

SATELLITE CHALLENGES



Mission Goal:

Explore the Moon's surface and establish a second lunar habitat.



Researchers are ready to return to the Moon to explore its surface and establish a second habitat for astronauts to live and work.

To get there, your students will work in teams to launch and fly Blue Origin's reusable launch vehicle, New Glenn, into orbit; safely land Blue Origin's lunar lander, Blue Moon, on the lunar surface; and prepare to explore the Moon's surface. While in orbit, they'll monitor for potentially dangerous space weather and space debris, conduct safety checks on the spacecraft systems, deploy and monitor satellites, and launch payloads.

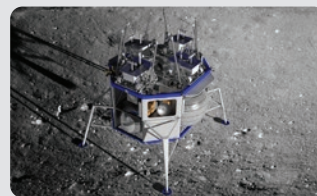
With the journey underway, your students in Mission Control learn there's an emergency on the original lunar habitat. They'll collaborate with another crew to problem solve and troubleshoot the emergency. Will the crews solve the urgent issue? A successful mission depends on it.

What to Expect

- Approximate program time: 1 hour
- Delivered in real-time by Challenger Learning Center Flight Directors
- Closed captioning available
- Next Generation Science Standards (NGSS) aligned
- Common Core State Standards (CCSS) aligned



Featuring: Adam Wuerl
Director of Advanced
Concepts and Strategy,
Blue Origin



In our interactive Destination Moon simulation, students are placed into teams to conduct research and collaborate to find solutions to urgent challenges, while experiencing real-world STEM careers.

Suggested Grade
5-8



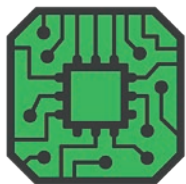
Devices with audio/video capability and internet connection are required for our software program. Program delivered using video conference technology. No personal student data is collected.

www.challenger.org/programs/satellite-challenges



Teams:

Teamwork is critical to our mission. Each student is assigned to a team and works with their small group to complete their research and analysis.



Mapping

Objectives:

Monitor and analyze weather conditions to prepare for launch and capsule recovery. Analyze orbital paths to identify location for payload launch. Conduct tests of mapping sensors to prepare for lunar lander exploration.

Branches of Study:

Meteorology,
Aerospace,
Engineering

Career Connections:

Meteorologist,
Engineer



Structure

Objectives:

Conduct health system checks on fuel levels and engine components. Initiate and monitor payload separation from Spacecraft. Launch and monitor GPS satellites.

Branches of Study:

Engineering,
Aerospace,
Aviation

Career Connections:

Aerospace Engineer,
Air Traffic Controller



Engines

Objectives:

Monitor and command launch. Monitor and command Stage 1 and 2 engine separations. Perform Blue Moon descent burn to land on lunar surface.

Branches of Study:

Engineering,
Aerospace,
Aviation

Career Connections:

Aerospace Engineer,
Air Traffic Controller,
Mechanical Engineer



Tracking

Objectives:

Conduct health system checks on sensors, transponders, and communication systems. Monitor and command Stage 1 descent to Earth. Monitor and analyze data for potential space debris.

Branches of Study:

Engineering,
System Engineering,
Aerospace

Career Connections:

Systems Engineer,
Mechanical Engineering,
Aerospace Engineer

Learning Objectives

- Understand and analyze the launch process of a spacecraft
- Learn about spacecraft design and the optimal conditions for space travel
- Troubleshoot and solve problems using the engineering design process
- Collaborate with peers to achieve a common goal
- Enhance scientific vocabulary



SATELLITE CHALLENGES



Mission Goal:

Explore the Moon's surface and establish a second lunar habitat.



Researchers are ready to return to the Moon to explore its surface and establish a second habitat for astronauts to live and work.

To get there, your students will work in teams to launch and fly Blue Origin's reusable launch vehicle, New Glenn, into orbit; safely land Blue Origin's lunar lander, Blue Moon, on the lunar surface; and prepare to explore the Moon's surface. While in orbit, they'll monitor for potentially dangerous space weather and space debris, conduct safety checks on the spacecraft systems, deploy and monitor satellites, and launch payloads.

With the journey underway, your students in Mission Control learn there's an emergency on the original lunar habitat. They'll collaborate with another crew to problem solve and troubleshoot the emergency. Will the crews solve the urgent issue? A successful mission depends on it.

What to Expect

- Approximate program time: 1 hour
- Delivered in real-time by Challenger Learning Center Flight Directors
- Closed captioning available
- Next Generation Science Standards (NGSS) aligned
- Common Core State Standards (CCSS) aligned



Featuring: Adam Wuerl
Director of Advanced
Concepts and Strategy,
Blue Origin



In our interactive Destination Moon simulation, students are placed into teams to conduct research and collaborate to find solutions to urgent challenges, while experiencing real-world STEM careers.

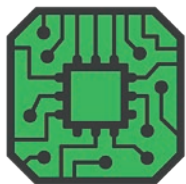
Devices with audio/video capability and internet connection are required for our software program. Program delivered using video conference technology. No personal student data is collected.

www.challenger.org/programs/satellite-challenges



Teams:

Teamwork is critical to our mission. Each student is assigned to a team and works with their small group to complete their research and analysis.



Mapping

Objectives:

Monitor and analyze weather conditions to prepare for launch and capsule recovery. Analyze orbital paths to identify location for payload launch. Conduct tests of mapping sensors to prepare for lunar lander exploration.

Branches of Study:

Meteorology,
Aerospace,
Engineering

Career Connections:

Meteorologist,
Engineer



Structure

Objectives:

Conduct health system checks on fuel levels and engine components. Initiate and monitor payload separation from Spacecraft. Launch and monitor GPS satellites.

Branches of Study:

Engineering,
Aerospace,
Aviation

Career Connections:

Aerospace Engineer,
Air Traffic Controller



Engines

Objectives:

Monitor and command launch. Monitor and command Stage 1 and 2 engine separations. Perform Blue Moon descent burn to land on lunar surface.

Branches of Study:

Engineering,
Aerospace,
Aviation

Career Connections:

Aerospace Engineer,
Air Traffic Controller,
Mechanical Engineer



Tracking

Objectives:

Conduct health system checks on sensors, transponders, and communication systems. Monitor and command Stage 1 descent to Earth. Monitor and analyze data for potential space debris.

Branches of Study:

Engineering,
System Engineering,
Aerospace

Career Connections:

Systems Engineer,
Mechanical Engineering,
Aerospace Engineer

Learning Objectives

- Understand and analyze the launch process of a spacecraft
- Learn about spacecraft design and the optimal conditions for space travel
- Troubleshoot and solve problems using the engineering design process
- Collaborate with peers to achieve a common goal
- Enhance scientific vocabulary

