

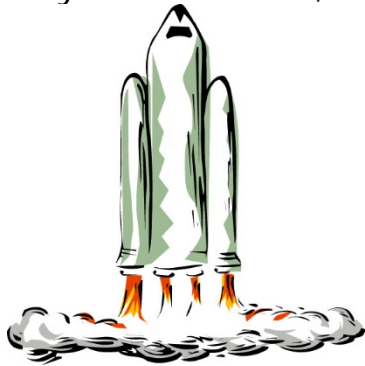
**FL ELFAS**  
**Passage Cover Sheet**

Title:	Space Dreams
Stimulus ID:	6841CN
Source:	Commissioned
Grade Band:	6-8
Genre:	Informational Text
Text Type:	Scientific
Word Count:	979
Lexile:	1010
Lexile Range:	925-1185
Flesch-Kincaid:	8.0
Qualitative Ranking:	Moderate

## Space Dreams

Many people dream of the chance to go into space. What is it really like to do so?

For astronauts waiting for liftoff into space, launch day is an exhilarating chance to fulfill such a dream. On the practical side, awaiting liftoff is somewhat uncomfortable. Similar to passengers on an airplane, astronauts wait several hours while technicians perform safety checks in preparation for liftoff. Unlike sitting on an airplane, astronauts are in seats tipped backward at a slight angle, usually with a folded parachute jutting into their backs. Worse, they sit shoulder-to-shoulder while squished into their form-fitting helmets and orange pressure suits. The suit itself consists of three protective layers that amount to almost ninety pounds: an inner layer made up of tubes filled with water that cools the astronaut, a middle layer that inflates, and a flame-retardant outer layer.



As liftoff nears, the final countdown ends with the spacecraft blasting off. It accelerates from 0 to 17,500 miles per hour in the eight and a half minutes it takes to break through Earth's atmosphere. In almost no time, the astronauts experience 3Gs, or three times the force of gravity. 3Gs feels like having a large person sitting on your chest. The intense pressure makes breathing difficult and movement labored. Raising a hand feels like pushing against a wall. After eight and a half minutes, though, Earth's gravitational field is breached and the astronauts become weightless.

For years, the now-retired space shuttle made trips like these to the International Space Station (ISS). Astronauts live and work for approximately six months before replacements arrive. Onboard the ISS, life is more comfortable, but adjusting to the conditions still takes some time. For many astronauts, one of the most enjoyable aspects of being in space is flying weightless throughout the unpressurized station. Flying, though, takes practice. At first, as

they attempt zipping through corridors, astronauts often bump into everything and leave a mess of dislodged tools behind them. Novice astronauts make the mistake of flying “Superman” style with their arms out in front of them. Flying in this way is unstable and causes the astronaut to rotate and lose control. Greater stability is achieved by flying with one’s arms at one’s sides. Even better is “fly-walking,” where astronauts hook their feet around the handrails for help. Each month of practice brings improvement until an astronaut can navigate a twenty- or thirty-foot corridor without hitting anything. In their spare time, astronauts fly around just for the fun of it.

Another favorite part of being in space is witnessing the amazing views. The ISS orbits Earth every ninety minutes. This means it circles the globe sixteen times in a single twenty-four hour Earth day. The ISS is about three hundred miles above Earth. Seeing Earth from this vantage point is like having an amazing Earth science textbook. All of Earth’s topographic features are visible in brilliant and colorful detail: volcanoes, oceans, rivers, lakes, canyons, and mountains. Astronauts can see all six layers of the atmosphere, including a glowing turquoise halo circling the planet. Every kind of cloud appears. Lightning displays are like firecracker shows. The vapor trails from airplanes crisscrossing the globe create a maze of white smoke. At night, the continents are edged by the glow of city lights. Looking away from Earth into deep space, the stars shine steadily and more brightly in the absence of atmosphere.



Life in a weightless world makes everything seem opposite to what one has become accustomed to on Earth. Everything an astronaut “drops” actually floats up. Don Pettit, an American astronaut who has worked on the ISS several times, describes having to adapt to looking up rather than down. Once he “dropped” a piece of toast. Instead of hitting the floor, the toast floated up toward the ceiling. Its dry side then bounced off the ceiling, ricocheted off another wall farther down the corridor, and then

came to a halt when its peanut-buttered side stuck to the ceiling. Don had to chase his toast down the hall. When he rescued it, he had a clean-up job on his hands. Incidences like these are daily occurrences. Astronauts frequently let go of objects or forget to secure them on special holders.

Other aspects of life on the ISS take some adjustments as well. Some food is freeze-dried and comes in little pouches to which astronauts add water. Sleeping quarters look like long padded tubes that hold an astronaut in at night. Arising from the sleeping quarters, an astronaut opens a hatch and pops his or her head out. Because water is precious, only sponge baths are possible. Washing clothing is easy though. Astronauts wear their clothes as many times as possible and then discard them. Their clothing, along with other waste, ends up in a special capsule that is released and incinerated as the astronauts return to Earth. Recently, astronauts have been able to access the Internet. One astronaut who brought his credit card was able to purchase Valentine's Day flowers for his wife.

During the shuttles' years of service, returning to Earth was as exhilarating as leaving it. As the spacecraft fell back to Earth, it increased in speed and eventually heated up to 3,000 degrees Fahrenheit. At this temperature, the ship appeared like a huge fireball. From inside the shuttle, the plasma flow began as a bluish-green wisp and then turned into an orange-pink-red glow that engulfed the ship. Although the exterior of the shuttle became very hot, special tiles protected the astronauts inside.

Although a world without gravity takes time to adapt to and life on the International Space Station is busy with work, going into space is such an amazing experience, many astronauts go more than once. No wonder private companies have made plans to allow civilians a chance to experience this opportunity of a lifetime on the next generation of rockets and spacecrafts.

## ELL CONSIDERATIONS:

- Discuss space travel with ELLs. Use the terminology of the passage to elaborate on details. For example, ask, "What do we call a person who travels to space?" Introduce terminology by asking, for example, "What do astronauts wear? What does it feel like to *lift off*? (It 'feels like having a large person sitting on your chest.')
- Discuss topographic features of Earth that can be seen from space. Include features of the school neighborhood. Examples: "Astronauts can see volcanoes. Can we see volcanoes? Astronauts can see canyons. Can we see canyons?"
- The third-person simple present tense is used extensively in the passage. Elicit the third person simple present tense from students by asking do/does questions. For example, "How often does the ISS orbit Earth?" "How high above Earth is the ISS?"
- Call attention to the following tier two and three vocabulary words in the passage for some pre-discussion. In addition, teachers may use the words below in a sentence or use synonyms or antonyms in the discussion.

Tier two words:

- exhilarating
- dislodged
- jutting
- wisp
- breached
- ricocheted

Tier three words:

- plasma
- technicians
- topographic
- turquoise