

theHoustonMuseumofnaturalscience

HMNS EXPEDITION CENTER

Pre-Visit material for a Corporate Expedition

CORPORATE TEAM BUILDING FLIGHT MANUAL



Questions? Contact 713.639.4727 or expedition@hmns.org



Dear Team Leader,

Thank you for scheduling your team-building group problem solving program at the Houston Museum of Natural Science's Expedition Center. This packet provides information to prepare your group for *Operation: Mission to Mars*.

The enclosed material is divided into three sections:

- **Must Do** contains the minimum preparation necessary before your activity
- **Optional Preparation** involves the participants in the preparation
- **Fun Stuff** extends the activity

Please contact the Expedition Center office at **713.639.4727** or **expedition@hmns.org** if you have questions. With an appointment, you may also visit the Expedition Center in advance of your Mission. Many companies require a safety review for employees at a new location. The Expedition Center is accessible, with restrooms close by. During your *Mission to Mars*, simulated emergencies occur on board your space ship, the *SS Legacy*. Simulation alarms differ distinctly from true alarms. In cases of an actual emergency, the Expedition Center staff will provide directions. The Expedition Center can be evacuated to the outdoors in less than two minutes.

Our goal is for you to discover that HMNS's Expedition Center is the most valuable team-building experience available. HMNS is a 501(c)(3) non-profit organization that relies on admission fees and philanthropy to fulfill its mission: ***to preserve and advance the general knowledge of natural science; to enhance in individuals the knowledge of and delight in natural science and related subjects; and to maintain and promote a museum of the first class.*** HMNS accepts no government funding.

Expedition Center fees keep the Expedition Center running, pay staff and help train the next generation of scientists, engineers and visionaries. If you are interested in how your company can partner with HMNS in showcasing the wonders and marvels of the natural world through education, please contact our colleagues in the Philanthropy Department at **philanthropy@hmns.org** or **713.639.4778**.

Welcome Aboard!

HMNS Expedition Center Staff

CONTENTS



Must Do

Mission Overview

An outline of the Expedition Center experience.



Optional Preparation

Team Assignments

A chart showing team allocation, depending on group size.

Team Descriptions

Descriptions, skill sets and functions for each position. Review the team descriptions and select the individuals most qualified for each function.

Crew Manifest

List for task assignments purposes.



Fun Stuff

Job Interview

Companies may want to “interview” candidates for their Expedition Center voyage. The enclosed application and evaluation is recommended for individuals early in their careers.

Crew Patch

Every NASA Mission has a patch; your group may wish to design a crew patch for your expedition. Create a patch representing your group or company and what you hope to

accomplish. Bring it with you to the Expedition Center; your patch design will be placed on display to become as part of the legacy of simulated space flight.

MISSION OVERVIEW



Arrival

- The Houston Museum of Natural Science (HMNS) is located at 5555 Hermann Park Drive. Paid parking is available in the HMNS garage, near the corner of Hermann Drive and Caroline Street. (For more information, visit <http://www.hmns.org/visit/about/>)
- When your group arrives at HMNS, please gather in the Grand Hall; Expedition Center staff will meet you there. If payment arrangements haven't been made in advance, HMNS Box Office personnel can assist you.
- Entrance to the Permanent Exhibits is included in the Expedition Center fee. Consider allowing your group members to arrive early or stay late to explore HMNS.
- Expedition Center staff will escort you to the venue for your mission.



Flight Briefing

Two "Flight Instructors" are assigned to your group. One of these instructors will provide a flight briefing, setting forth the scenario, team assignments, responsibilities and goals.

- Participants in the expedition will be given specific instructions on their team assignments.
- Mission scenario **Operation: Moon to Mars** incorporates activities on both the Moon and Mars and is part of the briefing.
- As the flight commences, participants assigned to Mission Control are stationed on the Moon's New Tranquility Base. The year is 2076.
- Astronauts leave Earth's orbit and travel to New Tranquility Base on the Moon. Along the way, they conduct experiments and monitor Legacy's systems to ensure a safe landing on the Moon.
- Once they arrive on the Moon, the astronauts and mission controllers will trade places. The Moon controllers will be dispatched to Mars and will continue the work during their voyage.
- During the journey, problems or emergencies will arise that the crews will have to identify and resolve. These may be high radiation levels, explosive gas leaks, power blackouts, air-system malfunctions and others.
- The flight concludes with a Mars landing and a debriefing. The debriefing includes comparisons to real-world, on-the-job situations and discussions on how teamwork, communications and problem-solving skills were used in the activity and how they could be

incorporated at work. Participants are invited to share their thoughts and ideas with the goal of creating a more productive work environment. Team leaders are welcome to contribute to the debriefing.

