

Space Station Alpha Lessons and Activities
10th Grade

Timing	Mission and Description	Supported Standards
Pre-Mission	Getting Acquainted: Students are introduced to the Space Station system through readings. Students are asked to collaboratively create a mission patch symbolizing the class, school, and mission. Teachers are encouraged to emphasize “consensus” with the students to instill the concept of give-and-take when making group decisions.	Science:3.2 Math:-- English:1.2, 2.2, 2.3 Social Studies:-- Visual Arts:1.3, 3.2, 3.3
	Application: Students read articles on the Sun and the parts of an atom. They then draft and finalize a personal essay about the part they will or wish to have in the mission.	Science:1.2, 1.4, 3.2 Math:-- English:2.2, 3.2, 3.3, 4.1 Social Studies:--
	Space Weather: Through reading articles about Sheer Magnetism, the inside of the Sun, and Electromagnetic Radiation students will learn about space weather and its effects on objects in space. Students will then complete a Mission Specialist Log entry in regards to the lesson.	Science:1.5, 3.2, 3.7 Math: 2.2 English:2.2, 2.3, 3.1, 4.1 Social Studies:2.1
	Radiation Health: Students will learn about the effects of radiation on the human body and different types of shielding as well as effective ways to measure exposure to radiation. Students will then complete a Mission Specialist log entry in regards to the lesson.	Science:1.5, 2.6 Math:2.2 English: 1.2, 2.2, 2.3, 3.1, 4.1 Social Studies:2.1
	Power Systems: Energy Supply and Rechargeable Batteries are examined in assigned readings and students practice calculations of the available power on the Space Station. Students prepare presentations and discuss energy sources on the Space Station. Students will then complete a Mission Specialist log entry in regards to the lesson.	Science:1.5, 1.6, 2.6, 3.2, 3.4 Math:1.2, 2.1, 2.2 English: 1.1, 2.2, 2.3, 3.1, 4.1 Social Studies:--
	Life Support: Students discover how astronauts breathe and how air is supplied to astronauts on the Space Station as well as how to calculate oxygen and carbon dioxide levels on the spacecraft. Students will complete a Mission Specialist log entry in regards to the lesson.	Science:2.6, 3.2, 3.4 Math: 1.2, 2.2, 3.1 English:1.2, 2.2, 2.3, 3.1 Social Studies:--
Mission Day	Pre-Mission Prep: With a brief review of calculations, students engage in a group activity where they “race” to see who can process data the fastest. Students then review all materials in a group and prepare for the mission.	Science:1.4, 1.5, 1.6, 2.6, 3.2, 3.4 Math:1.2, 2.2, 3.1 English:1.1, 1.2 Social Studies:--
	STORM Team: The STORM Team predicts space weather by tracking X-ray and proton activity to determine when the solar storm will hit the Space Station. They will warn and inform the other teams and Mission Control if there is any cause for concern.	Science:1.4, 1.5, 2.6, 3.2 Math:1.2, 2.1, 2.2, 2.4, 3.1, 3.2, 4.3 English: 1.1, 1.2 Social Studies:--
	Radiation Team: The Radiation Team will monitor the radiation levels from the two TEPC monitors on board the Space Station. The team will alert Mission Control if they see levels approaching the danger zone and will make shielding recommendations to the crew.	Science:1.5, 1.6, 2.6 Math:2.1, 2.2, 3.1, 3.2 English: 1.1, 1.2 Social Studies:--
	Life Support Team: The Life Support Team will monitor the living environment on the Space Station. They will receive readings from sensors on board for oxygen, carbon dioxide, and air pressure levels. If conditions become dangerous they must inform Mission Control and discuss possible solutions to the problem.	Science:1.5, 2.6, 3.2, 3.4 Math:2.1, 2.2, 3.1 English: 1.1, 1.2 Social Studies:--
Post-Mission	Crisis Management Team: The Crisis Management Team must keep all other teams on track during the mission and informed on the status of the Space Station and its crew. They must maintain contact with the crew and Mission Control and negotiate problems that may arise when teams are experiencing a crisis and making recommendations that effect another team’s functionality.	Science:1.4, 1.5, 1.6, 2.6, 3.2, 3.4 Math:-- English: 1.1, 1.2 Social Studies:--
	Press Conference: Students are asked to prepare for a press conference to answer questions surrounding their mission. Then parents, teachers, and administrators ask students to reflect on their experience and explain what they learned as a result of their mission.	Science:1.4, 1.5, 1.6, 2.6, 3.2, 3.4 Math:1.2, 2.1, 3.1, 3.2 English: 1.1, 1.2, 4.1 Social Studies:--