

## Unit 5 Overview: Life Support

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### Lesson 1: Life Support

#### Materials

##### Readings

##### Life Support:

- How I Discovered Air
- A Weighty Discovery
- Living in a Bubble
- Breathing on the Space Station

##### Pre-Mission Preparation:

- Overview of Teams
- Mission Directives
- Classroom Setup
- Team Preparation Introductions
  - STORM Team
  - Radiation Team
  - Power Team
  - Life Support Team
  - Communications Team

#### Storyline

- The students will

#### Main Topics

1. The atmosphere on the space station must be the same as the earth's atmosphere in terms of the mix of gases and their combined pressure.
2. The astronauts pollute their own environment by simply breathing and performing other vital human functions.
3. The astronauts are 100% dependent upon technology for their well-being.
  - Solar weather can jeopardize the atmospheric balance within the space station by interrupting its electrical power supply and thus its technology.

#### Outcomes

1. Students will describe the precarious atmospheric balance that must be technologically maintained on the space station.
2. Students will be able to explain the astronauts' needs in terms of atmospheric conditions.
  - Students will be able to explain how the space station is a sophisticated environment in which the astronauts themselves are an integral part of the balance.

#### Materials Preparation

Print out multiple copies of all team "Pre-Mission Preparation Materials." Links located at end of "Team Preparation" Introductions.

#### Vocabulary

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### Teaching Approaches

Text here

### Connections to Other Units

The Life Support team is an integral part of the e-Mission challenge.

### Internet Resources:

#### Recommended search engines:

<http://vivisimo.com>

<http://www.google.com>

<http://www.kartoo.com>

**Valuable Search Terms and Phrases:** "hypoxia," "carbon dioxide poisoning," "atmosphere" (Quotes have been used here to delineate terms. Do not use quotes when typing in a search term or phrase.)

#### Sites:

<http://liftoff.msfc.nasa.gov/academy/space/atmosphere.html>

### Looking Ahead:

See Unit 6 Overview and begin to plan approach to Pre-Mission Preparation.

The success of the e-Mission depends upon each student's mastery of some simple mathematical skills to be performed multiple times in a "pressure" situation with time limits.