

SPACE EXPLORATION MERIT BADGE



Welcome to the Home Page for Space Exploration. This Web site provides you with all the information you need to complete the Boy Scout Space Exploration Merit Badge, along with links to more information that is either useful or way fun.

On this page you will find the requirements for the merit badge, listed below. For each requirement there are links to my pages, or NASA's pages or others, that provide you with the information you need to complete the requirement.

This merit badge is too cool for words. Launching your own rocket, one that you built yourself, is so much fun you may become addicted. There is a lot of research to do - and the more you learn the more interesting it gets. This web site will make it much easier to get started, and once you're started you won't want to stop.

Enough talk. Buckle in and let's go!



LAUNCH

INTO REQUIREMENTS



Merit Badge Requirements

Updated for the 2005 requirements!

1. Tell the purpose of space exploration and include the following:
 - a. Historical reason
 - b. Immediate goals in terms of specific knowledge
 - c. Benefits related to Earth resources, technology, and new products
 - Go To [Reasons for Space Exploration](#)
2. Design a collector's card, with a picture on the front and information on the back, about your favorite space pioneer. Share your card and discuss four other space pioneers with your counselor.

NEW! Go To [Pioneers of Space Travel](#)

● Go To [History of Space Exploration](#)

● Go To [Time Line of Space Exploration](#)

● Go To [NASA History Page for Human Space Flight](#)

3. Build, launch, and recover a model rocket. Make a second launch to accomplish a specific objective. (Rocket must be built to meet the safety code of the National Association of Rocketry.) Identify and explain the following rocket parts.

- a. Body tube
- b. Engine mount
- c. Fins
- d. Igniter
- e. Launch lug
- f. Nose cone
- g. Payload
- h. Recovery system
- i. Rocket Engine

● Go To [The Flight of the Rocket](#)

● Go To [Model Rocket Assembly](#)

● Go To [National Association of Rocketry: Model & High Power Rocketry](#)

● Go To [NAR -- Model Rocket Safety Code](#)

● Go To [Altitude Estimation](#)

● Go To [Rocket Launch Checklists](#)

● Go To [Glossary of Model Rocketry](#)

4. Discuss and demonstrate each of the following:

- a. The law of action-reaction
- b. How rocket engines work
- c. How satellites stay in orbit
- d. How satellite pictures of the Earth and pictures of other planets are made and transmitted

● Go To [Newton's Laws](#)

● Go To [Rocket Propulsion](#)

● Go To [How Orbits Work](#)

● Go To [How Fast Is Fast?](#)

● Go To [Satellite Pictures](#)

5. Do TWO of the following:

- a. Discuss with your counselor an unmanned space exploration mission and an early manned mission. Tell about each mission's major discoveries, its importance, and what we learned from it about the planets, moons, or regions of space explored.
- b. Using magazine photographs, news clippings, and electronic articles (such as from the Internet), make a scrapbook about a current planetary mission.
- c. Design an unmanned mission to another planet or moon that will return samples of its surface to Earth. Name the planet or moon your spacecraft will visit. Show how your design will cope with the conditions of the planet's or moon's environment.

● Go To [JPL Missions](#) unmanned Missions reference

- Go To [NASA History Page for Human Space Flight](#)
- Go To [The Project Apollo Archive](#) reference on the Apollo moon missions
- Go To [Views of the Solar System](#)
- Go To [How to Design Your Spacecraft](#)

6. Describe the purpose and operation of ONE of the following:
- a. Space Shuttle
 - b. International Space Station

- Go To [Space Shuttle](#)
- Go To [Shuttle Flights to Date](#)
- Go To [International Space Station Diagrams](#)
- Go To [NASA's International Space Station Home Page](#)

7. Design an inhabited base on the Moon or Mars. Make drawings or a model of your base. In your design, consider and plan for the following:
- a. Source of energy
 - b. How it will be constructed
 - c. Life-support system
 - d. Purpose and function

- Go To [How to Design Your Spacecraft](#)
- Go To [NASA's Vision for Space Exploration](#) for plans for lunar bases.
- Go To [The Case for Mars](#) to find plans for Martian bases.

8. Discuss with your counselor two possible careers in space exploration that interest you. Find out the qualifications, education, and preparation required and discuss the major responsibilities of those positions.

- Go To [NASA Careers](#)



Questions

Your questions and comments regarding this page are welcome. You can e-mail [Randy Culp](#) for inquiries, suggestions, new ideas or just to chat.

And -- hey! -- we gotta be careful out there. With all the wild viruses flying around, you will need to put more than "Hi!" in the subject line or you will look like a virus. Put something like "Question on Space Exploration" so I know you're

for real.

*Troop 93, Potawatami Council, New Berlin, Wisconsin
Tripoli #6926
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● [About Randy Culp](#)