



Hey you, astronaut

Tourist trips into space are poised for take-off. Prepare for boarding with Sarah Cruddas

Visiting a spaceport won't feel that different from visiting an airport



REX FEATURES

OK, SO no one is pretending that a trip into space comes cheap. But space tourism has come a long way since American billionaire Dennis Tito paid an eye-watering \$20 million for an eight-day vacation on the International Space Station (ISS) in 2001.

If all goes to plan, next year Virgin Galactic will welcome its first paying passengers on board flights to the very edge of space. And Virgin isn't alone. Three other companies are planning similar flights, with prices starting at \$95,000. Still expensive, but apparently not too dear for the 900 or so people who have already reserved their seats with the companies. For more adventurous types who don't mind waiting a few extra years (and have exceptionally very deep pockets), a trip to the moon will set you back \$150 million. So what can a budding astronaut expect?

HOW DO I BOOK?

Booking a flight to space is much easier than you might think. Virgin Galactic's London office, in a well-heeled part of town, is smart and surprisingly free of the gimmicks for which owner Richard Branson is famous. All except for the bathrooms, which have a life-sized painting of a spacesuit on the mirror. "For many of our customers, the experience of booking is the same as any other form of high-end travel," says Jonathan Firth, the company's director of operations and projects, "although you could expect to be treated to tea at the Ritz as part of the process."

If you're not in London, Virgin Galactic has specialist agents around the world – as do the other companies. And, of course, you can book over the phone or internet. A suborbital flight with Virgin Galactic will set you back \$200,000, or members of Virgin airlines' frequent flier club have the opportunity to win a seat. You'll need to fly a lot, though. Alan Watts from London will be the first frequent flier in space and cashed in 2 million air miles. He had plans to travel the world when he retired from his job as a company director of an electrical contractor, but couldn't pass up the opportunity of a view from space.

WHAT IF I CHANGE MY MIND?

If you get cold feet, all is not lost. "You can have a refund up to 90 days before you fly," says Tom Shelley, president of Space Adventures in Vienna, Virginia. "And if your flight is deferred, then we just reschedule."

Shelley doesn't expect many cancellations. "The people who are paying for these flights want to go into space." He should know. Space Adventures is the only company with a track record in space tourism, having sent Tito and six other wealthy space tourists to the ISS on Russia's Soyuz spacecraft.

CAN I FLY?

You must be over 18 years old, and consent to the risk. Health is a factor, too. "We wouldn't let you fly if we didn't think it was safe," says Firth. "The *g*-forces you experience, which peak at around 6*g* on descent, can affect people with heart problems and high blood pressure." Passengers are given a medical beforehand, but there are currently no height and weight restrictions, and companies try to accommodate all those who want to fly. "The criteria aren't as strict as they were for the Apollo landings," says Firth. ➤

WHAT'S ON OFFER?

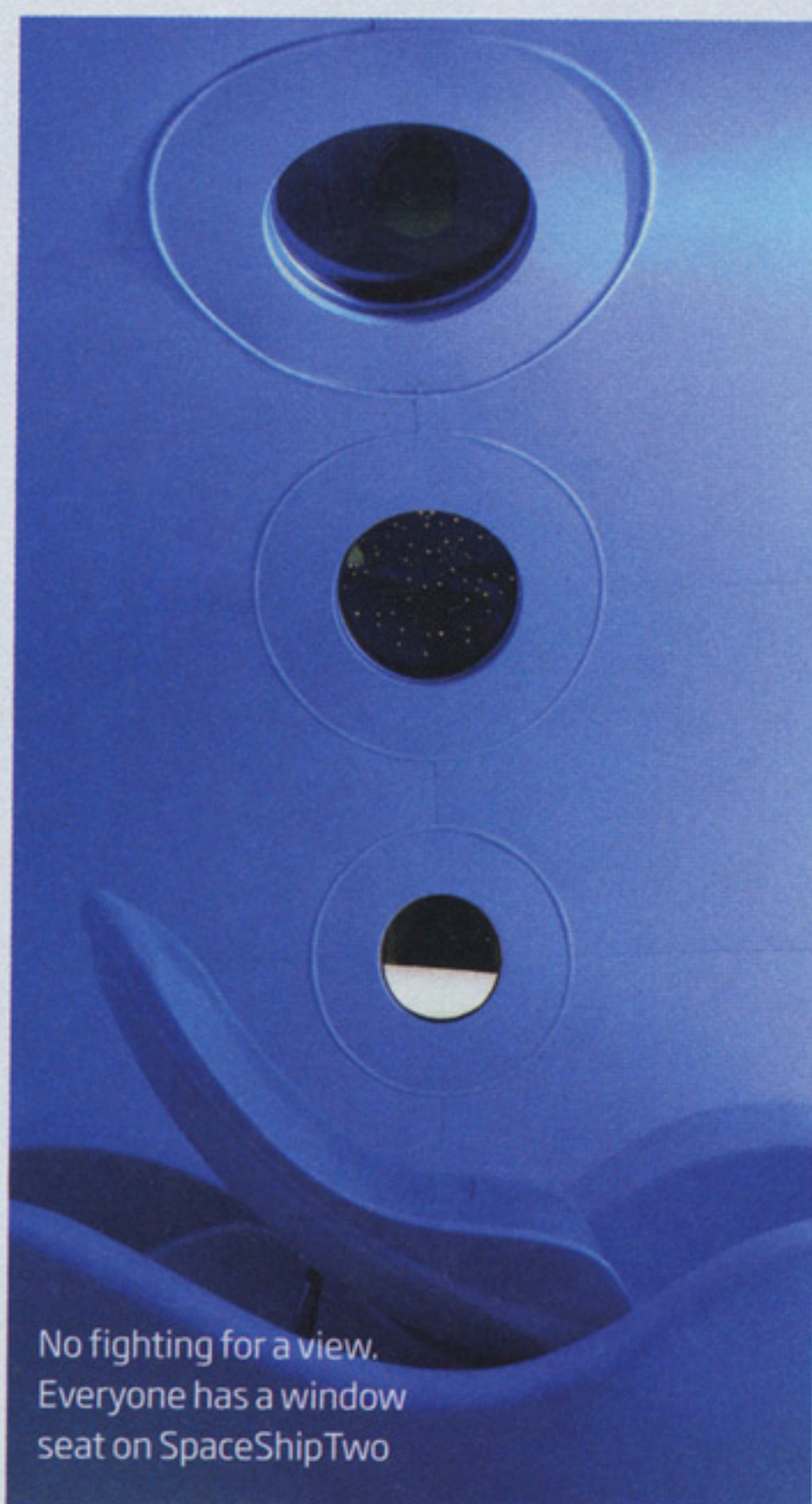
Most of the trips being offered at the moment are suborbital flights, meaning they won't achieve the velocity needed to make a complete lap around the planet. XCOR Aerospace based in Mojave, New Mexico, offers the cheapest trip at \$95,000. You won't have to share the pleasure with other tourists, either – it'll be just you and the pilot.

