Customize Your Challenger Learning Center Earth Odyssey Crew

During your visit to the Challenger Learning Center, each student is assigned to be a member of one of the 9 Mission teams: COM, ROV, NAV, WX, GEO, BOT, BIO, LS, and MED. Each student will also be assigned to one of the two Crews:

- Capture Team (starting in Spacecraft, ending in Mission Control).
- Redeployment Team (starting in Mission Control, ending in Spacecraft).

Each team usually has one or two students in both Mission Control and Spacecraft throughout the Mission (ex: 2 students on the ROV team in Mission Control and 2 students on the ROV team in Spacecraft). The COM team will only have one student in Mission Control and one student in Spacecraft.

When you assign students to either the Capture Team (Spacecraft) or Redeployment Team (Mission Control), this represents the location where the student begins the mission. At the mid-point of the mission, each crew switches location to participate in the other side of the Mission experience. Remember, each team member in the Mission Control crew must have a corresponding team member in the Spacecraft crew. We recommend filling the teams in a manner that fits the strengths and interests of your students.

1. **Review** the Team Member Descriptions on the next page.

2. **Review** the Crew Manifest on the third page of this document. The team characteristics listed are included as a reminder of the requirements of each job.

3. **Review** the following Crew Manifest guidelines:

    - A minimum of X students are needed to fly Earth Odyssey
    - If a Spacecraft team has a crew member, there must be at least one corresponding team member on the same team in Mission Control.
    - Be sure every team has a member on each crew before assigning a second student to any team.

4. **Follow** the below instructions to complete the Crew Manifest:

    - Start with **Communication (COM).** Assign a student to ① under Spacecraft.
    - Continue with **COM**. Assign a student to ② under Mission Control.
    - Move to **ROV** and assign a student to ③ and another student to ④**.**
    - Continue assigning students **based on the numbers in the Crew Manifest.**
    - Once you have filled slots ① **-** ⑱, move on to assign students to slots **19-34.**

5. On the day of your mission, **bring two completed copies** of your Crew Manifest.

Earth Odyssey Team Member Descriptions

Communications



Activities:

- Manage all communications between Spacecraft and Mission Control
- Gather images and information to create and publish social media content
- Manage public reception and response to mission objectives

SKILLS: reads well, assertive, calm under pressure, organized, able to multitask, leadership

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Remotely Operated Vehicle



Activities:

- Retrieve and inventory satellite
- Manage resources to effectively design a new satellite build based on budget and mission objectives
- Build and launch new satellite

SKILLS: collaborative, proficient math skills, closely follows instructions, calm under pressure

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Navigation



Activities:

- Determine optimal orbit paths and safe landing sites
- Perform debris avoidance maneuvers and undocking sequences
- Utilize Spacecraft cameras and sensors to collect data over specific locations

SKILLS: completes multi-step math problems, strong hand-eye coordination, collaborative

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Weather



Activities:

- Perform experiments to determine which types of materials are at high risk of becoming aerosolized pollutants
- Predict and respond to weather emergencies
- Perform basic coding tasks

SKILLS: map & graph reading, proficient math skills, closely follows instructions, analyzes data
NOTE: if possible prioritize students in pairs on this team

Geology



Activities:

- Determine what data collected by the retrieved satellite is corrupted
- Perform experiments to determine the impact of microgravity on soil health
- Respond to extreme weather events and determine their ecological impacts
- Perform basic coding tasks

SKILLS: strong observation skills, hand-eye coordination, patience, follows procedures

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Robotics



Activities:

- Conduct a debugging of the retrieved satellite to potentially recover data
- Perform basic coding tasks and approve other teams codes
- Utilize resources to develop prototypes via 3D printing
- Test and improve prototypes for use with the robotic arm

SKILLS: spatial awareness, computational thinking, basic programming, hand-eye coordination

Biology



Activities:

- Perform maintenance and compose health reports on Spacecraft vegetation systems
- Conduct DNA extraction lab and perform DNA sequencing
- Monitor ocean temperatures and ecological impacts
- Perform basic coding tasks

SKILLS: follows procedures, strong observation skills, graphing, drawing conclusions

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Life Support



Activities:

- Manage all Spacecraft Life Support Systems
- Monitor Spacecraft air quality, water quality, and oxygen levels
- Respond quickly to potential emergencies
- Ensure safety of all crew members

SKILLS: reads gauges, follows procedures, calm under pressure, strong observation skills

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Medical



Activities:

- Monitor crew health and crew radiation levels throughout entire mission
- Create nutrition plans to ensure optimal crew performance
- Conduct investigation on the impact of microgravity on crew spinal decompression

SKILLS: interacts well with others, patience for repetitive tasks
NOTE: Can be removed if not enough students

If you have questions about completing the Crew Manifest, contact the Challenger Learning Center.

CHALLENGER LEARNING CENTER

Crew Manifest

Mission Date:	**Mission Time:**
Teacher Name:	**Grade:**
School Name:	**# of Students:**
School District/County:	**School State:**

Follow the numerical order to assign one student to each crew for each team.
Each circled number must be filled first. Then, assign a second student to each crew.

Team	Capture Crew (Spacecraft → Mission Control)	Redeployment Crew (Mission Control → Spacecraft)
COM skilled reader and oral communicator, able to make quick decisions	① _____	② _____
ROV analytical, skilled oral communicator, able to weigh options	③ _____	④ _____
	19 _____	20 _____
NAV strong math skills, attention to detail, skilled reader	⑤ _____	⑥ _____
	21 _____	22 _____
WX proficient math skills, observant, detail-oriented	⑦ _____	⑧ _____
	23 _____	24 _____
GEO observant, strong hand-eye coordination, attention to detail	⑨ _____	⑩ _____
	25 _____	26 _____
BOT patient, proficient computer skills, strong oral communicator	⑪ _____	⑫ _____
	27 _____	28 _____
BIO strong observation and monitoring skills, able to interpret data and draw conclusions	⑬ _____	⑭ _____
	29 _____	30 _____
LS team player, able to handle stress, strong measurement skills	⑮ _____	⑯ _____
	31 _____	32 _____
MED proficient measurement skills, attention to detail, able to make quick decisions	⑰ _____	⑱ _____
	33 _____	34 _____

Please bring two copies of this completed Crew Manifest with you on the day of your Mission.

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