Lesson Plan
The Night Sky by Another Name

Star formation in the constellation Orion as photographed in infrared by NASA’s Spitzer Space Telescope. Image courtesy of Wikimedia Commons.

Grade Level(s): 6-8
Subject(s): History, Astronomy

In-Class Time: 40-45
Prep Time: 10-15

Materials
- Copies of the Myths handout, one story for each student (see the Supplemental Materials)
- Copies of the Society handout corresponding to the myths handouts
- Either one large copy/projection of the image of Orion (see the Image of Space with Stars Supplemental Materials)

Objective
In this lesson, students will learn about the way different African cultures have understood what we know as the Orion constellation. This lesson helps students understand European and American worldviews of science and invites them to think about different ways to understand the Earth and the universe.
When we learn about the stars, we usually learn the names of constellations such as Aries, Cancer, Gemini, Capricorn, Sagittarius, Leo, Libra, Pisces, Orion, and others. Many of these constellations are based on Greek mythology and are just one way that people have learned to organize the stars. Across the Earth, different peoples have looked into the stars and seen different patterns and different stories.

People throughout history and all over the world have devised their own way of understanding the world around them. Myths, or traditional stories that may involve magic or magical beings, often express these views. Members of different societies tell their own myths and ascribe aspects of these mythologies to the stars. The stars in the constellation that we recognize as Orion are no different.

Orion is one of the most recognizable constellations in the night sky. To the ancient Greeks, this constellation resembled the giant hunter who was placed, by the Greek god Zeus, among the stars. To the Egyptians, however, this constellation resembled the god Osiris, the Egyptian Lord of the Underworld. When a Pharaoh died, his soul was judged by the god Osiris. If he was judged to be good, his soul would rest peacefully among the stars in the west. However, if he was found to be bad, his soul would be sent north where he would be forced to eternally circle the North Star with other beasts. The three stars that make up Orion’s belt were seen as a stairway of the world’s structure by the Dogon people and as three zebras that had been hunted by a god to the Ju/Wasi of Southern Africa.

In this lesson, students will learn about the universal human experience of finding figures in the stars and assigning meaning to them. They will learn some of the figures that members of different African cultures have assigned to the stars and hear the stories associated with them, as well as learn about the cultures themselves. During this lesson, students should be prompted to consider that different groups of people have different ways of understanding the stars and the world around them, even the students themselves have a specific point of view that shapes how they understand the world. 

Note: This lesson pairs well with the AIP Teacher’s Guides on Women and Minorities in the Physical Sciences: “Follow the Drinking Gourd: Astronomy and the Underground Railroad” for grades 6-8. This recommended lesson examines the lyrics of an African American folksong that directed escaped slaves on how to use the stars to navigate their way north. It utilizes a website to help students understand how the night sky changes over time and how it looks different from different places on Earth.

Instructions

Engage: 5 Minutes
To begin this activity, students will be asked to recall their previous knowledge about constellations and the connections that constellations have to cultural stories and beliefs.

What is the teacher doing?
Ask your students what they know about constellations and to name any constellations they know of. By the end of this section your students should know that constellations are groups of stars forming a recognizable pattern that is traditionally named after its apparent form or identified with a mythological figure.

What are the students doing?
Remember what they know about constellations and recall the names of as many constellations as possible.
Either project or put up the image of Orion (see Image of Space with Star in the supplemental material). Ask the students if they know what constellation they are looking at. By the end of this section, the students should know that they are looking at the constellation Orion.

Try to identify the constellation Orion.

Explore: 5-10 Minutes

People throughout history and all over the world have looked into the sky and tried to connect the stars into figures. In this portion of the lesson, the students will each learn about one figure that was identified by members of different African cultures and the mythology around that figure. They will also learn a little about the society that produced that mythology. Please be aware that the information included on the Society handout is not a comprehensive overview of each society. This handout includes some general information and fun facts intended to give students a taste of the people whose tales they are reading.

What is the teacher doing?
Divide the class either into 4 groups or groups of 4.
If 4 groups:
Give each group a different mythological story and the corresponding page of the Society handout (see the Myths and Society handouts in the supplemental materials). Give the students a few minutes to read their story and then discuss it within the group.
If groups of 4:
Give each member of the group a different mythological story and corresponding page of the Society Handout. Give the students a few minutes to read their stories to themselves.

What are the students doing?
If 4 groups:
Reading their given myth and page of the Society Handout silently to themselves. Talking within their groups about the story that they all read.
If groups of 4:
Reading their given myth and page of the Society Handout silently to themselves.

Explain: 15 Minutes

The students will recount the stories that they read, identify the constellation on the sky and share what they learned about the relevant society with the rest of the class.

What is the teacher doing?
If 4 groups:
Go around the class and have a representative from each group retell the story and page of the Society Handout in their own words with the rest of the class.
If groups of 4:
Have each student retell the story and page of the Society Handout that they read to the other members of their group.

