Eagles in the Night Sky
Birds in Astronomy and Myth

Overview of Lesson – In this lesson, students will learn how to identify a few bird-related constellations and the stories behind them. Many cultures use the stars to help them tell stories or pass history down through generations. One example is how Aquila the Eagle came to soar eternally according to Greek mythology.

Minnesota Standards
Science
3.3.3.2.2 - Recognize that the Earth is one of several planets that orbit the sun, and that the moon orbits the Earth.
8.3.3.1.1 - Recognize that the sun is a medium sized star, one of billions of stars in the Milky Way galaxy, and the closest star to Earth.

<table>
<thead>
<tr>
<th>Time Needed</th>
<th>45 minutes to 1 hour</th>
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<tbody>
<tr>
<td>Ages</td>
<td>3rd to 8th grade</td>
</tr>
<tr>
<td>Season</td>
<td>Any</td>
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<tr>
<td>Materials</td>
<td>scissors, pencil, stapler, star gazer worksheets and night sky worksheet</td>
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<td>Optional Materials</td>
<td>Smartboard, Stellarium open source software</td>
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Lesson Outline
- Introduction to the night sky (10 min)
- Build your own star gazer (15 min)
- Using your star gazer (15 min)
- Make your own constellation (10 min)
- Conclusion (5 min)
**Background Information:**

Our solar system is comprised of the sun, 8 planets, moons, asteroids and comets. The sun is a medium sized star and the only star in our solar system. There are millions and millions of stars in the universe. When looking up in the sky, many people throughout history have connected the stars to create images. Today there are 88 recognized constellations, nine of which are bird images. Many constellations are remembered by the image we see and the stories associated with them.

Below are the stories from Greek mythology of the bird constellations Aquila (eagle), Corvus (crow) and Cygnus (swan).

**Aquila constellation:** It is believed that this constellation represents the eagle or bird that delivered the Greek god Zeus’ thunderbolts. Zeus was so pleased with the eagle’s service that he placed the bird in the skies to soar eternally.

**Corvus constellation:** Apollo sent the crow to get some pure water. Along the way, the crow stopped to eat some figs but they weren’t very ripe so he waited for them to ripen. The crow returned with a water snake and claimed the snake was the reason for the delay. Apollo knew the crow was lying and was angry. Apollo placed the crow in the sky as a constellation to warn others about the consequences of lying.

**Cygnus constellation:** Cygnus and his brother Phaëthon were travelling. Phaëthon died when he fell out of the chariot of the Sun and into the river below. Cygnus repeatedly dove in search of his brother Phaëthon to save him. In mercy, the gods transformed him into a swan and placed him in the sky as a reminder to all about the importance of family connections.

**Vocabulary**

- **Astronomy** - the branch of science that deals with celestial objects, space, and the physical universe as a whole
- **Astronomer** – a person who studies space and celestial objects
- **Constellation** - a group of stars forming a recognizable pattern that is traditionally named by its shape or identified with a mythological figure; modern astronomers divide the sky into eighty-eight constellations with defined boundaries

**Prior to teaching:** Make copies of the worksheets for all the students. Each student will be able to build their own stargazer (comprised of Star Wheel and Star Wheel holder).

Each student can also make their own constellation on a worksheet.
Lesson outline:
Introduction to the Night Sky and Aquila Constellation (10 minutes)

Ask the students if they have ever looked at the stars when they are out at night. Were they able to see any shapes or objects in the sky? Do they know any stars or names of constellations? What would people use the night sky for?

Using the smart board, show students the drawing of the Aquila constellation (found at the end of this lesson) and talk about how the constellation got its name in Greek mythology. Many cultures have stories around the objects they see in the sky.

Today the students will get to be astronomers and study the night sky as they learn how to identify some constellations.

I. Build Your Own Stargazer (15 minutes)

Hand out the star wheel/star wheel holder worksheets to each student. Students should cut out the circle of constellations (Star Wheel). For the Star Wheel Holder, the students will cut the Holder out of the page, and cut out the white oval in the middle (so constellations on Star Wheel can be seen in this space).

To assemble the stargazer, have the students fold the white rectangle on the sleeve so that it is underneath the side with the print to create a pocket. Next, students staple on the lines toward the bottom of the sleeve. Place the Star Wheel constellations circle students cut out earlier in the prepared sleeve.

Once the stargazer is assembled, students should clean their workstations.

II. Using the Stargazer (15 minutes)

To use the star wheel, line up the date and time you want to observe. Next position the star wheel in your hand so that the direction (written in yellow on the star wheel) matches the direction you are facing. At this point, the constellations on your star wheel should match the constellations you see in the sky.

Students can practice using the stargazer. If you have downloaded the stellarium software (available for free at http://stellarium.org/), pull up the night sky in for your location. The students can the match what they see on the smartboard with the stargazer in their hand. This could also be a take home activity, where students could practice using the stargazer in the evening, weather permitting.
III. Make your own constellation (10 minutes)

Give each student a constellation worksheet. The students have been introduced to some constellation today, now it is their turn to create. Have the students connect some dots (“stars”) to create their own constellation. Each student should name their constellation creation.

IV. Conclusions (5 minutes)

Have the students share their drawings with the entire class or in small groups. Answer any remaining questions that the students have.

Extensions:

• The activity can be extended depending on the age of the student and time available. Have the students write their own story about the constellation they created and how it got its name.
• Break the class into small groups. Have each group research a constellation story and share with the rest of the class.

Resources:

• Star Gazer from NASA: http://kepler.nasa.gov/education/starwheel/
• Constellation Legends – stories of common constellations developed by the Tulare County Office of Education. http://www.tcoe.org/scicon/instructionalguide/constellations.pdf
• Stellarium – open source software available at: http://stellarium.org/
• Greek mythology and constellations http://www.wwu.edu/skywise/greekmyth.html
Constellation – Aquila (the Eagle)
CONNECT SOME STARS BELOW TO DESIGN YOUR OWN CONSTELLATION

Your Name:_____________________________________________

Constellation Name: ____________________________________