



NATIONAL QUALITY CENTER



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**Module 02 – Day 1**  
**8:45 – 9:30 am (45 min)**

**Game: Survive on the  
Moon**

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# Overview

- Introduction to NASA Game Scenario
- Individual Ranking
- Group Discussion and Ranking
- Debriefing

Who in the room has  
spent some time on the  
moon?

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## NASA Game Scenario

‘You are a member of a space crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. However, due to mechanical difficulties, your ship was forced to land at a spot some 200 miles from the rendezvous point. During reentry and landing, much of the equipment aboard was damaged and, since survival depends on reaching the mother ship, the most critical items available must be chosen for the 200-mile trip. Below are listed the 15 items left intact and undamaged after landing. Your task is to rank order them in terms of their importance for your crew in allowing them to reach the rendezvous point.’

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## Recovered Items

- Box of matches
- Food concentrate
- 50 feet of nylon rope
- Parachute silk
- Portable heating unit
- Two .45 caliber pistols
- One case of dehydrated milk
- Two 100 lb. tanks of oxygen
- Stellar map
- Self-inflating life raft
- Magnetic compass
- 5 gallons of water
- Signal flares
- First aid kit, including injection needle
- Solar-powered FM receiver-transmitter

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# Individual Ranking

- What are the most important items?
  - 3 minutes
  - Using the Reporting Form, place the number 1 by the most important item, the number 2 by the second most important, and so on through number 15 for the least important

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# Group Ranking

- Group Discussion
  - Form Groups: 8-10 individuals
  - Assignment: one facilitator, one observer and a recorder
  - 20 minutes
- Ranking
  - Discuss the ranking of the recovered items in the group and develop one ranking
  - Using the Reporting Form, place the number 1 by the most important item, the number 2 by the second most important, and so on through number 15 for the least important

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# Scoring

- For each item, mark the number of points that your score differs from the NASA ranking, then add up all the points. Disregard plus or minus differences. The lower the total, the better your score.
  - Example: Box of matches – Individual Ranking 5 and NASA Ranking 10; count 5 points
  - Score the individual and group rankings

# Answers to the Survival on the Moon Exercise

<b>Item</b>	<b>NASA Ranking</b>	<b>NASA's Reasoning</b>
Box of matches	<b>15</b>	Virtually worthless -- there's no oxygen on the moon to sustain combustion
Food concentrate	<b>4</b>	Efficient means of supplying energy requirements
50 feet of nylon rope	<b>6</b>	Useful in scaling cliffs and tying injured together
Parachute silk	<b>8</b>	Protection from the sun's rays
Portable heating unit	<b>13</b>	Not needed unless on the dark side
Two .45 caliber pistols	<b>11</b>	Possible means of self-propulsion
One case of dehydrated milk	<b>12</b>	Bulkier duplication of food concentrate
Two 100 lb. tanks of oxygen	<b>1</b>	Most pressing survival need (weight is not a factor since gravity is one-sixth of the Earth's -- each tank would weigh only about 17 lbs. on the moon)
Stellar map	<b>3</b>	Primary means of navigation - star patterns appear essentially identical on the moon as on Earth
Self-inflating life raft	<b>9</b>	CO <sub>2</sub> bottle in military raft may be used for propulsion



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# Answers to the Survival on the Moon Exercise

Magnetic compass	<b>14</b>	The magnetic field on the moon is not polarized, so it's worthless for navigation
5 gallons of water	<b>2</b>	Needed for replacement of tremendous liquid loss on the light side
Signal flares	<b>10</b>	Use as distress signal when the mother ship is sighted
First aid kit, including injection needle	<b>7</b>	Needles connected to vials of vitamins, medicines, etc. will fit special aperture in NASA space suit
Solar-powered FM receiver-transmitter	<b>5</b>	For communication with mother ship (but FM requires line-of-sight transmission and can only be used over short ranges)

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# Scoring

- 0 - 25 excellent (*true survivor...*)
- 26 - 32 good
- 33 - 45 average
- 46 - 55 fair
- 56 - 70 poor (*suggests use of Earth-bound logic...*)
- 71 - 112 very poor (*you're one of the casualties of the space program!*)

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# Debriefing

- Compare individual and group rankings
  - How many are better off? Why did more survive? What were the factors for higher group survival?
- Team dynamics - report from observer
  - How did the group work together? Why did the group work well (or not)?
  - What were the group dynamics that positively contributed to a higher survival? How did you embrace the diversity of opinions?
  - How did you contribute to the team? What role did you assume during the game?
- Feedback from the facilitator/feedback to the facilitator

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# Reflections

What are the lessons learned from this game? How can a group reach a common goal?

- Teamwork can produce better results than individual work, especially when faced with complex issues
- Healthy team dynamics are critical to team work and development; the role of the group leaders/facilitators is important
- It is important to take the time to obtain all team members' views and perspectives
- A benefit of teamwork is often the diversity in culture, opinion and experience

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