

EARTH ODYSSEY

A satellite that has previously been collecting data about Earth is malfunctioning. Using the robotic arm, the crew captures the satellite, downloads the data, and identifies new information to analyze, test, and explore for this mission.

Crews in Spacecraft and Mission Control work to build new technologies for a satellite that will be launched at the end of the mission. These satellite probes will collect data on Earth processes and events taking place on our planet due to the changing climate. The crews will monitor and communicate real-time events occurring on Earth, which becomes critical when an emergency arises and they must work together to overcome an impactful weather event.

In the final moments of the mission, the crews will launch their new satellite to collect data for upcoming years. This launch is critical to scientists as they continue to study the dramatic impact that our changing climate is having on Earth. It is up to our crew members to make this mission a complete success.



The impacted area shows a coastline with several barrier islands. Barrier islands are narrow islands made primarily of sand or sediment that run parallel to a mainland coast.

These islands may be small, but they play an important role in shielding the mainland coast from the impact of large storms such as hurricanes. They are also highly susceptible to erosion.



Lightning can be dangerous so it is helpful to know where and when it might strike. The National Lightning Detection Network (NLDN) has more than 100 sensors placed in different locations. NLDN helps scientists and forecasters keep an eye on lightning all across the United States.

The NLDN sensors detect and locate lightning strikes by



Major STEM Concepts

- Understand and analyze how severe weather events impact Earth's processes and climate.
- Analyze environmental data, including ecosystems and geological events to better understand how our planet is changing.
- Troubleshoot and solve problems using the engineering design process.

Hands-on Labs

- DNA extraction lab using wheat germ
- Hydroponics lab experimentation
- Robotic arm criteria testing

Our software program includes numerous accessibility features for students, including text read aloud and font resizing.



Teams

One member of each team will be in Mission Control for the first half of the mission while the other is assigned to the Spacecraft. At the midpoint of the experience, the group in Mission Control launches to the Spacecraft and the Spacecraft group returns to work in Mission Control.



Communications

Objectives: Collaborate with all mission teams to lead and communicate critical messages during the mission, and lead communications with the general public to conduct press releases and Spacecraft downlink sessions.

Branches of Study: Communications, Public Relations

Career Connections: Spacecraft Flight Director, Communications Liaisons



Navigation

Objectives: Lead the mission to develop and monitor the orbital path and trajectory of the Spacecraft.

Branches of Study: Aerospace Engineering

Career Connections: Aerospace Engineer, Pilot, Satellite Engineer



Rover

Objectives: Collaborate with all mission teams to build and launch a new satellite.

Branches of Study: Engineering, Robotics, Satellite Management

Career Connections: Robotics Engineer, Satellite Engineer



Weather

Objectives: Conduct experiments and analysis on severe weather events occurring on Earth and explore pollution levels and atmospheric changes.

Branches of Study: Meteorology, Space Weather

Career Connections: Meteorologist, Environmental Scientist



Medical

Objectives: Conduct medical assessments on the crew to ensure their health and safety.

Branches of Study: Anatomy and Physiology, Nutrition, Biology

Career Connections: EMT, Medical Professional, Mental Health Counselor, Physical Therapist



Biology

Objectives: Conduct experiments and analysis on biological processes occurring in ecosystems on Earth, and analyze how plants grow during space travel.

Branches of Study: Hydroponics, Oceanography, Genetics, Biology

Career Connections: Botanist, Biomedical Engineer, Geneticist, Biologist



Robotics

Objectives: Collaborate with all mission teams to debug satellite software codes, code probes for the new satellite, and train and utilize the robotic arm on the Spacecraft to complete tasks.

Branches of Study: Engineering, Robotics, Software Engineering and Design

Career Connections: Robotics Engineer, Software Developer



Life Systems

Objectives: Build and monitor the life support systems on the Spacecraft, including air pressure, oxygen, water supply, and temperature.

Branches of Study: Engineering, Maintenance Engineering and Support, Troubleshooting and Designing Support Systems

Career Connections: Systems Engineer, Mechanical Engineer



Geology

Objectives: Conduct experiments and analysis on geological processes occurring on Earth.

Branches of Study: Geology, Environmental Sciences

Career Connections: Geologist, Environmental Engineer