What are the students doing?
If 4 groups:
The representative from each group will retell their story and page of the Society Handout in their own words to the rest of the class. When not presenting, the students will listen carefully to their classmates as they recount their tales.
If groups of 4:
Each student will recount their story and page of the Society Handout for the rest of their group. When not presenting, the students will listen.
carefully to their classmates as they recount their tales.

**Elaborate: 10 Minutes**

Students are often taught about history and science from a Eurocentric/Western point of view. It is important to discuss global points of view and understand the commonalities between people across the globe. By discussing the different views and interpretations of the skies students can see that there are different ways of looking at things, and that people all over the world have wondered about the cosmos throughout history. The students should also become aware that their culture influenced their own point of view and that although they are often taught history and science from a specific point of view, there are many other points of view that could be worth considering.

**What is the teacher doing?**
Lead the students in a discussion about the broader impacts of what they’ve done in this lesson. See possible discussion questions and answers below.

**What are the students doing?**
Make connections about the different stories they learned in this lesson and the different peoples they heard about. Consider the influence of point of view in what they learn and how they understand the world around them.

**Evaluate: 5 Minutes**

The students can be evaluated on their retelling of the story and page of the Society Handout that they read as well as their participation in the discussion.

**Required/Recommended Reading and Resources**

**Required Resources:**
- Myths Handout (see Supplemental Materials)
- Societies Handout (see Supplemental Materials)

**Recommended Resources:**
- Dr. Jarita Holbrook is an African American filmmaker, astrophysicist, and author who has written extensively on African astronomy. She has produced films on African Americans in physics. For more information, visit her website at [http://jaritaholbrook.com/](http://jaritaholbrook.com/).

**Discussion Questions**

1. If members of different cultures have different ways of identifying and understanding the stars, do you think that members of different cultures have different ways of understanding other things about the world?
Answer: Yes. Other cultures might have different ways of understanding how our bodies work, how the universe was made, where we come from, how plants grow, etc.

2. **Do you think your culture has an influence on your point of view? What point of view do you think you are often taught? Do you think there are other points of view that might be worth considering?**

Answer: Yes, our culture will affect how we understand the world around us. We are often taught from a western/European point of view. It could be valuable to learn about how other people understand the world, to both increase our understanding of the world and of other people.

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**Further Reading and Additional Resources**

To further explore other culture’s constellations or the cultures of the peoples mentioned in this lesson plan, please consult the following resources:

- **Heifetz, M. D., & Tirion, W. (2012). *A walk through the southern sky: A guide to stars, constellations and their legends*. Cambridge: Cambridge University Press. This book is about the stars and constellations of the southern hemisphere. It retells the myths and legends associated with many of the southern sky constellations.**

To learn more about the Ju/Wasi people specifically:

- **The Old Way: A Story of the First People by Elizabeth Marshall Thomas (Book, sections available for free through google books)**
- **The Tale of the Bushmen, Directed by Pierre Mann (Documentary, available for free on cultureunplugged.com)**

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**Extensions**

Related AIP Teacher’s Guides on Women and Minorities in the Physical Sciences:

- “Follow the Drinking Gourd: Astronomy and the Underground Railroad”

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**Common Core Standards**


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<th>Reading: Literature</th>
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<tr>
<td>CCSS.ELA-LITERACY.RL.6.2</td>
<td>Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.</td>
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<tr>
<td>CCSS.ELA-LITERACY.RL.6.9</td>
<td>Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.</td>
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<tr>
<td><strong>CCSS.ELA-LITERACY.RL.7.2</strong></td>
<td>Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text.</td>
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<tr>
<td><strong>CCSS.ELA-LITERACY.RL.7.9</strong></td>
<td>Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.</td>
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<tr>
<td><strong>CCSS.ELA-LITERACY.RL.8.2</strong></td>
<td>Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.</td>
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**History/Social Studies**

| **CCSS.ELA-LITERACY.RH.6-8.7** | Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts. |

**Speaking & Listening**

| **CCSS.ELA-LITERACY.SL.6.1** | Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others’ ideas and expressing their own clearly. |
| **CCSS.ELA-LITERACY.SL.7.1** | Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others’ ideas and expressing their own clearly. |
| **CCSS.ELA-LITERACY.SL.8.1** | Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others’ ideas and expressing their own clearly. |

**Next Generation Science Standards**


| **Dimension One: Practices** | 1. Asking questions (for science) and defining problems (for engineering) |
| **Dimension Two: Crosscutting Concepts** | 1. Patterns |
| | 2. Scale, proportion, and quantity |
| | 3. Systems and system models |
| **Dimension Three: Disciplinary Core Ideas** | Core Idea ESS1: Earth’s Place in the Universe |
| | Core Idea ETS2: Links Among Engineering, Technology, Science, and Society |