SPACE EXPLORATION
BYU Merit Badge PowWow
Official Merit Badge Worksheet

Scout's Name **Instructor's Name**

Scout's Address City State Zip

Instructions

1) The Scout is to review the merit badge book before the first week of PowWow.
2) Bring this worksheet, paper, and pencil or pen each week.
3) **Bring a Merit Badge blue card with you on the second week.**

Requirement Instructions*

1) Requirements 1, 2, 4, 6 and 8 should be completed at the first session of the PowWow
2) Requirements 5 and 7 should be completed **as homework** between the two sessions of PowWow.
3**) Build your rocket between the two sessions of PowWow**.
4) Requirement 3 should be completed at the second session of the PowWow

*** Due to possible time constraints at the PowWow, certain requirements that were originally planned to be completed in class may need to be completed as homework. Please LISTEN to ALL INSTRUCTIONS in class to be aware of any changes.**

Requirement 1 Initial

What is the purpose of space exploration?

What are the historical reasons for space exploration?

What are the immediate goals, in terms of specific knowledge, of space exploration?

What are the benefits of space exploration related to Earth resources, technology, and new products?

What affects does space exploration have on international relations and cooperation?

Requirement 2 Initial

Design a collector's card, with a picture on the front and information on the back, about your favorite space pioneer. Share your card with your counselor. Give a brief explanation of the information you included or attach a copy to this page.

Briefly tell about four other space pioneers:

Name: Description:

Name: Description:

Name: Description:

Name: Description:

Requirement 3 **Initial**

(Note: Rockets must be built to meet the safety code of the National Associaten of Rocketry. If local laws prohibit the launching of model rockets, do the following activity: Make a model of a NASA rocket. Explain the functions of the parts. Give the history of the rocket.)

Build, launch, and recover a model rocket. Briefly describe your model, how you built it, the launch, and recovery:

Make a second launch to accomplish a specific objective. What was your objective and how did the launch result?

Demonstrate to your counselor that you can identify the following rocket parts. Give an explanation of each part:

Body Tube:

Engine Mount:

Fins:

Igniter:

Launch Lug:

Nose Cone:

Payload:

Recovery System:

Rocket Engine:

Requirement 4 **Initial**

What is the law of action-reaction?

Describe how rocket engines work:

Describe how satellites stay in orbit:

Describe how satellite pictures of Earth and pictures of other planets are made and transmitted:

Demonstrate each of the following:

Law of action-reaction

How rocket engines work

How satellites stay in orbit

How satellite photos are taken and transmitted

Requirement 5 **Initial**

You have been given three options to complete this requirement. Select and complete TWO of them.

Option 1:

Tell about an unmanned space exploration mission and it's major discoveries:

Tell about this mission's importance and what we learned from it about the planets, moons, or regions of space explored:

Tell about an early manned space exploration mission and it's major discoveries:

Tell about this mission's importance and what we learned from it about the planets, moons, or regions of space explored:

Option 2:

Using magazine photographs, news clippings, and electronic articles (such as from the Internet), make a scrapbook about a current planetary mission. Describe what you learned:

Option 3:

Design an unmanned mission to another planet or moon that will return samples of its surface to Earth. Draw your spacecraft on another piece of paper and attach it to this worksheet. Answer the questions below about your design:

What planet or moon will your spacecraft visit?

Describe how your design will cope with the conditions of the planet's or moon's environment?

Requirement 6 **Initial**

Describe the purpose and operation of ONE of the following: *Space shuttle* or *International Space Station* (Circle one)

Requirement 7 **Initial**

Design an inhabited base located within our solar system, such as Titan, asteroids, or other locations that humans might want to explore in person. You may either make drawings or build a model of your base.

What will be your base's source of energy?

How will your base be constructed?

Describe the life-support system your base will have:

What will be the purpose and function of your base?

Complete your drawings or your model of your base and show them to your counselor.

Requirement 8 **Initial**

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

Occupation: Description:

Qualifications, education, and preparation required:

Major responsibilities:

Occupation: Description:

Qualifications, education, and preparation required:

Major responsibilities:

Merit badge worksheets will not be accepted at the Council Office in place of the official Merit Badge Application Card. Those who do not complete all the requirements should take their partially completed merit badge worksheet and their official application card to their local merit badge counselors for completion.