

# REACHING FOR THE STARS



## Where Is Sunita Williams? Is She Safe? ... Several Such Questions Answered

**Disha Dhir, X D & Simran Jain, XII G**  
AIS Gurugram 46

It's Friday night dinner, and the atmosphere at home is thick with tension. Mother has just finished watching NewsSprint, which reported that the Boeing Starliner, designed to ferry astronauts to and from the International Space Station (ISS) has returned to Earth, sans the crew it had taken up. Renowned astronauts Sunita Williams and Barry Wilmore, who took the test flight on June 5, 2024, will have to extend their stay in space until early next year due to critical technical failures on the spacecraft. While the entire world is anxiously waiting for more updates, our mom on Earth has another pressing question on her mind.

**Mom:** *Toh, aage ka kya socha hai?*

**Vyom:** Actually, we've been wanting to discuss this with you. Dad's already on board. Mom, we want to become astronauts.

*\*The spoon clatters to the floor\**

**Mom:** What? Astronauts? You mean you want to be stuck in space for months, with me worrying endlessly about your safe return?

**Aakash:** Hey mom! Relax. Being an astronaut is all that we have dreamed about. We understand your concern stems from the recent reports of Sunita Williams and Butch Wilmore being in space beyond the expected date and that they will return only in February 2025. But these reports are really not what they are made out to be. They are not 'stuck' in space, NASA is keeping them safe on the ISS, which is

fully equipped for long stays.

**Mom:** What do you mean? The reports are incorrect?

**Vyom:** No mom, reports of them not returning until February 2025 are correct but numerous reports about them not having food, falling sick, are mere conjectures.

**Aakash:** Yes mom. The mission was to certify that the Boeing Spacecraft was safe for routine travel to and from space. But their flight to the space station encountered thruster issues and helium loss. Five thrusters were considered damaged and unusable, and five separate helium leaks were detected in the service module. NASA ultimately deemed it too dangerous to bring them back on Starliner, resulting in the delay. But the astronauts are safely living in the ISS with adequate stock of food, water and all basic amenities.

**Mom:** But I read about the severe weight loss and a super bug infection that could be a serious threat, as well.

**Vyom:** Well, it's just a research study done by IIT Madras and NASA's Jet Propulsion Laboratory (JPL). They found a super bug *Enterobacter bugandensis*, a common nosocomial bacterium which could pose a unique challenge to the health and safety of astronauts. But, NASA has confirmed that the ISS conditions won't allow this 'superbug' to survive, so all crew members are safe from it.

**Mom:** Wow! I thought you are just 12, but you already talk like a space expert. Tell me more, I am listening.

**Aakash:** Mom, weight loss is common among astronauts who stay in space for extended periods of time, and this happens because it is hard to maintain body mass

in a microgravity environment. This can be mitigated by simply engaging in daily exercises for around 2.5 hours per day to avoid muscle atrophy and maintain strength.

**Vyom:** And not just that, NASA carefully monitors the health of all members aboard the ISS, ensuring they undergo regular health evaluations, with dedicated flight surgeons overseeing them.

**Mom:** Hmm, this seems more like a story you both have cooked up to convince me!

**Aakash:** No mom, let me show you some videos from the NASA website. Here is the ISS. You can see that it's as big as a football field! It has six sleeping quarters, two bathrooms, a gym, and a panoramic bay window. Also, read this recent message Williams sent from the ISS, "This is my happy place. I love being up here in space!" It certainly sounds like a stellar getaway for them!

**Vyom:** In fact, mom, do you know how lucky they are? They have the unique opportunity to witness 16 sunrises and sunsets every day aboard the International Space Station. On Earth, we have just one of each. Imagine 32 beautiful cosmic visuals in a day!

**Aakash:** And that's because every 90 minutes, the ISS completes a full orbit around the Earth at a speed of approximately 28,000 km/h, which means astronauts see a sunrise or sunset every 45 minutes. Astronauts on ISS experience 16 day-night cycles in a single Earth day. The ISS moves at a much faster rhythm compared to life on Earth, where day and night typically last about 12 hours. Therefore, astronauts experience a transition between

light and darkness every 45 minutes, creating a unique cycle that repeats 16 times each day.

**Mom:** Wow, that's really interesting. But why hasn't NASA been able to rescue them yet, especially when Starliner has come back?

**Vyom:** Because NASA deemed it too unsafe for the astronauts. Also, there are other reasons, such as ISS crew rotation logistics, which means that NASA has shifts for all astronauts. If they were to hurriedly bring them back, this would have a negative impact on the well-oiled machine.

And any which way, SpaceX has already launched a Crew-9 mission, the ninth operational NASA Commercial Crew Program flight, to bring them back safely from space.

**Aakash:** Consider this as well - this extended mission can help us find invaluable data on long-duration space habitation, further enhancing future space exploration. Astronomy is an unpredictable path, which is precisely why we find it so enchanting!

Each twist and turn holds the potential for groundbreaking discoveries, and who knows, one day maybe we'll be up there. So, while it may sound a bit daunting, we believe the adventure is worth the risk. What do you think Maa?

*\*Mummy gulps in water, ready to give her final judgement\**

**Mom:** *\*smiles\** It's hard not to worry, but if you're ready for these challenges, I will support you when the time comes. Meanwhile, let's hope our star astronauts come back soon.