



**MISSION TO KENNEDY SPACE CENTER**  
**Field Investigation #5 – Emergency on Mars**

**Crew Members Present for Investigation:**

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**Date of Investigation:** \_\_\_\_\_

**Problem:** The year is 2027. The first permanent base on the Planet Mars has operated successfully for the last two years. You are a member of a six-person re-supply crew sent to relieve the current Martian base crew. It is time for them to go home but they have to wait for replacements. They are depending on you to arrive.

As your landing spacecraft makes its descent to the Martian surface, the descent engine begins malfunctioning. It is not producing enough thrust to land safely or to boost itself back to orbit. It is going to be a rough ride. You and your crewmates survive the landing, but the lander is badly damaged. Furthermore, the last fix you got on the Martian base shows that you landed 200 kilometers away from where you are supposed to be. The Martian base has already dispatched a Martian rover to meet you, but its range is limited to 100 kilometers. There is only one thing to do. You must walk 100 kilometers to a rendezvous site while wearing your Martian space suits. The trip will be dangerous.

Unlike Earth-bound travelers, Martian explorers cannot just sit around and wait for a tow truck. Because of the harsh environment of Mars, unprotected humans could not survive on the surface for more than a few seconds.

What will you and your crew do to reach safety before your life support systems fail?

**Procedure:**

1. Each crew member can carry only 25 kilograms of supplies each.
2. Discuss what items are most important to survival on Mars.
3. On paper, list which supplies each crew member will take.

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To learn more about NASA space exploration history, check this web site:

<http://history.nasa.gov>

Find out about NASA's proposals for sending humans to Mars at this web site:

<http://spaceflight.nasa.gov/mars>

ITEM	WEIGHT OF EACH ITEM IN KILOGRAMS
Two boxes of matches	0.5
Three boxes of food concentrate	25 (Each)
20-meter coil of rope	2
Four parachute silks	10
Signal flares	2
Emergency whistle	0.5
Two boxes of dehydrated milk	15 (Each)
Four twenty-liter canisters of water	20 (Each)
Portable heating unit	10
Batteries for portable heating unit	20
Solar-powered radio FM receiver-transmitter	4
First aid kit	5
Life raft with CO <sup>2</sup> cylinder	25
Map of Mars	0.5
Personal mail from Earth	10
Magnetic compass	1
Five 25 kilogram bottles of oxygen	25
One case of chocolate bars	5