Hot Science

Living on Mars

Hot
Science
Cool Activities

Living On Mars Experiment

Name _____

Date _____

Directions: First, calculate the volume of your box. Then, brainstorm the items you would like to bring on your trip and calculate their volumes in the chart below.
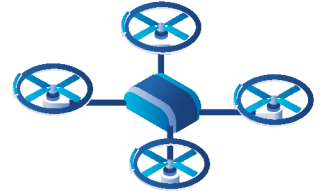**Don't forget to consider others and be creative on how you may share space or items with your field group!**

Volume of our box:

Items I'm Bringing to Mars	Why is this item important? Could it be altered to maximize the volume of the box? Can others use it?
Item: **Shape:** **Volume:**	
Item: **Shape:** **Volume:**	
Item: **Shape:** **Volume:**	
Item: **Shape:** **Volume:**	
Item: **Shape:** **Volume:**	

1

Answer
Brainstorm

1. How do we decide what items are the most important vs. least important? How did you compromise with the space available?

2. What can you bring to help keep up morale (things that the entire group will enjoy)?

3. What are some things that weren't mentioned above but might need to be considered when packing your box?

4. Did you take into consideration Mars' environment and climate when packing your box? If you didn't, how do the items in your box change as a result?

2

5. Describe a scenario in your regular life where you may apply this type of methodology to packing (ex. packing a cooler).

Reference
Sheet

Terms to Know

- **Volume**: The amount of space taken up by any three-dimensional solid.

- **Shoe Box Dimensions**: Typical dimensions are 28.54 inches x 18.7 inches x 40.94 inches

- **Mars:** The fourth planet from the Sun – is a dusty, cold, desert world with a very thin atmosphere. This dynamic planet has seasons, polar ice caps, extinct volcanoes, canyons and weather.

- **Field Team**: Multiple people sent out to collect data and conduct research at an off-site location.

- **Mission Control**: A facility where persons work together to monitor, analyze, and direct activities of an off-site crew. Usually from the point of launch until landing or the end of the mission.

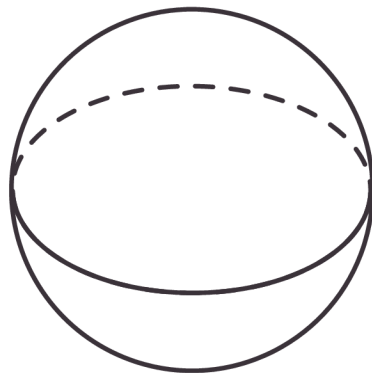- **NASA**: The National Aeronautics and Space Administration

3

Reference
Sheet
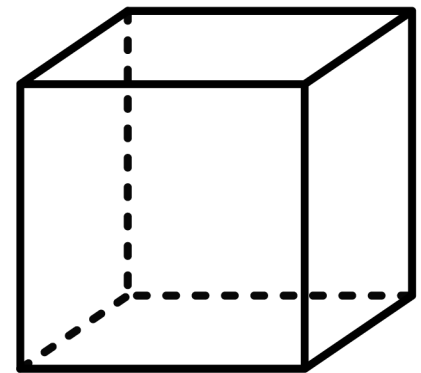
Volume of Common Shapes

l = length   *w = width*   *h = height*   *r = radius*

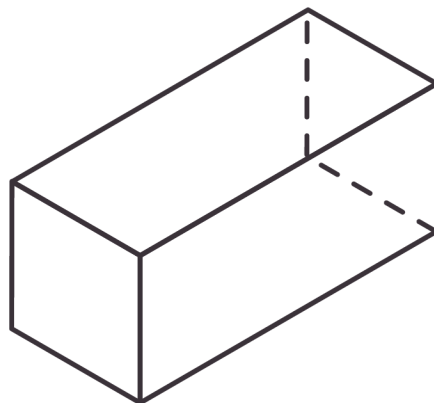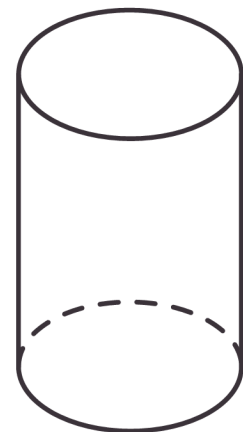*Sphere*
$$\frac{4}{3}\pi r^3$$

Cube
$$l^3$$

Rectangular Prism
lwh

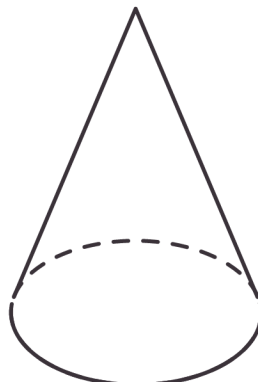*Cylinder*
$$h\pi r^2$$

4

Cone
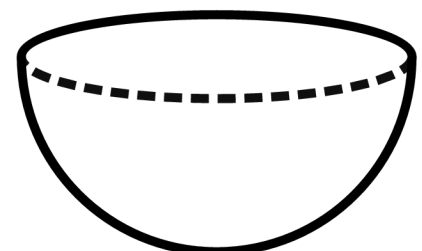$$\frac{1}{3}\pi r^2 h$$

Half a Sphere
$$\frac{2}{3}\pi r^3$$