TEAM DESCRIPTIONS



Below are the descriptions of the teams on the expedition; each participant will be assigned to a team. When determining assignments, incorporate the descriptions below in your decisions.

- **Communications Team:** responsible for all verbal messages between Mission Control and the space ship. Team members should be cool under pressure. *Skills:* reading and oral communications, working in high stress situations and the ability to prioritize.
- **Data Team:** responsible for all text information exchanged between Mission Control and the space ship. *Skills:* fast keyboarding, good communication and the ability to organize.
- **Navigation Team:** responsible for identifying constellations, taking measurements and making calculations to launching the ship into orbit and landing on the Moon and Mars. *Skills:* math, geography and an interest in astronomy.
- **Medical Team:** responsible for the health of the astronauts and will study the effects of space flight on the human body. *Skills:* simple math, keyboard operations and interpersonal sensitivity.
- **Probe Team:** responsible for the assembly, deployment and monitoring of a satellite. *Skills:* strong mechanical facility, analytical problem solving and deduction.
- **Isolation Team:** responsible for using robot arms to conduct chemistry experiments and analyze test results. *Skills:* facility in using a joystick, patience and observation.
- **Remote Team:** responsible for operating simulation programs to gain proficiency in driving trucks on the moon and flying planes on Mars. *Skills:* facility in using a gaming controller, observation and patience.
- **Life Support Team:** responsible for the environmental conditions on the ship that are required to live, including monitoring the air filtering system, water recycling and electricity. *Skills:* problem-solving and an interest in environmental and biological sciences.
- **Geology Lab Team:** responsible for the study and comparison of rocks and surface features of the Earth, Moon and Mars. *Skills:* interest in geology, observation and measurement.
- **Biology Lab Team:** responsible for evaluating living animals, analyzing the growth of plants in greenhouse systems, and studying crop and seed samples. *Skills:* interest in biology, observation and measurement.

TEAM ASSIGNMENTS: FULL MISSION



The chart below determines team allocations, depending upon your group’s size. Groups participating in the full flight to the Moon and Mars, will have split teams—half will serve on the space ship’s Alpha Crew and half in Mission Control’s Bravo Crew. For example, if the chart shows that there are two assigned to the Communications, one will be assigned to Alpha Crew and one will be assigned to Bravo Crew.

Abbreviations Key

Descriptions of these teams appear on page 5

Comm: Communications	Probe: Probe	Geo: Geology Lab
Data: Data	Iso: Isolation	Bio: Biology Lab
Nav: Navigation	LS: Life Support	
Med: Medical	Rem: Remote	

