

NASA Exercise: Survival on the Moon

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. 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.

Your Ranking

NASA Ranking

- _____ 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 _____
- _____ 20 liters of water _____
- _____ Signal flares _____
- _____ First aid kit, including injection needle _____
- _____ Solar-powered FM receiver-transmitter _____

Answers

| Item | Ranking | NASA's Reasoning |
|-------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Box of matches | 15 | Virtually worthless -- there's no oxygen on the moon to sustain combustion |
| Food concentrate | 4 | Efficient means of supplying energy requirements |
| 50 feet of nylon rope | 6 | Useful in scaling cliffs and tying injured together |
| Parachute silk | 8 | Protection from the sun's rays |
| Portable heating unit | 13 | Not needed unless on the dark side |
| Two .45 calibre pistols | 11 | Possible means of self-propulsion |
| One case of dehydrated milk | 12 | Bulkier duplication of food concentrate |
| Two 100 lb. tanks of oxygen | 1 | 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 | 3 | Primary means of navigation - star patterns appear essentially identical on the moon as on Earth |
| Self-inflating life raft | 9 | CO ₂ bottle in military raft may be used for propulsion |
| Magnetic compass | 14 | The magnetic field on the moon is not polarized, so it's worthless for navigation |
| 20 litres of water | 2 | Needed for replacement of tremendous liquid loss on the light side |
| Signal flares | 10 | Use as distress signal when the mother ship is sighted |
| First aid kit, including injection needle | 7 | Needles connected to vials of vitamins, medicines, etc. will fit special aperture in NASA space suit |
| Solar-powered FM receiver-transmitter | 5 | For communication with mother ship (but FM requires line-of-sight transmission and can only be used over short ranges) |

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.

0 - 25 excellent

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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