

Lesson 9: Spacecraft Structure and Design

Engagement Questions:

3 Facts	
2 Questions	
1 Opinion	

Exploration Activity:

Rover Communication

Scenario #1

Materials	Number	Cost Each	Total Cost
Satellite			
Ground Receiver/ Transmitter			
Grand Total			

Scenario #2

Materials	Number	Cost Each	Total Cost
Satellite			
Ground Receiver/ Transmitter			
Grand Total			

Scenario #1

Trials	Total Seconds on Target in two minutes
Trial 1	
Trial 2	
Trial 3	
Trial 4	
Trial 5	

Scenario #2

Trials	Total Seconds on Target in two minutes
Trial 1	
Trial 2	
Trial 3	
Trial 4	
Trial 5	

Exploration Activity:

Spacecraft Design

Before building:

What is the purpose of your space probe? Use your resources to help you.

What three things will you need to take into consideration when building your space probe?

1.

2.

3.

During Building:

What design elements will you put in place to ensure that your probe always lands bottom down?

After Building:

How does your team's design compare with NASA's design?

Testing:

Drop your probe from the following heights and record its performance.

Trial	Height	Scientific Observations
Trial 1	12 inches	
Trial 2	24 inches	
Trial 3	36 inches	
Trial 4	48 inches	

Exploration:

Research and Investigation

Use this space to record your research and investigation on spacecraft. Remember to write your notes in your own words and always document your sources.

Explanation:

Statement	True or False?	How do you know?
Astrology and astronomy are basically the same thing.		
Rovers communicate with Earth using radio waves.		
Since we already went to the Moon, it is easy to send people to Mars.		
Because Mars has a thinner atmosphere than Earth, the shape of a space probe is critical for landing on Mars.		
Although spacecraft are constructed for specific missions and purposes, they are all designed and built using the same process.		

Evaluation:

What attributes will my Mars Rover need to:

Get to Mars _____

Carry out its mission _____

Send the data back to Earth? _____
