Tiger Elective Adventure- Sky is the Limit

OVERVIEW: The sky is always up there, and it's always worth a look at night. The sun isn't down until around 8:30 in the summer, but once it gets dark out, you can always find cool things to wonder about up in the sky. Once you learn a few stars or constellations, you'll always look smart and cool when you show them to others. Plus, you'll want to learn more.

Supplies Needed

- Access to the internet using a computer, tablet, or smart phone.
- A telescope or binoculars.
- Pencil and paper.
- An empty tin can.
- Hammer and nail.
- Flashlight.

Adventure Requirements

Do all the following:

1. With your den or with your parent, guardian, or other caring adult, go outside to observe the night sky. Talk about objects you see or might see.
2. Look at a distant object through a telescope or binoculars. Show how to focus the device you chose.
3. Find out about two astronauts who were Scouts when they were younger. Share what you learned with your den.

Do ONE of the following:

4. Observe in the night sky or select from a book, chart, computer, or electronic device two constellations that are easy to see in the night sky. With your parent, guardian, or other caring adult, find out the names of the stars that make up the constellation and how the constellation got its name. Share what you found with your den.
5. Draw and name your own constellation. Share your constellation with your den.
6. Create a homemade model of a constellation.
7. Find out about two different jobs related to astronomy. Share this information with your den.
8. With your den or family, visit a planetarium, observatory, science museum, astronomy club, or college or high school astronomy teacher. Before you go, write down questions you might want to ask. Share what you learned.

Suggested Teaching Approaches (notes for den leaders, parents or helpful adults)

Topic	Teaching Approach
1. Observe the night sky.	Telescopes are great, but you can also check out the night sky with a great piece of technology called "your own eyes". In cities it's sometimes hard to see too much, but the moon is always easy, and sometimes planets like Venus really show up on a clear night. Look to the north and try to find Polaris- the North Star. It's not as bright as Venus, but on clear nights, you can see it. It's at the tail end of a constellation better known as the little dipper. You can check star charts like the In-The-Sky Star Wheel, https://in-the-sky.org/skymap2.php. They will show you what stars are above you at any given time and place. There are also free phone apps that show you everything in the sky, even if you cannot see it. You can just focus your phone's camera on a specific star or planet, and the app tells you its name. I use SkyView Lite.
2. Look through and focus a telescope or binoculars.	Telescopes and binoculars are great tools that are easy to use. Make sure when focusing to start by looking at something not too far away. Make all your adjustments slowly, and start with the eyepiece(s). And never try to look at the sun!!
3. Learn about 2 astronauts who were scouts.	This website gives a very thorough look at all astronauts that were involved in any scouting programs. Note especially Neil Armstrong (Eagle Scout) and Buzz Aldrin (Tenderfoot), the first two people to walk on the moon. http://www.usscouts.org/eagle/eagleastronauts.asp
4. Observe 2 constellations and learn about them.	Online star maps like the In-The-Sky Star Wheel above (https://in-the-sky.org/skymap2.phpare great) for knowing what is above you right now. You can do lots of research on the individual stars in each constellation online as well. Finally, look up the mythological stories behind the constellations names and origins. It's fun to see how much imagination goes into studying the sky. This is another great website that shows all the stars in the constellations and gives some other info, too. http://www.seasky.org/constellations/constellations.html
5. Create and draw your own constellation.	This is your chance to be totally creative. Start with an image in your mind. Draw it. Now mark specific parts of the image with stars. Then copy just the stars onto another piece of paper. It's OK if the finished constellation doesn't look exactly like the image in your mind. The real constellations don't look exactly like their names either.

6. Make a model of a constellation.	You'll need a flashlight, hammer and nail, plus an empty tin can for this one. On the bottom of the can draw dots for the stars of a constellation. Use a real one, or use the one you just invented. Then, use the hammer and nail to poke small holes where each dot (star) is. If you go into a dark room and shine your flashlight into the can, your constellation will light up and you can project it onto the wall!
7. Find out about 2 jobs related to astronomy.	Google any of the following: astronomer, astrophysicist, astronaut… and those are just the ones that start with "astro". Look up what engineers and other scientists do. They all can work on projects related to space. Not everyone who studies the stars has to actually travel to them. As part of your research, look up what kind of schooling is necessary for those jobs, too.
8. Visit a place related to astronomy.	Obviously, this shouldn't be done during a time of quarantine or when there are risks to health. However, there are many places you can visit virtually. This is a link to several museums you can tour online, including NASA research centers. The other museums- though not space related- are worth a look, too. https://www.smithsonianmag.com/smart-news/ten-museums-you-can-virtually-visit-180974443/