

## **SENIOR: SKY**

Hey Girl Scout! The sky is a masterpiece. Have you ever watched a sunset or sunrise? With this badge you will delve deep into the science of the skies and help clear sky pollution. When you have earned this badge, you'll understand the sky - from science to stars to stories.

### **Step 1: Watch the skies.**

1. The best way to see the night sky is through a telescope. Learn the parts of a telescope and how to use one. If possible look through the telescope with different magnifications.
2. Focus on the night sky. Identify at least 10 constellations and 8 noticeable stars. Learn how to find the North Star from the big dipper and, then, how to use the North Star to find the north.
3. Research how the North Star has been used for navigation throughout history.

Supplies:

1. Paper
2. Pens
3. Computer
4. Telescope (optional)

### **Step 2: Investigate the science of the skies.**

1. Now that you have spent time with the sky it is time to understand it on a more scientific level. Find out the basics about the sky, its atmosphere, planets, and weather.
2. Label a "Map of the Sky." Chart the layers in the Earth atmosphere, the mixture of gases and other materials that surround us. Start with Earth's lowest layer. Think about these questions. What are the properties of each layer? What do they provide us? Which layers reflect radio waves. allowing radio signals to be sent around the Earth?
3. Take time to learn about Maria Mitchell. Discover what she did for astronomy and women.

Supplies:

1. Paper
2. Pens
3. Computer

### **Step 3: Explore the connections between people and flight.**

1. Humans have wished to fly since the beginning of time. Prehistoric cave drawings depict winged men. In the 1500s, artist Leonardo de Vinci drew an ornithopter, an aircraft with wings designed to flap like a bird's
2. Build a model plane, rocket, or space exploration vehicle. Get a kit or use whatever you have around. Explain the scientific principle that governs your design. Invite family members or other members of your troop to construct a model and have an exhibit of all of the planes.

Supplies:

1. Model kit

2. Household supplies
3. Computer

**Step 4: Help clear sky pollution.**

1. It is time to take a look at the pollution in our skies and on other planets and find out what you can do to help.
2. Explore light pollution. Find out if your community or state has laws regulating industrial lighting. Look into the causes and effects of light pollution. Consider the composition of the sun, its relationship to other stars, and its effect on Earth. Explore sunspots and describe the effects they have on solar radiation, or the way pollution affects astronomy.
3. When your research is done, share your recommendations for the five most effective things people can do to help with light pollution.

Supplies:

1. Computer
2. Paper
3. Pens

**Step 5: Create sky art.**

1. Now that you have all this new knowledge about the sky, use your inspiration to make some art.
2. Your sky art can be a scale mobile of planets, a sky or constellation mural or map, or a series of photographs showing the changing sky throughout the day. Create something that will celebrate the wonders of the sky and share it in a presentation, exhibit, or tour.
3. Explore art that celebrates the sky.