Geography