# of Participants	Team Assignments
14	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 2 Iso, 2 LS
15	2 Comm, 2 Data, 2 Nav, 2 Med, 3 Probe, 2 Iso, 2 LS
16	2 Comm, 2 Data, 2 Nav, 2 Med, 4 Probe, 2 Iso, 2 LS
17	2 Comm, 2 Data, 2 Nav, 2 Med, 4 Probe, 2 Iso, 3 LS
18	2 Comm, 2 Data, 2 Nav, 2 Med, 4 Probe, 2 Iso, 4 LS
19	2 Comm, 2 Data, 2 Nav, 3 Med, 4 Probe, 2 Iso, 4 LS
20	2 Comm, 2 Data, 4 Nav, 2 Med, 4 Probe, 2 Iso, 4 LS
21	2 Comm, 2 Data, 4 Nav, 3 Med, 4 Probe, 2 Iso, 4 LS
22	2 Comm, 2 Data, 4 Nav, 2 Med, 4 Probe, 4 Iso, 4 LS
23	2 Comm, 2 Data, 4 Nav, 3 Med, 4 Probe, 4 Iso, 4 LS
24	2 Comm, 2 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS
25	2 Comm, 3 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS
26	2 Comm, 2 Data, 4 Nav, 2 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem
27	2 Comm, 2 Data, 4 Nav, 3 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem
28	2 Comm, 2 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem
29	2 Comm, 3 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem
30	2 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem
31	3 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem
32	4 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem
33	2 Comm, 3 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem, 4 Geo
34	2 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem, 4 Geo
35	3 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem, 4 Geo
36	4 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem, 4 Geo
37	2 Comm, 3 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem, 4 Geo, 4 Bio
38	2 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem, 4 Geo, 4 Bio
39	3 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem, 4 Geo, 4 Bio
40	4 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 4 Rem, 4 Geo, 4 Bio
41	4 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 4 Iso, 4 LS, 5 Rem, 4 Geo, 4 Bio
42	4 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 6 Iso, 4 LS, 4 Rem, 4 Geo, 4 Bio
43	4 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 6 Iso, 4 LS, 5 Rem, 4 Geo, 4 Bio
44	4 Comm, 4 Data, 4 Nav, 4 Med, 4 Probe, 6 Iso, 4 LS, 6 Rem, 4 Geo, 4 Bio

TEAM ASSIGNMENTS: MINI MISSION



The chart below describes team allocation if the group is scheduled for one-hour Mars Mission.

Abbreviations Key

Descriptions of these teams appear on page 5

Comm: Communications	Med: Medical	Rem: Remote
Data: Data	Probe: Probe	Geo: Geology Lab
Nav: Navigation	Iso: Isolation	Bio: Biology Lab
	LS: Life Support	

# of Participants	Team Assignments
12	1 Comm, 1 Data, 2 Nav, 2 Probe, 2 Iso, 2 LS, 2 Rem
13	1 Comm, 1 Data, 2 Nav, 1 Med, 2 Probe, 2 Iso, 2 LS, 2 Rem
14	1 Comm, 1 Data, 2 Nav, 2 Med, 2 Probe, 2 Iso, 2 LS, 2 Rem
15	1 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 2 Iso, 2 LS, 2 Rem
16	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 2 Iso, 2 LS, 2 Rem
17	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 3 Iso, 2 LS, 2 Rem
18	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 2 Iso, 2 LS, 2 Rem, 2 Geo
19	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 3 Iso, 2 LS, 2 Rem, 2 Geo
20	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 2 Iso, 2 LS, 2 Rem, 2 Geo, 2 Bio
21	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 3 Iso, 2 LS, 2 Rem, 2 Geo, 2 Bio
22	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 3 Iso, 2 LS, 3 Rem, 2 Geo, 2 Bio
23	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 3 Iso, 2 LS, 3 Rem, 3 Geo, 2 Bio
24	2 Comm, 2 Data, 2 Nav, 2 Med, 2 Probe, 3 Iso, 2 LS, 3 Rem, 3 Geo, 3 Bio

CREW MANIFEST



Team Assignments

- Divide teams between the Alpha and Bravo Crews.
- Alpha Crew begins the flight as astronauts; Bravo Crew starts as mission controllers.
- Write the names of the participants according to their team assignments.
- Bring this page to the Expedition Center so that the expedition can begin quickly.

For the Mini-Mission, use only the Alpha column to record everyone’s job assignments.

Teams	ALPHA Crew	BRAVO Crew
Communications	_____ _____	_____ _____
Data	_____ _____	_____ _____
Medical	_____ _____	_____ _____
Navigation	_____ _____	_____ _____
Isolation	_____ _____	_____ _____
Probe	_____ _____	_____ _____
Remote	_____ _____	_____ _____
Life Support	_____ _____	_____ _____
Bio Lab	_____ _____	_____ _____
Geo Lab	_____ _____	_____ _____

JOB INTERVIEW



Employment Applications and Performance Reviews are part of being in the workforce. Expedition participants can practice both in the following activities. These are recommended for participants early in their careers, such as internship programs.

Make copies of the following “Team Application” and “Performance Review” pages for each Mission participant.

TEAM APPLICATION

Before the expedition activity, describe the jobs available using the Team Description page. Allow participants to apply and interview for the jobs they want. This will also help the person who is assigning teams know the specific jobs in which participants have an interest.

