

This worksheet is designed to cover the major written portions of the Space Exploration merit badge requirements based on the official pamphlet.

## Space Exploration Merit Badge Written Worksheet

Scout Name: \_\_\_\_\_ Unit: \_\_\_\_\_

### Section 1: Why Explore Space?

1. List four reasons for space exploration.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

2. What is a "spinoff"? Provide three examples of spinoffs from the space program.

- **Definition:** \_\_\_\_\_
- **Example 1:** \_\_\_\_\_
- **Example 2:** \_\_\_\_\_
- **Example 3:** \_\_\_\_\_

### Section 2: The Way Things Work

3. State Newton's Three Laws of Motion and how they apply to rocketry.

- **First Law:** \_\_\_\_\_
- **Second Law ( $F=ma$ ):** \_\_\_\_\_
- **Third Law:** \_\_\_\_\_

4. Explain the following terms:

- **Thrust:** \_\_\_\_\_
- **Orbital Velocity:** \_\_\_\_\_
- **Gimbaling:** \_\_\_\_\_

### Section 3: Model Rocketry & Safety

5. Draw and label five parts of a model rocket.

(Use the back of this sheet if needed)

6. List three safety rules from the Model Rocket Safety Code.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## Section 4: Planetary Exploration

7. Identify a space probe that visited each of the following and one discovery it made:

- **Mars:** Probe \_\_\_\_\_ Discovery \_\_\_\_\_
- **Jupiter:** Probe \_\_\_\_\_ Discovery \_\_\_\_\_
- **Saturn:** Probe \_\_\_\_\_ Discovery \_\_\_\_\_

## Section 5: Space Habitats

8. How do space stations provide these three essentials for life?

- **Breathable Air:** \_\_\_\_\_
- **Drinkable Water:** \_\_\_\_\_
- **Temperature Control:** \_\_\_\_\_

## Section 6: Careers in Space

9. Choose two careers in space exploration and list the education required for each.

- **Career 1:** \_\_\_\_\_ **Education:** \_\_\_\_\_
- **Career 2:** \_\_\_\_\_ **Education:** \_\_\_\_\_