

Problems in Space

http://starchild.gsfc.nasa.gov/docs/StarChild/space_level2/activity/problems_space.html

Directions: Working in groups (3-4 students), go to the above internet site. Once at the site, read the introduction and collectively rank the fifteen items on the materials list. This will require you to consider and discuss the conditions on the Moon to rationalize the rank of each item. Each group should come to a consensus prior to ranking each, and every, material. Upon ranking each item, click on the "Check me!" button to determine how sensible your answers are.

- What was your score after completing the activity?
- Were you surprised with the reasoning for any of the materials? Which one was most surprising? Why?
- Would you be able to survive on the Moon or would it be wise for you to remain on the Earth?

Problems in Space

Imagine that you are part of a space exploration mission flying from a space station orbiting the Moon to a base on the Moon itself. An instrument malfunction causes you to crash on the Moon on the daylight side about 120 kilometers from the base. Your spacecraft is in need of repair and your survival depends upon reaching the Moon base as soon as possible. Of the fifteen items which were not damaged in the crash of your spacecraft, which would be most important for the 120 kilometer trip? Rank the items from most important (#1) to least important (#15), then compare your rankings with those assigned by experts.

Items: signal flares, self-inflating raft which uses carbon dioxide canisters for inflation, two .45 caliber pistols, parachute silk, food concentrate, box of matches, solar-powered heating unit, stellar map of the Moon's constellations, eighteen meters of nylon rope, magnetic compass, fifteen liters of water, first aid kit containing needles for vitamins, medicine, etc. which will fit a special aperture in spacesuits, solar powered FM walkie-talkie, two tanks of oxygen, one case of powdered milk.

Name	Your Ranks
Box matches	<input type="text"/>
Food concentrate	<input type="text"/>
Eighteen meters of nylon rope	<input type="text"/>
Parachute silk	<input type="text"/>
Solar-powered heating unit	<input type="text"/>
Two .45 caliber pistols	<input type="text"/>
One case of powdered milk	<input type="text"/>
Two tanks of oxygen	<input type="text"/>
Stellar map (of the Moon's constellations)	<input type="text"/>
Self-inflating life raft	<input type="text"/>
Magnetic compass	<input type="text"/>
Fifteen liters of water	<input type="text"/>
Signal flares	<input type="text"/>