

Apollo Mission Worksheet

Team Names _____

Your team has been assigned Apollo Mission _____ Color for Mission _____

1. Go to google.com/moon and find your mission, click on it and click on the **Zoom-in** feature.
2. Find # 1, this will give you information to answer the questions below.
3. On your moon map, find the location of the mission landing site and locate this site on your map. Choose a symbol and the correct color for your mission (each mission has a specific symbol and you can use this if you like or make up your own). In the legend area, draw your symbol and write the mission number.

4. Now complete the information below: **Use Complete Sentences.**

- Who were the astronauts on the mission?

- When did the mission take place?

- How many days did the mission last?

- Where did the mission land?

- Why did the mission land here?

- What was the goal of the mission?

5. Click on some of the other numbers from your mission on the Google site to find out other areas, activities and information that the astronauts completed.

- Describe at least 2 things that they did on the mission. Use complete sentences. (For example: On our mission the astronauts visited Copernicus crater. They also took samples of moon rocks at Mare Nubium.) Then graph these on your moon map. Include a symbol and put in your legend. Use the same color as your mission site.

6. What was the most surprising or unique thing you learned about the mission? Why did you think this?

7. After completing the worksheet, go to the classroom moon map and graph your mission location on the map (use your symbol and color from the mission and label the mission number on the map).

8. Now add the other missions to your team map from the classroom map. Choose a symbol and use the correct color for each mission and put these on your legend.

9. Describe at least two pattern(s) that you see on the moon landing missions?

10. What are possible reasons to explain each of these patterns?

Answer Keys:

Your team has been assigned Apollo Mission ____ 11 ____

- Who were the astronauts on the mission?

The astronauts were Neil Armstrong, Michael Collins and Edwin “Buzz” Aldrin Jr.

- When did the mission take place?

The mission took place from 7/16/69-7/24/69.

- How many days did the mission last?

The mission lasted 8 days.

- Where did the mission land?

The mission landed on Mare Tranquillitatis.

- Why did the mission land here?

It landed in this location because it allowed for good radio communications and a smooth surface for landing.

- What was the goal of the mission?

The goal of the mission was to take the first steps that would inspire future generations and open space to exploration.

Your team has been assigned Apollo Mission ____ 12 ____ Color for Mission _____

- Who were the astronauts on the mission?

The astronauts were Charles “Pete” Conrad Jr., Richard Gordon and Alan Bean/

- When did the mission take place?

The mission took place from 11/14/69-11/24/69/

- How many days did the mission last?

The mission lasted 10 days.

- Where did the mission land?

The mission landed on Oceanus Procellarum.

- Why did the mission land here?

It landed in this location because it was the location of the Surveyor spacecraft which had landed nearby 31 months earlier.

- What was the goal of the mission?

The main goal of the mission was to collect pieces of Surveyor III spacecraft.

Your team has been assigned Apollo Mission ____14____ Color for Mission _____

5. Now complete the information below: **Use Complete Sentences.**

- Who were the astronauts on the mission?

The astronauts were Alan Shepard, Stuart Roosa, and Edgar Mitchell.

- When did the mission take place?

The mission took place from 1/31/71 to 2/9/71.

- How many days did the mission last?

The mission lasted 10 days.

- Where did the mission land?

The mission landed on Fra Mauro.

- Why did the mission land here?

It landed in this location because of the interest in exploring the impact caused by an enormous collision and to collect samples of the bedrock.

- What was the goal of the mission?

The main goal of the mission was to collect rock samples from this crater and gain a better understanding of the early solar system.

Your team has been assigned Apollo Mission ____15____ Color for Mission _____

- Who were the astronauts on the mission?

The astronauts were David Scott, Alfred Worden and James Irwin.

- When did the mission take place?

The mission took place from 7/26/71 to 8/7/71.

- How many days did the mission last?

The mission lasted 12 days.

- Where did the mission land?

The mission landed on Hadley Rille/ Apennines.

- Why did the mission land here?

It landed in this location because it contained a variety of interesting geologic areas to visit and explore.

- What was the goal of the mission?

The main goal of the mission was to travel farther from the lunar module performing extravehicular activity and many scientific experiments.

Your team has been assigned Apollo Mission ____16____ Color for Mission _____

- Who were the astronauts on the mission?

The astronauts were John Young, Thomas “Ken” Mattingly, and Charles Duke Jr.

- When did the mission take place?

The mission took place from 4/16/72 to 4/27/72.

- How many days did the mission last?

The mission lasted 11 days.

- Where did the mission land?

The mission landed on Descartes.

- Why did the mission land here?

It landed in this location because it appeared to be an area of much volcanic activity.

- What was the goal of the mission?

The main goal of the mission was to learn more about the volcanic activity and history of the lunar highlands.

Your team has been assigned Apollo Mission ____17____ Color for Mission _____

- Who were the astronauts on the mission?

The astronauts were Eugene Cernan, Ronald Evans, and Harrison “Jack” Schmitt.

- When did the mission take place?

The mission took place from 12/7/72 to 12/19/72.

- How many days did the mission last?

The mission lasted 12 days.

- Where did the mission land?

The mission landed on Taurus-Littrow.

- Why did the mission land here?

It landed in this location because it was a site of much geological variety.

- What was the goal of the mission?

The main goal of the mission was to carry out complex geology field campaign and collect many samples from the surface.

Team Building Activity - Challenge

(adapted from NASA Design Squad Challenge: Touchdown)

Landing on the moon, takes lots of skill and teamwork to make it happen safely. A spacecraft can fly as fast as 18,000 miles/hour. To land safely on the surface, it needs to slow down considerably.

Challenge: Your challenge is to work as a team to design and build a spacecraft that will slow down and gently land its “marshmallow astronauts” safely on the surface from drop height of 30cm.

Rules:

- Cup must stay upright, cannot tip over
- Astronauts must remain inside
- No lid allowed
- Drop height must be at least 30 cm.

Materials:

- 1 small cup with 2 Marshmallow (large marshmallows) astronauts inside
- 1 piece of cardboard (about 4”x5”)
- 1 piece of plastic (about 8”x8”) – cut up plastic bag works best
- 4 Craft Sticks
- 4 index cards
- 10 small marshmallows
- 4 rubber bands
- 2- 1 foot lengths of string
- Tape
- Ruler
- Scissors

Engineering Design Process for Challenge

Team member names _____

Step 1: Ask: what is the challenge? Are there rules that you have to work with?

Step 2: Imagine and Brainstorm: What are your best ideas? Think about:

- Applying aspects of shock-absorption, drag forces and stability so the craft gently lands on the surface.
- Do you need shock absorbers to soften the landing? What can you use for springs and cushions?
- How can you slow down the craft in flight?

Write your ideas here:

Step 3: Plan: Draw and label your design here and get it approved by teacher.

Step 4: Create: Build your design:

- Work as a team to build your craft.

Step 5: Test

Drop your spacecraft from a height of 30 cm. What happened to the craft? Did you meet your challenge?

Step 6: Improve: What can you add or change?

- If you were successful with 30 cm height, make improvements to drop it from a higher height.

Improvements made:

Retest:

Were you successful? Why or why not?

Step 6: Questions:

Why is it so important that astronauts work together as a team?

What did you learn from this activity about teamwork?

How did testing improve your design?

Team Evaluation

Fill out the table below for yourself and your teammates. Be fair and honest. Give points based on:

- Teamwork (contributes, participates, shares ideas, helps)
- Communication (listens to each other)
- Respect (we took turns and encouraged each other)

Team Member name (include yourself)	Points: 10 possible	Reasons for points given

Your Name: _____