



## **Boy Scout Badge Requirement Activities**

The Challenger Center can help Boy Scouts fulfill any of the badge requirements listed below. Please note that not all the requirements for either badge can be completed during one overnight.

### **Space Exploration:**

1. Purpose of space exploration (historical, immediate goals, benefits)
2. Design a collector's card about your favorite space pioneer
3. Identify and explain rocket parts\*
4. Discuss and demonstrate the law of action-reaction, how rocket engines work, how satellites stay in orbit, how satellite pictures are made and transmitted
5. Discuss manned and unmanned space exploration missions
6. Describe the purpose and operation of the Space Shuttle and International Space Station (ISS)
7. Design an inhabited base on the Moon or Mars
8. Discuss possible careers in space exploration

\* = If a troop wants to build a rocket as part of the mission activities a request must be made at least six weeks prior to the scheduled overnight. An additional fee of \$8.00 per scout will be added to the cost of the mission to cover materials and supplies.



**Astronomy:**

1. Describe the proper clothing and other precautions for safely making observations at night and in cold weather. Tell how to safely observe the Sun, objects near the Sun, and the Moon
2. Explain what light pollution is and how it and air pollution affect astronomy
3. With the aid of diagrams (or real telescopes if available), explain why binoculars and telescopes are important astronomical tools, and describe the similarities and differences of several types of astronomical telescopes
4. Identify in the sky at least 10 constellations, at least four of which are in the zodiac
5. List the names of the five most visible planets, and find out when each of the five most visible planets will be observable in the evening sky during the next 12 months
6. List the factors that keep the Moon in orbit around Earth, and 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
8. Describe the composition of the Sun, its relationship to other stars, effects of its radiation on Earth's weather, and sunspots and their effects on solar radiation
9. Visit a planetarium or astronomical observatory
10. Discuss three different career opportunities in astronomy