

SPACE EXPLORATION STEM EXPLORATION

Through live interactions with NASA engineers and exploring the Launch Pad and The Lab, complete this worksheet to demonstrate your knowledge of space exploration. This worksheet will not be turned in and for your own use to demonstrate knowledge of space exploration.

PURPOSE OF SPACE EXPLORATION



Explain the purpose of space exploration in each of the following areas:

Benefits related to Earth's resources & technology –

Immediate goals in terms of specific knowledge –

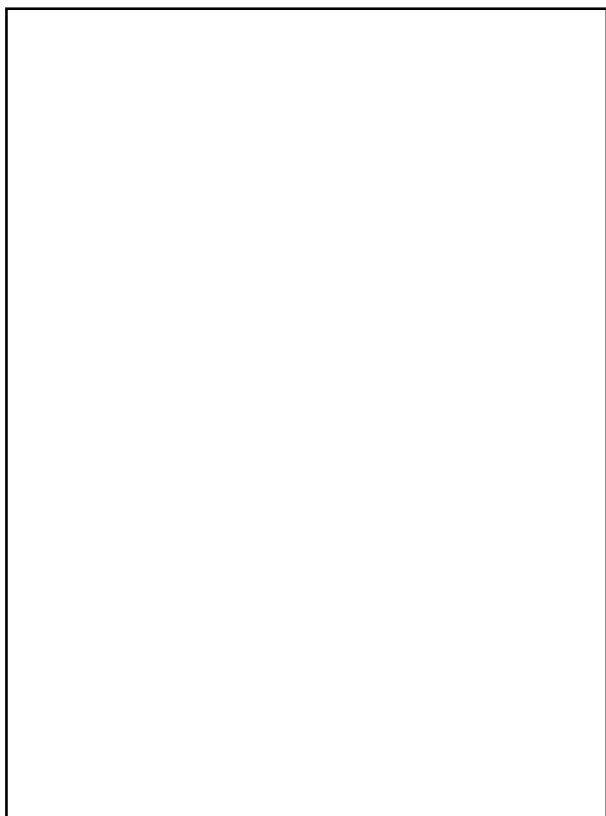
International relations –

Historical reasons –

On the next page, design a collector's card, with a picture on the front and information on the back, about your favorite space pioneer.

SPACE EXPLORATION STEM EXPLORATION (CONTINUED)

F
R
O
N
T



B
A
C
K



List four other space pioneers and what they are known for. Make sure to include this information on your collectors card for your other space pioneer.

Pioneer #1 = _____
Known for = _____

Pioneer #2 = _____
Known for = _____

Pioneer #3 = _____
Known for = _____

Pioneer #4 = _____
Known for = _____

SPACE EXPLORATION STEM EXPLORATION (CONTINUED)



ROCKETS

Draw and label each of the following parts of a rocket your drawing of a rocket. Then define or explain its purpose.

Body Tube = _____

Engine Mount = _____

Fins = _____

Ignitor = _____

Launch Lug = _____

Nose Cone = _____

Payload = _____

Recovery System = _____

Rocket Engine = _____

SPACE EXPLORATION STEM EXPLORATION (CONTINUED)

Explain each of the following:

The law of action-reaction

How rocket engines work

How satellites stay in orbit

How satellite pictures of Earth and pictures of other planets are made and transmitted

Choose **TWO** of the following on the next page(s) to complete requirement 5 for Space Exploration Merit Badge.

1. Learn about a robotic space exploration mission and a historic crewed mission. Tell about each mission's major discoveries, its importance, and what was learned from it about the planets, moons, or regions of space explored.

SPACE EXPLORATION STEM EXPLORATION (CONTINUED)

Robotic Space Exploration Mission

Major discoveries

Importance

What was learned

Historic Crewed Space Exploration Mission

Major discoveries

Importance

What was learned

SPACE EXPLORATION STEM EXPLORATION (CONTINUED)

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

3. Design a robotic mission to another planet, moon, comet, or asteroid that will return samples of its surface to Earth. Make sure to name the planet/moon/asteroid/comet your spacecraft will visit.

How will your design will cope with the conditions of the environments of the planet, moon, comet, or asteroid.

On the next page describe the purpose, operation, and components of ONE of the following:

- Space shuttle or any other crewed orbital vehicle, whether government-owned (U.S. or foreign) or commercial
- International Space Station

SPACE EXPLORATION STEM EXPLORATION (CONTINUED)

1. Space shuttle or any other crewed orbital vehicle, whether government-owned (U.S. or foreign) or commercial

Purpose

Operation

Components

2. International Space Station

Purpose

Operation

Components

SPACE EXPLORATION STEM EXPLORATION (CONTINUED)

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

Explain how will you plan for the following:

Source of energy

How it will be constructed

Life-support system

Purpose and function

SPACE EXPLORATION STEM EXPLORATION (CONTINUED)

CAREERS IN SPACE EXPLORATION

Explore two possible careers in space exploration that interest you.

Career #1 = _____

Qualifications

Education

Preparations

Major Responsibilities

Career #2 = _____

Qualifications

Education

Preparations

Major Responsibilities
