

Two-Eyed Seeing: Constellations Project

In this project, you will:

- Research a grouping of stars from two different cultural perspectives
- Analyze the stories behind the constellation, scientific knowledge and significance associated with those particular constellations
- Research the temp, age and life stage of a star in your particular grouping
- Create your own constellation and myth for a grouping of stars
- Write a poem that ties all three stories (Navajo, Greek and your own) together.



Figure 1-Starry Nights closeup of Ursa Major

Background:

A *constellation* is a group of stars that appear to form a pattern or picture in the sky. Humans have used constellations for millenia to map out the sky for navigation, agriculture, hunting etc. While there appear to be many stars in the sky (too many to count!), there are really only about 6,500 stars visible, and roughly half of these are seen at any one time above the horizon of the observer. It would be impossible to name and remember all of these stars, so the early observers took bright stars that they could see with a naked-eye, and broke them into useful smaller groups called constellations. Different cultures have identified their own constellations, each with their own story and their own cultural and scientific significance.

Greek: When most of us learn about astronomy today, we study the 48 constellations recognized by the International Astronomical Union (IAU). These 48 constellations are all Greek constellations (Orion, Scorpius, Aries, Pegasus etc.). Greek constellation stories are often about water, navigation, violence, love and life lessons. The ancient Greeks were a seafaring people, surrounded by many islands, and the importance of water and navigation is seen in their constellation stories.



Figure 2-Facing North, screen shot from Starry Nights

Navajo Constellations: Navajo constellation stories have been passed down for generations through oral communication. These stories can provide principles and values for living. They can also represent family relationships, stages of life and relationships and interactions between humans and animals and nature. Constellations can also provide guidance in agricultural planting, hunting and animal life processes.

In this project, you're going to practice **"Two-Eyed Seeing"**, which is *learning to see from one eye with the strengths of Indigenous knowledges (in this case, Navajo), and from the other eye with the strengths of Western knowledges (in this case, Greek), and to use both these eyes for the benefit of all.*



Figure 3-painting by Bainbrid 2000, copyright N. Maryboy

Credit:

Maryboy and Begay, 2005. *Sharing the Skies*, Indigenous Education Institute

BEFORE YOU START: Go to [Figures in the Sky](#) and explore how different cultures viewed the stars around the red supergiant, Betelgeuse (Greeks called this constellation “Orion”). As you click on different cultures, think about the stories that might be behind each constellation.

Here’s how to start this project:

1. **Watch:** [The Zodiac Constellations](#)
2. **Listen to:** [Relearning The Star Stories Of Indigenous Peoples](#)
3. **Watch videos and examine the links below** to explore Greek and Navajo star maps and stories. Take your time with this one!
4. **Select ONE Navajo constellation** - this will be your “grouping of stars.” Research this constellation!
5. **Answer the questions** about your Navajo constellation below in this doc. (titled, “All about your Navajo Constellation”)
6. **Examine star maps** to figure out what the Greek constellation for your grouping of stars is. Research the myths behind this Greek constellation!
7. **Answer the questions** about the corresponding Greek constellation below (titled, “All about your Greek Constellation.”)
8. **Answer the questions** about the stars (temp, age, life stage etc.) that make up your grouping of stars.
9. **Create/draw your own constellation** out of your grouping of stars
10. **Write a myth** to accompany your constellation
11. **Write a poem** to connect the Indigenous story, the Greek story and your story together.

NAVAJO CONSTELLATIONS:

Map: [Navajo Constellations](#)

Stories: [Navajo Constellation Stories](#), [Story of the Stars | NASA + Navajo Nation](#) and [Northern Sky Star Lore of the Navajo People](#), [Comparison of Greek and Navajo Constellations](#)

GREEK CONSTELLATIONS:

Map: [Northern Constellations](#)

Stories (and brightest stars): [List of the Constellations](#), [Myths of the Greek Constellations](#)

What will you need to turn in?

This google doc with all questions answered. That’s it!

Let me know if you have any questions. Have fun!!!

All about your Navajo Constellation

1. What is the name of the constellation?
2. Describe the constellation (what is it a picture of?).
3. What is the story/myth behind the constellation?
4. What is/was the importance of this constellation to the Navajo culture?
5. Is there a scientific significance to the constellation? Did it signify the start/end of a natural phenomena? Was it used for navigation purposes? What was its importance?

All about your Greek Constellation

1. What is the name of the Greek constellation that corresponds with your Navajo constellation?
2. Describe the Greek constellation (what is it a picture of?)
3. What is the story/myth behind the Greek constellation?
4. Is there a scientific significance to the constellation? Did it signify the start/end of a natural phenomena? Was it used for navigation purposes? What was its importance?
5. What is/was the importance of this constellation to the Greek culture?
6. How is the Greek constellation similar to the Navajo constellation? How is it different? Explain your reasoning with specific evidence from your research.

All about the Stars in your Constellation

1. How many stars make up your grouping of stars?
 2. What is the name of the brightest star in the grouping?
 - a. What type of star is the brightest star (red giant, sun-like star, blue giant etc.)
 - b. How far away is the brightest star (given in light yrs)?
 - c. What color is this star?
 - d. What's this star's temperature (given in Kelvin)?
 - e. What is the life expectancy of this star?
 3. Are there any other notable stars in the grouping?
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Draw your own Constellation

*Using the same grouping of stars you've been researching, **draw your own constellation**. You can either use a drawing program on the computer, or take a picture of a drawing and paste it in here.

Write a Myth about your Constellation

***Write a short myth** to accompany the constellation you just created.

Write a Poem

*The final piece of this project is the most important. I want you to **write a poem** that ties together the **Navajo story, Greek story and your own story** about that particular grouping of stars. Incorporate some of your research about the brightest star in the group too.

