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Communications Team

How Do I Do My Job?

If you are selected to be a mission specialist on the Communications (COM) Team, you will be the verbal link and manage messages that are being sent between Mission Control and the spacecraft. Your assignment will involve reading, speaking, listening, prioritizing and organizing information.

Vocabulary I Need to Know:

- data – information collected by the teams on the spacecraft during their research and/or experiments
- encoded – changed into code so that it can be read by a computer
- forward – to move ahead, send on
- image – a computer picture of equipment or materials used by a team in the spacecraft
- incoming – coming in from another location
- outgoing – going out to a different location
- reply – a response to a statement, message or question

What I do:

Spacecraft

Send messages to Mission Control
Receive messages from Mission Control
Manage outgoing messages
Forward messages to MC teams

Mission Control

Send messages to the spacecraft
Receive messages from the spacecraft
Manage outgoing messages
Forward messages to SC teams

On the Job:

- When you have completed sending a message, say, "over."
- Make sure that you can read and understand a message **before** you begin sending it.
- Make sure the team is ready to receive the message **before** you say, "we are ready to receive."
- Only messages related to the mission should be forwarded.

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Space Weather Team

How Do I Do My Job?

If you are selected to be a mission specialist on the Space Weather (SW) Team, your mission will be to monitor the sun and predict space weather. Your assignment will involve reading, recording, graphing and analyzing data.

Vocabulary I Need to Know:

- coronal mass ejection (CME) – vast magnetic bubbles of plasma that erupt from the Sun's corona and travel through space at high speed.
- Earth"s magnetosphere – a protective cocoon around the Earth. It shields the Earth from the solar wind.
- solar storm – a disturbance on the surface of the Sun.
- solar wind – a constant stream of tiny charged particles coming from the sun.
- sunspots – are temporary dark, cool regions of concentrated magnetism on the surface of the Sun.

What I Do:

Spacecraft

Monitor space weather
Observe a model of the earth's magnetosphere
Send and receive messages

Mission Control

Monitor space weather
Predict space weather
Send and receive messages

On the Job:

- A solar storm could be hazardous to the health of the astronauts.
- A solar storm could interfere with technology and communication systems.
- Record and analyze data carefully.

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Isolation Team

How Do I Do My Job?

If you are selected to be a mission specialist on the Isolation (ISO) Team, your mission will be to work with and monitor hazardous chemicals, radioactive materials and micrometeoroid impact panels. Your assignment will involve reading, writing and using robots.

Vocabulary I Need to Know:

- balance – an instrument used to determine mass
- chemical – a substance that causes reaction or property change in liquids, solids or gases
- cpm (counts per minute) – the number of radioactive particles striking the sensor of a Geiger counter during each minute
- filter – a device used to remove impurities from the air
- Geiger counter – a device used to measure radioactivity
- isolation chamber – an airtight, sealed work area
- radioactivity – a natural property of some materials that causes them to emit sub-atomic particles (high levels of radioactivity are hazardous to living things.)
- solar array – a device placed in a position to collect radiant energy from the sun (often used to provide power to space vehicles)

What I Do:

Spacecraft

Measure mass of meteoroids
Test for micrometeoroid impacts
Test for radioactivity
Send and receive messages

Mission Control

Collect, record & analyze data
Monitor hazardous materials
Send and receive messages

On the Job:

- Spend time practicing basic robot operation **before** beginning material retrieval.
- Ask Mission Control for help with the robotic arm if necessary.

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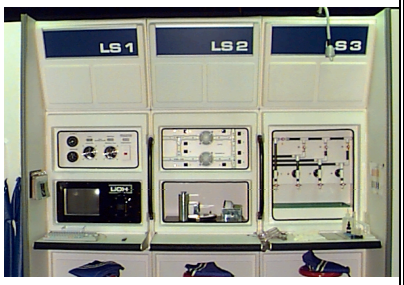
Life Support Team

How Do I Do My Job?



If you are selected to be a mission specialist on the Life Support (LS) Team, your mission will be to monitor and maintain all life support systems aboard the Spacecraft, including air temperature, pressure and quality, water quality and power systems. Your assignment will involve reading, conducting experiments and writing messages.

Vocabulary You Need to Know:

- ammeter – a device for measuring electrical current
- barometer – an instrument for measuring air pressure
- beaker – a laboratory measuring cup
- environmental condition – includes the temperature, air pressure and humidity
- graduated cylinder – a lab device for measuring liquids
- humidity – the amount of moisture in the air
- hygrometer – an instrument used to measure relative humidity
- ma (milliamp) – one millionth of an ampere (a unit of electrical current)
- mL (milliliter) – one thousandth of a liter (a unit of volume)
- pH – a number that tells how acidic or basic a liquid is
- ppm – parts per million
- TDS – total dissolved solid; how much material is dissolved in water
- valve – a device used to control the flow of air or water

What I Do:

Spacecraft

Perform water tests
Take readings from LS systems
Test solar filters
Send and receive messages

Mission Control

Collect, record & analyze data
Monitor support systems
Send and receive messages

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Medical Team

How Do I Do My Job?

