

(Please Print) Scout's Name \_\_\_\_\_ Phone \_\_\_\_\_ Class Time \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

**Space Exploration  
 Requirements Sheet  
 Merit Badge Powwow 2009**

The scout is to read the Space Exploration Merit Badge pamphlet before the Powwow (2004 edition or later). Some requirements may take up to 90 days to complete before coming to the Powwow. Read all the requirements below and bring necessary items to guarantee passing off the merit badge on the day of the Powwow. Bring to class paper, pen or pencil, and any other items asked for. Write your name, merit badge and class time (9:00 or 1:00) on **every** paper or project. (If there are any questions pertaining to requirements, the most recent Boy Scout Requirements handbook will always be used).

**Recommended Requirments to complete before Powwow**

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 at the Powwow.
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.

**Completed:**

2 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_  
 8 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

**Requirments that will be passed off at the Powwow**

1. Tell the purpose of space exploration and include the following:
  - a. Historical reasons
  - b. Immediate goals in terms of specific knowledge
  - c. Benefits related to Earth resources, technology, and new products
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. See the "Model Rocketry" chapter of the Space Exploration merit badge pamphlet.) 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

**Completed:**

1 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_  
 3 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_



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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 Earth and pictures of other planets are made and transmitted
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.
6. Describe the purpose, operation, and components of ONE of the following:
  - a. Space shuttle
  - b. International Space Station
7. Design an inhabited base located 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

4 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

5 (1) \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

5 (2) \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

6 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

7 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_



# Space Exploration Test

