

# EXPEDITION MARS



Challenger Learning Center  
at  
Heartland Community College

# Challenger Crew



January 28, 1986

# Expedition Mars

## MISSION BACKGROUND:

- Mission Control is on Phobos – one of the moons orbiting Mars
- Mars Transport Vehicle is traveling to Mars for research purposes
- Mission objectives:
  - ✓ Search for evidence of water or life on Mars
  - ✓ Keep the crew safe



# Science Team: BIO

- **BIOLOGY**
- Analyze soil samples to determine if microbes are present
- Grow and analyze bacterial cultures to monitor the MTV environment
- Biologist
- Microbiologist
- Virologist/Bacteriologist



# Science Team: GEO

- **GEOLOGY**
- Operate a robotic arm to make remote observations of rock samples
- Examine Martian rocks in a glovebox for key elements and minerals
- Research and map possible dig sites for important minerals
- Geologist
- Roboticist



# Science Team: SPCW

- **SPACE WEATHER**
- Mark, measure, and calculate observations of objects moving through the sky
- Track and observe dust storms on the Mars surface
- Space Weather Forecaster
- Meteorologist



# Engineering Team: ROV

- ROVER
- Build and test a remotely operated vehicle (R.O.V.) to search Mars for signs of water, installing critical equipment and components and retrieving data
- Mechanical Engineer
- Electrical Engineer



# Engineering Team: BOT

- **ROBOTICS**
- Write and execute basic programs that will guide an unmanned rover to its destination
- Perform a series of evaluative tests on a robotic arm
- Computer Scientist
- Programmer
- Mechanical Engineer
- Roboticist

BOT



# Support Team: LS

- **LIFE SUPPORT**
- Measure and monitor conditions onboard the MTV to ensure a safe working environment for all crewmembers
- Manage environmental anomalies in a calm, efficient manner
- Systems Engineer
- Technical Specialist
- Environmentalist



# Support Team: MED

- **MEDICAL**
- Record crew radiation levels and recommend preemptive treatment as necessary
- Monitor crewmember health through a variety of diagnostic tests: reaction times, blood pressure, heart rate, temperature
- Doctor
- Nurse



# Support Team: NAV

- NAVIGATION
- Calculate and plot the course for the Spacecraft navigate to Mars from Phobos
- Perform critical pre-flight checks to ensure the MTV is ready to fly
- Guide the MTV through a safe descent process
- Pilot
- Commander
- Aeronautical Engineer



# Support Team: COM

- **COMMUNICATIONS**
- Provide communication support between astronauts and Mission Control
- Locate and reprogram missing communication satellites
- Communications Engineer
- CAPCOM

COM  
COM



# Support Team: PRESS

- **PRESS OR PUBLIC AFFAIRS**
- Interview crewmembers during the mission
- Begin to compose an article for publication featuring mission information and crew contributions
- Public Affairs Officer
- Communications Specialist
- Journalist
- Reporter

**PUBLIC  
AFFAIRS**



# Job Application

Think of your interests and skills;  
choose the jobs that match

List your top three choices on the  
application

List personal information that  
relates to the job choices you  
want

Turn in by assigned date

