



# AN OUT-OF-THIS WORLD TOURIST DESTINATION



Want to try out a new holiday destination? You say money is no object? Then how about a trip to space? Imagine taking a selfie while floating in **microgravity**!

Book your seat now. This could be the year that the **commercial** space industry really takes off. Private firms are now testing their space-bound vehicles and even pre-selling seats.

## SPACE TOURISM'S SHORT HISTORY

The first space tourist was an American multimillionaire. In 2001, he spent \$20 million to catch a ride on a Russian Soyuz rocket to the International Space Station (ISS) 400 kilometres from Earth. Then, six more space tourists took Soyuz rockets to the ISS.

So far, they're the only commercial passengers to experience space flight. The reason: In 2009, the Russian

Space Agency ceased its space tourism operations.

But some commercial operators are promoting space tourism once again. Customers will have several options, including suborbital and orbital flights. They could even a stay in an orbiting hotel.

## SUBORBITAL FLIGHTS

On suborbital flights, passengers will fly to the other side of the Kármán line 100 kilometres above the Earth. That's where the planet's atmosphere ends and space begins. They'll get a stunning view of Earth. They'll also experience a few minutes of weightlessness, so they can float around the spaceship before returning to Earth. The entire flight will last about 15 minutes.

The two companies planning to offer suborbital excursions are Virgin Galactic and Blue Origin. The cost? About \$250,000.

## INTO ORBIT AND BEYOND...

During orbital flights, spacecraft stay in space, travelling along a path consistent with the curvature of the Earth.

To reach orbit, spacecraft must travel very fast. A suborbital rocket can reach an altitude of 200 kilometres at about 6000 kilometres per hour. But it would have to go about 2800 kilometres an hour to get into orbit. It is this incredibly high speed that makes orbital space flight technically very complex and expensive.

Still, two firms plan to offer flights beyond Earth's orbit: Boeing and Space Explorations (SpaceX). Both work with NASA to transport astronauts to and from the ISS. Their deal with NASA allows them to take a few tourists along for the ride.

You say you want to hang out in orbit for a while? You can do

## DEFINITIONS

**COMMERCIAL:** relating to business

**MICROGRAVITY:** a condition in space in which only minuscule forces are experienced; the virtual absence of gravity



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that at the Aurora Space Station planned by the U.S. firm Orion Span. The proposed hotel in low-Earth orbit will accommodate six guests for 12-days. A stay will likely top \$10 million. Several months' worth of visits are already sold out. And the hotel hasn't even been built.

## RISKY BUSINESS

In 2018, two astronauts aboard a Soyuz rocket heading to the ISS had to make an emergency ocean landing after a booster failed. Luckily, they were fine.

NASA, too, has had a couple of disasters. In 1986, the Challenger **space shuttle** exploded after takeoff. Then, in 2003 the shuttle Columbia disintegrated as it was returning to Earth. Seven crew members died in both cases. And in 2014, Virgin Galactic's test spaceship broke up. The accident killed its co-pilot and severely injured the pilot.

Of course, on Earth, adventure tourism has its dangers, too. A trip up Mount Everest is no walk in the park. Tourists have been killed while swimming with sharks. But trips to the great beyond are even riskier.

## CAN YOU HANDLE IT?

Spaceflight is physically tough. Some 600 people have flown

into space so far – almost all of them professional astronauts. To get the job, they had to be exceptionally healthy, fit, and stress-tolerant. Even then, space wreaked **havoc** on their bodies.

Humans have evolved over hundreds of thousands of years to thrive on the surface of the Earth. People aren't designed to live in microgravity. So the longer they spend there, the more problems they can have.

Fortunately, space tourism flights will be short. So longer-term risks such as exposure to **cosmic radiation** are less of an issue. Still, the trip won't be all fun. Tourists face anxiety, motion sickness, loud noises, small spaces, and g-forces.

"Body fluids stop flowing normally, [so] people's faces look puffy, and they generally have bloodshot eyes," says Richard Garriott de Cayeux. He paid \$30 million in 2008 to spend 12 days aboard the ISS. "It feels like lying on a children's slide, head down."

Another side effect? Fluid in the inner ear normally helps a person detect motion and stay balanced. But in space, the fluid also floats. That causes motion sickness. It takes about three days for the brain to adjust.

## NOT A MONEY-MAKER

Space tourism is a risky business. The up-front costs to build and test space vehicles are enormous.

Will space tourism be a money-maker? It hasn't been so far. Several space tourism ventures folded before getting off the ground. But it's still early days. In time, the cost is expected to go down. Then, it will become a travel option for more than rich celebrities and business **moguls**.

## WHAT'S THE APPEAL?

But why would anyone choose to travel to space? Is it just for bragging rights?

"I'm really going to focus on the view... and take it all in," says a journalist who bought a seat on a Virgin Galactic flight. "I understand that it is a life-changing experience."

From space, our planet looks like a blue marble against a backdrop of nothingness. Space travellers say they return to Earth with a new perspective on our world.

"We came to explore the Moon, and the most important thing is that we discovered the Earth," said astronaut Bill Anders, who once viewed the Earth from the Moon. ★

## DEFINITIONS

**COSMIC RADIATION:** very small particles of very high energy that reach the Earth from outer space

**HAVOC:** a lot of damage or destruction

**MOGUL:** an important and powerful person

**SPACE SHUTTLE:** partially reusable low Earth orbital spacecraft system that was operated from 1981 to 2011 by NASA as part of the Space Shuttle program



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## ON THE LINES

Answer the following in complete sentences:

1. How many tourists have travelled into space? When did these trips stop?

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2. What efforts are ongoing to re-start space tourism?

