

Do you want to be a spaceman?



Nasa astronaut Jeffrey N. Williams talking about his experiences to students and staff of the Singapore Institute of Technology at SIT Dover campus on June 8.
ST FILE PHOTO

BY KEITH LIM

Since the first humans reached the moon on July 16, 1969, 53 years ago, mankind's forays into space have only expanded.

Globally, there are around 70 countries with space agencies. However, the United States spends the most on its space programme at approximately US\$54.6 billion (S\$76.5 billion) in 2021.

The National Aeronautics and Space Administration (Nasa), which is responsible for the US space programme, also has had the most number of space missions at 135, sending more than 355 different people into space.

Singapore too has some space ambitions, so if you want to join the space race, here are five areas you need to develop.

HONE SPECIAL SKILLS

Astronauts do not all do the same job while in space.

Some are pilots, who operate the spacecraft. Others are mission specialists, who ensure the spacecraft and equipment are in working condition. For example, they may have to do a spacewalk, which refers to exiting a vehicle in space, to repair or check on the spacecraft's exterior.

There also those who conduct experiments in space. For example, cancer research is done on the International Space Station (ISS). Studying cancer cells without gravity's influence helps researchers learn more about the cells' behaviours and properties.

BE PREPARED FOR HARD WORK

Nasa usually selects people who have a master's degree in science or mathematics fields.

Also, Nasa expects applicants to have at least two years of professional experience after completing their degrees or at least 1,000 hours clocked as a pilot on a jet aircraft.

Furthermore, applicants must pass the long-duration flight astronaut physical exam, which tests eyesight, body coordination and agility.

In China, becoming a Chinese astronaut – also known as a taikonaut – is no cakewalk either.

To even qualify as a taikonaut, 43 criteria, like

age and background, have to be met. Seventeen physical checks are also done to test endurance, and the physical training is painfully hard.

For example, a taikonaut's simulated spacewalk training involves wearing a 200kg spacesuit and being under water for up to four hours each time.

DEVELOP A RESILIENT MINDSET

Mr Jeffrey N. Williams, 64, a Nasa astronaut who holds the record for the longest time spent in space as an American man at 534 days, was recently in Singapore.

He said: "Psychologically and mentally, you should be one that you're not afraid of heights, you're not afraid of confined spaces."

He also added that astronauts should aim to "maintain a good attitude, to continue to be a contributing member of the team, to continue to work day to day and not get focused on the self".

Also, being an astronaut means sacrificing time spent with loved ones, as space expeditions typically last about six months.

MAINTAIN YOUR FITNESS

Astronauts have to spend lots of time hitting the books, but they must also be very fit.

While in space, they have to exercise for at least two hours daily or their bodies will begin to lose bone and muscle in a process known as muscle atrophy, limiting their ability to work.

Thus, astronauts keep fit by doing exercises ranging from running on the treadmill to pedalling a stationary bike.

TRY, AND BE PATIENT

Last year, about 12,000 people applied to be Nasa astronauts. Yet, only 10 were accepted.

With such a large pool of applicants alongside a strict screening process, there is no guarantee that one can become an astronaut even if one has the right skills.

Said Mr Williams: "All we can do is work hard to prepare ourselves when that opportunity comes along."

Nasa, Statista, McKinsey, CGTN

Turn to the next page to find out what astronauts wear to protect themselves from the extreme conditions of space