



Use this tracking tool for the Astronomy Merit Badge / STEM Exploration during Cyber Summer Camp

SCOUT / VENTURER NAME: _____

Activity	Campground Area	Completed?
Explain the most likely hazards you may encounter while participating in astronomy activities, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.	Dark Side of the Moon Astronomy	<input type="checkbox"/>
Explain first aid for injuries or illnesses such as heat and cold reactions, dehydration, bites and stings, and damage to your eyes that could occur during observation	Dark Side of the Moon Astronomy	<input type="checkbox"/>
Describe the proper clothing and other precautions for safely making observations at night and in cold weather. Then explain how to safely observe the Sun, objects near the Sun, and the Moon.	Dark Side of the Moon Astronomy	<input type="checkbox"/>
Explain what light pollution is and how it and air pollution affect astronomy.	Launch Pad Astronomy	<input type="checkbox"/>
Explain why binoculars and telescopes are important astronomical tools. Demonstrate or explain how these tools are used.	Launch Pad Astronomy	<input type="checkbox"/>
Describe the similarities and differences of several types of astronomical telescopes, including at least one that observes light beyond the visible part of the spectrum (i.e., radio, X-ray, ultraviolet, or infrared).	Launch Pad Astronomy	<input type="checkbox"/>
Explain the purposes of at least three instruments used with astronomical telescopes	Launch Pad Astronomy	<input type="checkbox"/>
Describe the proper care and storage of telescopes and binoculars both at home and in the field	Launch Pad Astronomy	<input type="checkbox"/>
Identify in the sky at least 10 constellations, at least four of which are in the zodiac.	Dark Side of the Moon Astronomy	<input type="checkbox"/>

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Identify in the sky at least eight conspicuous stars, five of which are of magnitude 1 or brighter.	Dark Side of the Moon <i>Astronomy</i>	<input type="checkbox"/>
Make two sketches of the Big Dipper. In one sketch, show the Big Dipper's orientation in the early evening sky. In another sketch, show its position several hours later. In both sketches, show the North Star and the horizon. Record the date and time each sketch was made.	Dark Side of the Moon <i>Astronomy</i>	<input type="checkbox"/>
Explain what we see when we look at the Milky Way	Launch Pad <i>Astronomy</i>	<input type="checkbox"/>
List the names of the five most visible planets. Explain which ones can appear in phases similar to lunar phases and which ones cannot, and explain why.	Launch Pad <i>Astronomy</i>	<input type="checkbox"/>
Using the internet and other resources, find out when each of the five most visible planets that you identified above will be observable in the evening sky during the next 12 months, then compile this information in the form of a chart or table.	Launch Pad <i>Astronomy</i>	<input type="checkbox"/>
Describe the motion of the planets across the sky.	Launch Pad <i>Astronomy</i>	<input type="checkbox"/>
Observe a planet and describe what you saw.	Dark Side of the Moon <i>Astronomy</i>	<input type="checkbox"/>
Sketch the face of the Moon and indicate at least five seas and five craters. Label these landmarks.	Dark Side of the Moon <i>Astronomy</i>	<input type="checkbox"/>
Sketch the phase and position of the Moon, at the same hour and place, for four nights within a one-week period. Include landmarks on the horizon such as hills, trees, and buildings. Explain the changes you observe.	Dark Side of the Moon <i>Astronomy</i>	<input type="checkbox"/>
List the factors that keep the Moon in orbit around Earth.	Launch Pad <i>Astronomy</i>	<input type="checkbox"/>



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With the aid of diagrams, explain the relative positions of the Sun, Earth, and the Moon at the times of lunar and solar eclipses, and at the times of new, first-quarter, full, and last-quarter phases of the Moon.	The Lab <i>Astronomy</i>	<input type="checkbox"/>
Describe the composition of the Sun, its relationship to other stars, and some effects of its radiation on Earth's weather and communications.	Launch Pad <i>Astronomy</i>	<input type="checkbox"/>
Define sunspots and describe some of the effects they may have on solar radiation.	Launch Pad <i>Astronomy</i>	<input type="checkbox"/>
Identify at least one red star, one blue star, and one yellow star (other than the Sun). Explain the meaning of these colors.	Launch Pad <i>Astronomy</i>	<input type="checkbox"/>
Plan and participate in a three-hour observation session that includes using binoculars or a telescope. List the celestial objects you want to observe, and find each on a star chart or in a guidebook. If you cannot complete this, see below for other options to replace this one:	Dark Side of the Moon <i>Astronomy</i>	<input type="checkbox"/>
<ul style="list-style-type: none"> Visit a planetarium or astronomical observatory. Submit a written report, a scrapbook, or a video presentation that includes the following information: Activities occurring there, Exhibits and displays you saw, Telescopes and other instruments being used, Celestial objects you observed 	On own	<input type="checkbox"/>
<ul style="list-style-type: none"> Plan and host a star party for your Scout troop or another group. Use binoculars or a telescope to show and explain celestial objects to the group. 	On own	<input type="checkbox"/>
<ul style="list-style-type: none"> Personally take a series of photographs or digital images of the movement of the Moon, a planet, an asteroid, meteor, or a comet. In your visual display, label each image and include the date and time it was taken. Show all positions on a star chart or map. Show your display at school or at a troop meeting. Explain the changes you observed. 	On own	<input type="checkbox"/>
Find out about three career opportunities in astronomy. Pick one and find out the education, training, and experience required for this profession. Explain why this profession might interest you.	Launch Pad <i>Career Exploration</i>	<input type="checkbox"/>
Meet with an Astronomy Counselor	Zoom Meeting or on own*	<input type="checkbox"/>

*Scouts are encouraged to find a local merit badge and Nova counselor to fulfill the requirements of meeting with a counselor. However, we recognize that may be a challenge, so we are offering virtual counseling sessions for all Scouts who cannot find a local merit badge or Nova counselor.