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3. What is a **suborbital flight**?

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4. List at least three important facts about this type of voyage.

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5. What is an **orbital flight**?

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6. List at least three important facts about this type of trip.

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7. Describe the third option being proposed for space tourism.

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8. How many astronauts have flown in space?

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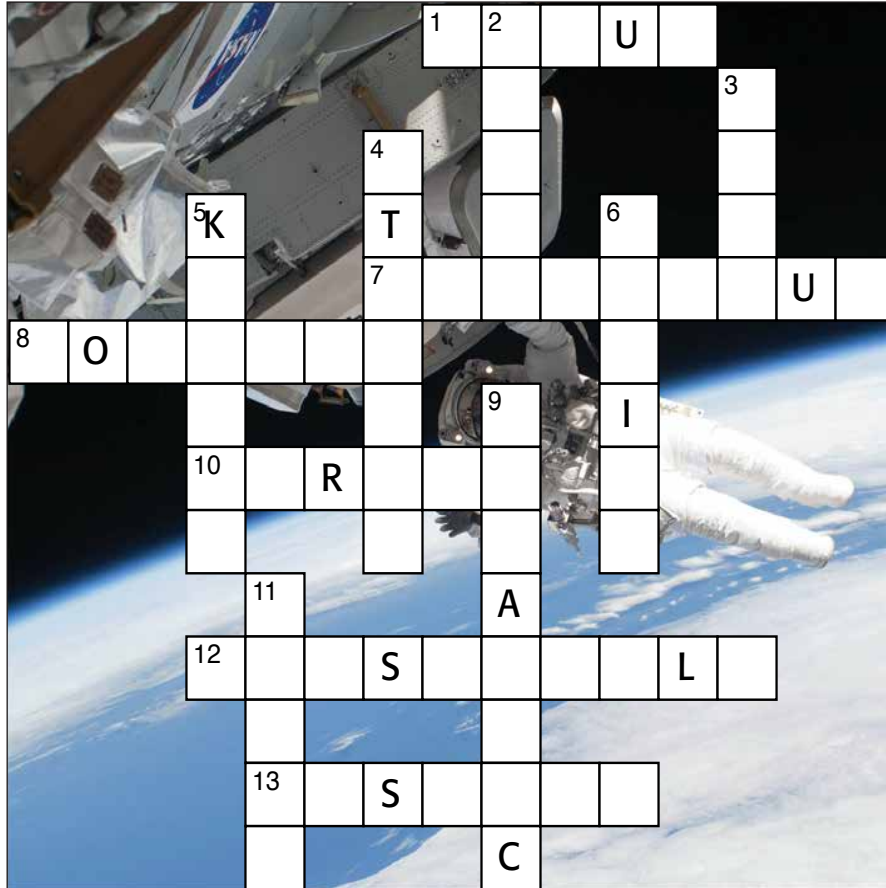
9. Describe the demands of space flight on the human body.

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[https://commons.wikimedia.org/wiki/File:STS-130\\_EVA3\\_Nicholas\\_Patrick\\_1.jpg](https://commons.wikimedia.org/wiki/File:STS-130_EVA3_Nicholas_Patrick_1.jpg)

### ACROSS

- 1) Russian space rocket
- 7) highly-trained space traveller
- 8) person who travels for pleasure
- 10) Orion Span is planning to build the \_\_\_\_\_ Space Station
- 12) spaceflight is \_\_\_\_\_ tough
- 13) \_\_\_\_\_ Space Agency used to fly space tourists to the ISS

### DOWN

- 2) to move in a circle around something
- 3) American space agency
- 4) ISS = International Space \_\_\_\_\_
- 5) Earth's atmosphere ends at the \_\_\_\_\_ Line
- 6) company that plans to offer orbital space flights
- 9) Virgin \_\_\_\_\_
- 11) most space tourist flights will be \_\_\_\_\_



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**QUIZ**

A. Write the letter that corresponds to the best answer on the line beside each question:

- \_\_\_\_\_ 1. How much did the first space tourist pay for his trip?  
 a) \$250,000    b) \$7 million?  
 c) \$20 million     d) \$30 million
- \_\_\_\_\_ 2. Which organization transported this space tourist?  
 a) Virgin Galactic    b) NASA  
 c) Russian Space Agency                                     d) Space Exploration (SpaceX)
- \_\_\_\_\_ 3. Which of the following is NOT a short-term space travel risk?  
 a) anxiety    b) cosmic radiation  
 c) g-forces     d) motion sickness

B. Mark the statements T (True) or F (False). If a statement is True, write one important fact to support it on the line below. If a statement is False, write the words that make it true on the line below.

- \_\_\_\_\_ 4. True or False? The Prime Meridian is where the Earth's atmosphere ends and space begins.  
 \_\_\_\_\_

- \_\_\_\_\_ 5. True or False? A spacecraft must travel 6000 km per hour to reach orbit.  
 \_\_\_\_\_

- \_\_\_\_\_ 6. True or False? NASA is planning to build an orbiting space hotel.  
 \_\_\_\_\_

C. Fill in the blanks to complete each sentence.

7. The first seven space tourists traveled to the ISS on \_\_\_\_\_ rockets.
8. The \_\_\_\_\_ Space Station will accommodate six guests for a 12-day stay.
9. Spaceflight is \_\_\_\_\_ tough.

D. Respond to the following question in paragraph form. (Use a separate sheet of paper if necessary.)

If you had the opportunity to travel in space, would you go? Why or why not? Explain.

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