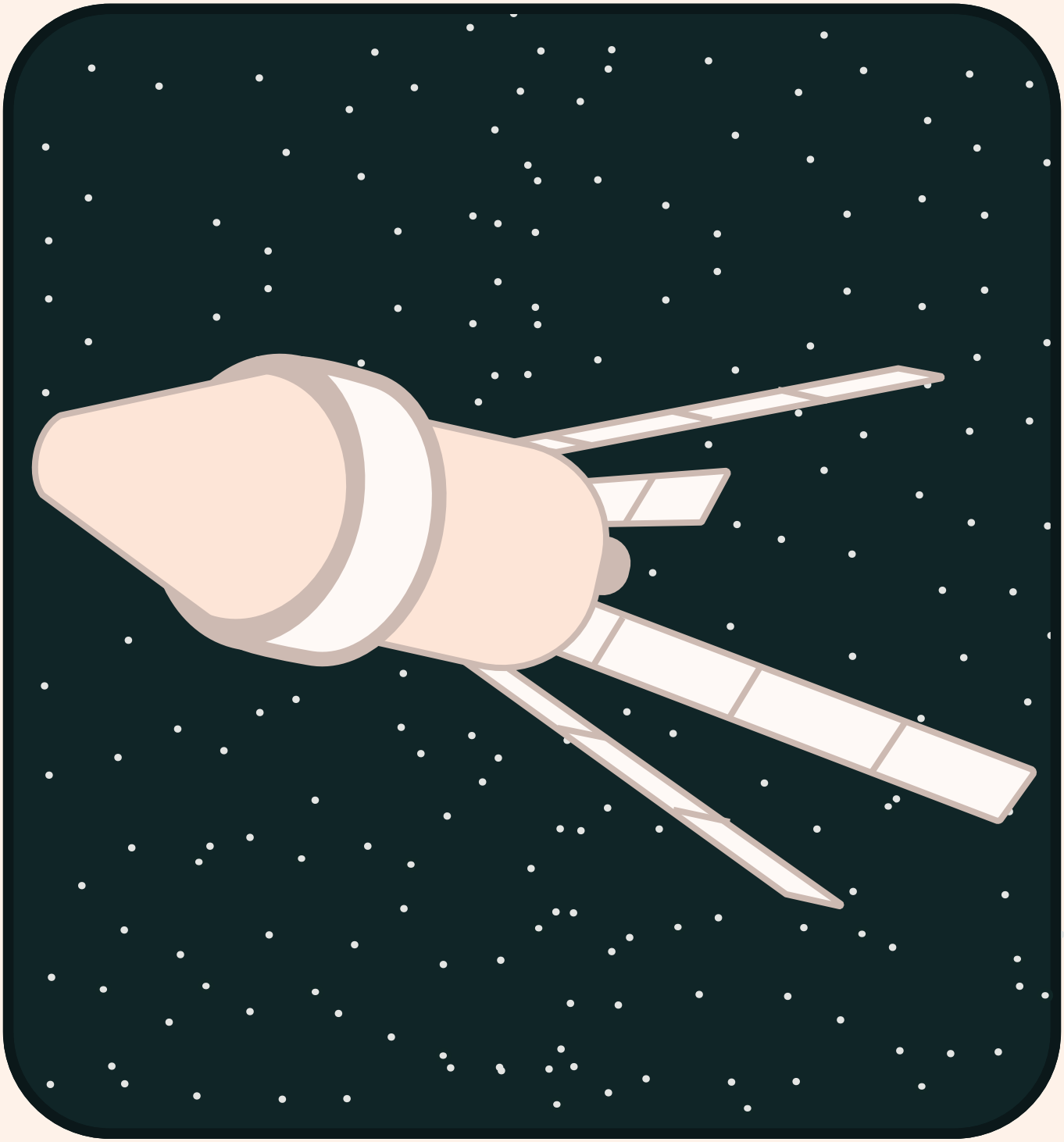
The Orion Space Safety



Risks of Space Travel:

It has been widely accepted that there are many risks to space travel. Even Armstrong, before the moon landing rated his chances of survival at 50/50. Major risks of space travel include altered (zero) gravity, hostile and closed environments, radiation, “safe return” distance, and more. Each of these dangerous phenomena remain a concern when planning a mission to outer space, and have contributed heavily towards the Orion’s design considerations.

Safety Measures

As the newest spacecraft for long-distance space travel and effective space missions, the Orion holds numerous new measures for the safety of the crew. These measures include the following:

Launch Abort System (LAS)

This system is a precaution used when the need to abort a launch becomes apparent after all astronauts have boarded the ship. If this needs to be triggered, and the trip can't be rescheduled, all involved parties will be issued a full refund. This system weighs around 8 tons, and can activate within milliseconds at any point. It consists of a Jettison Motor, which pulls the LAS away from the crew module, and allows the Orion's parachutes to deploy for a safe water landing, an abort motor, which can propel the crew module away from the launch pad in the event of a launch emergency, and an altitude control motor, which assists with steering of the crew module.

Shock Absorption Technology

One of Lockheed Martin's main goals for the Orion is to increase the safety of the launch and landing process for astronauts with new shock absorption technology. This system consists of newly designed seats which will assist the crew with land landings as opposed to the more traditionally seen water landings. This technology is a major improvement from current seating systems seen on ships like the Russian Soyuz, and will be a step towards preventing back and spine injuries in astronauts

Radiation Warning and Protection System

Outside of standard radiation protection measures, the Orion contains 2 further measures to protect astronauts from the dangers of solar radiation. These include a:

Hybrid Electronic Radiation Assessor (HERA):

This onboard instrument acts as a warning system at the occurrence of some radiation event like a solar flare.

Temporary Radiation Shelter:

This is a way for astronauts to protect themselves further at the warning from HERA. They can quickly move t hemselves towards the center of the crew module, and barricade themselves with onboard stowage bags. This creates a simple, quick, and effective shelter from heightened levels of radiation.

ECLSS and Life Support Systems

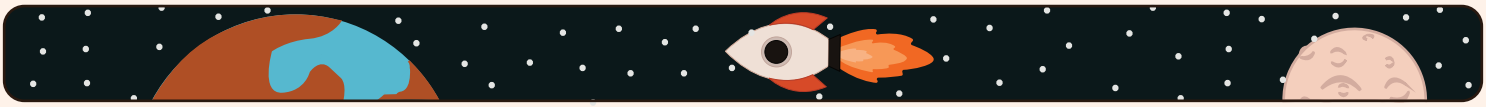
Obviously when traveling to space, there needs to be some way to regulate the environment within the spacecraft.
This is where the Orion's newly developed ECLSS and Life Support Systems come into play. These systems include the basic functions of spaceship life support, but also have new advances in:

- Humidity Control
- CO2 Removal and Control
- Temperature Control
- Pressure Control

In the event of a depressurization, this system also includes new spacesuits, which can interface with life support for 6 days, in order to make a safe return to Earth. These new spacesuits are a new take on classic launch suits, and come in a bright orange color with a variety of life support tools

New Heat Sheild

With new developments in spacecraft technology, it is only fitting that the Orion has the newest form of heat shield available. This heat shield is capable of withstanding temperatures exceeding 5000 degrees fahrenheit for smooth returns to Earth from space.



Conclusion

With all of these new safety advancements, space travel is the safest it has ever been, and by using the Orion Spacecraft, we will provide all astronauts with the safest possible flight.