PERFORMANCE REVIEW

After the expedition, the participants can review their own performance and discuss with coworkers. They can also compare their astronaut/mission controller jobs with real jobs in Houston on Spaceship Earth. Most importantly they can evaluate and discuss the effectiveness of communication and coordination between teams.

TEAM APPLICATION

OPERATION:
MOON TO MARS



Name _____

Career Objectives:

I am applying for a position on these teams:

Number your first, second and third choices.

- | | | | |
|---|------------------------------------|---------------------------------------|-------------------------------------|
| <input type="checkbox"/> Communications | <input type="checkbox"/> Data | <input type="checkbox"/> Life Support | <input type="checkbox"/> Navigation |
| <input type="checkbox"/> Probe | <input type="checkbox"/> Isolation | <input type="checkbox"/> Remote | <input type="checkbox"/> Medical |
| <input type="checkbox"/> Geology | <input type="checkbox"/> Biology | | |

What qualities do you have for these positions?

What experience do you have for these positions?

References

Name _____

Relationship _____

Name _____

Relationship _____

theHoustonMuseumofnaturalscience

PERFORMANCE REVIEW

OPERATION:
MOON TO MARS



Name _____

State the responsibilities that you had as part of your mission team.

What problems did you encounter in meeting your objectives during the flight?

Rate yourself.

	Poor	Fair	Average	Good	Excellent
Teamwork	1	2	3	4	5
Communication	1	2	3	4	5
Problem Solving	1	2	3	4	5
Responsibility	1	2	3	4	5

What might you do differently or better if you had the job to do again?

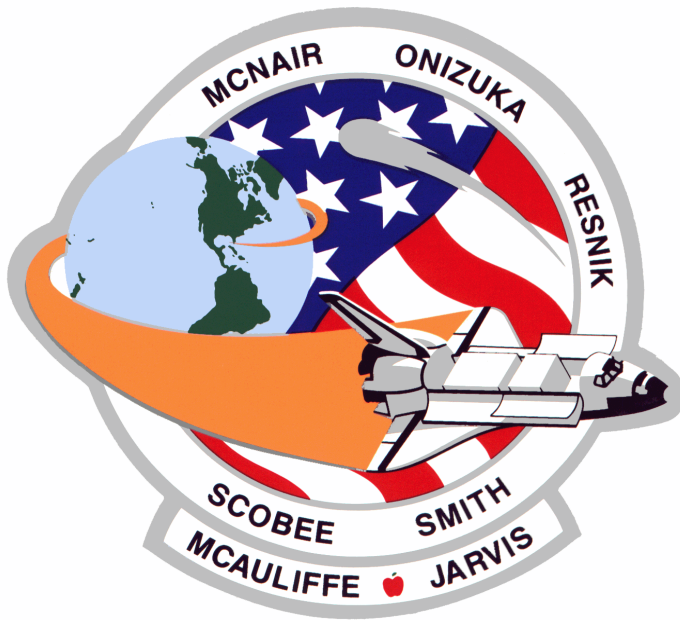
CREW PATCH

Consider designing a crew patch for your expedition. Bring the patch to the Expedition Center to be added to our Mission Patch Database. HMNS has patches going back through more than two decades of simulated space flight. Once your patch is added, it will not be deleted, and will remain there for future “astronauts” to see!



Patch Specifications

- Patch should be on 8.5” x 11” paper.
- Design should include the name of the company and the year.
- Designs should be colorful and represent the company or department.



51-L Mission Patch

This patch symbolizes the mission to fly, to explore and to teach. The shuttle, being launched from the United States of America, encircles the planet to signify its U.S. presence in space to explore new frontiers. The shuttle in flight with open cargo doors represents the 51-L mission to launch a communications satellite to collect data from Comet Halley and to conduct scientific experiments.

The apple next to the teacher’s name signifies the educational mission of the crew to touch the future through the lessons taught in space. The scene is encircled by the surnames of the crew members. They were astronauts Francis R. (Dick) Scobee, Commander; Michael J. Smith, pilot; Ron McNair, Ellison Onizuka and Judy Resnik, mission specialists; Greg Jarvis, payload specialist; and Christa McAuliffe, teacher.