If you are selected to be a mission specialist on the Medical (MED) Team, your mission will be to perform non-invasive medical tests on Spacecraft crew and report the results to Mission Control. Your assignment will involve reading, observation, experimenting and communicating.

Vocabulary I Need to Know:

- auditory reaction time – the length of time it takes to react to sound
- blood pressure – the force of the blood on the walls of the blood cells
- pulse rate – the number of heartbeats per minute
- respiration rate – the number of breaths per minute
- skin temperature – external body temperature
- visual reaction time – the length of time it takes to respond to something a person sees

What I Do:

Spacecraft

Test for response time
Measure respiration rate
Measure skin temperature
Measure blood pressure & heart rate

Mission Control

Collect, record & analyze data
Monitor crew health
Send and receive messages
Send images as needed

On the Job:

- A member of each team should be tested at least once during the mission.
- Be sure to compare test results to information found during your research.
- If an astronaut's test results are outside a healthy range, have them re-tested.

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Navigation Team

How Do I Do My Job?

If you are selected to be a mission specialist on the Navigation (NAV) Team, your mission will be to locate and triangulate the position of the spacecraft and select a lunar landing site. Your assignment will involve reading, calculating and using point-to-point communication with a headset.

Vocabulary I Need to Know:

- apogee – the point in orbit when the Moon is at its furthest from the Earth
- geologist – scientist who studies formation, structure, history and processes that form a planetary body
- impact crater – a circular depression caused by meteoroids or asteroids impacting a surface
- orbit – the path of an object around another object
- perigee – the point in orbit when the Moon is at its closest to the Earth
- triangulation – calculation of position of the spacecraft from three known objects
- trajectory – the path a falling object follows

What I Do:

Spacecraft

Check tracking stations
Triangulate position of spacecraft
Locate lunar landing site

Mission Control

Check tracking stations
Triangulate position of spacecraft
Choose lunar landing site

On the Job:

- ✓ Be sure to record all data on your Data Log.
- ✓ Do not delay when sending data to your partners.

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Probe Team

How Do I Do My Job?

If you are selected to be a mission specialist on the Probe (PROBE) Team, your mission will be to construct an instrument package that will be launched prior to touchdown of the spacecraft. Your assignment will involve reading, speaking and participating in point-to-point communication with a headset.

Vocabulary I Need to Know:

- airlock – a sealed chamber where the probe is kept
- ALF camera – Alternate Line Focus camera; allows Mission Control a closer view of probe motherboard
- component – an electronic part that is plugged into the motherboard
- deploy – to release an object
- motherboard – the base assembly point for all probe parts
- multiplexer – accepts signals from all probe components
- power supply – supplies power to probe
- probe – piece of equipment designed to collect data in places where humans cannot safely do it themselves; also called an instrument package
- test cable – a wire that carries electricity from one component to another

What I Do:

Spacecraft

Assemble probe motherboard
Deploy probe
Use point-to-point headset

Mission Control

Direct probe assembly
Use point-to-point headset

On the Job:

- Unless an authorized person is entering or exiting the probe room, the clean room doors must be kept closed.
- Be sure to listen carefully to instructions you receive over the headset.

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Remote Team

How Do I Do My Job?

If you are selected to be a mission specialist on the Remote (REM) Team, your mission will be to retrieve and conduct experiments on both Earth and Moon soil and mineral samples.

Vocabulary I Need to Know:

- balance – an instrument used to measure mass
- density – the distribution of a quantity per unit of volume
- glovebox – a self-contained mini-lab; used to protect delicate experiments
- luster – a measure of being shiny or dull
- magnetism –the ability to attract
- maria – low areas on the Moon that appear dark and smooth; formed by ancient lava flows
- mass – the amount of matter in an object
- regolith – powdery soil layer on the Moon's surface caused by bombardment of impacts

texture – visual or tactile surface characteristics and appearance of an object

What I Do:

Spacecraft

Use robotic arm
Test mineral & soil samples

Mission Control

Collect, record & analyze data
Compare Earth & Moon data

On the Job:

- Practice robot arm operation for several minutes before beginning your assigned tasks.
- Send information to your partner as soon as you retrieve it.
- Record and analyze data carefully.

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Press Team

How Do I Do My Job?

If you are selected to be a mission specialist on the Press Team, you will be responsible for recording mission events on paper and with photographic equipment. Your assignment will involve writing, interviewing crewmembers, listening and using photographic equipment.

Vocabulary I Need to Know:

- camera – a device used to capture and record a still image on film
- camcorder – a device used to capture and record moving images on film
- digital camera – a device used to capture and record a still image in computer-ready format
- monitor – a screen that shows computer activity or a video of a team at work
- zoom – to make subjects appear larger in the video viewing screen

What I do:

Spacecraft

Interview crewmembers
Take pictures/video footage
Record & describe mission events

Mission Control

Interview crewmembers
Take pictures/video footage
Record & describe mission events

Press Team Reminders:

- Prepare interview questions before the day of the mission.
- Hold the cameras very steady.
- Work as a team to decide what pictures/video to take.
- Take pictures of teams who are very involved in their jobs.

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