XCOR's Lynx II craft is still under development. It is designed to take off from the runway horizontally, like an aircraft, but under rocket power. Within 5 minutes, it will reach an altitude of 100 kilometres. The total flight time will be 35 to 50 minutes.

With Virgin Galactic, you'll fly in a craft called SpaceShipTwo that is carried by a high-altitude plane called White Knight Two to 15 kilometres. At this point, the plane releases you and SpaceShipTwo's rocket engines fire to blast you to space.

Space Adventures takes another approach. Instead of riding in a vehicle resembling an aircraft, they plan to launch two passengers at a time using a more traditional vertical rocket – with no pilot on board.

Space Adventures and Excalibur Almaz, based in the Isle of Man, UK, both offer deeper space experiences, including trips to the ISS, the moon, and even near-Earth asteroids using Russian rocket technology.



No fighting for a view.
Everyone has a window
seat on SpaceShipTwo

TAKE COVER

To boldly go entails risk. "No one should expect that a hop into space is on a par with boarding a commercial aircraft," says NASA astronaut Piers Sellers. "There is significant risk involved and it's likely to stay that way for a while."

So you might want to take out travel insurance before you fly. Allianz Global Assistance offers a spaceflight policy that will cost you about 3 to 5 per cent on top of the price of your flight. "It works in a similar way to other travel insurance," says Erick Morazin, the company's chief sales officer in Singapore. "It has been tailored to offer support such as cancellation, space training cover, medical assistance, loss of luggage (not in space) and things such as psychological support to the traveller and family in case of a major incident."

At the moment, spaceflights from the US are regulated by the Federal Aviation Administration, with regulatory frameworks in other countries still being developed. To ensure vehicles are as safe as possible, the Commercial Spaceflight Federation in Washington DC shares best practice within the industry and with government agencies. However, its executive director Alex Saltman is realistic about the prospect of disaster. "We know at some point an accident will occur," he says.

Safety is paramount. "Nobody wants to see an accident, and the provider will do everything to ensure the safety of the customer," says Shelley, echoing a sentiment oft heard across the industry. At the spaceports, you can expect medical teams, fire trucks, ambulances and air rescue on site. As for safety on board, there are parachutes for passengers on some spacecraft as well as full training before you fly.

"On the day of your flight, you can expect a bit of Hollywood, such as walking to the craft suited and booted and receiving your astronaut wings"

WHILE YOU WAIT

So you've picked your trip and paid your deposit. What else do you get for your cash? In the months or years before your flight, Virgin Galactic gives you the chance to attend exclusive events, such as watching test flights and travelling to air shows. "My wife and I have had trips to New York for presentations and attended parties here in the UK," says Watts. However, travel to these events is not included in the price of the flight. After all, you may have a long wait before you fly.

Other companies offer similar experiences, although Excalibur Almaz goes one step further. "Once we have people to fly on our trip to the moon, they will very much be involved in defining what happens on the mission," says chief executive Art Dula.

SPACEPORTS

The world's first commercial spaceport and base of Virgin Galactic is Spaceport America in New Mexico. There are another eight spaceports in the US (excluding airforce bases like Cape Canaveral), and plans for others across the world.

According to Christine Anderson, executive director of the New Mexico Spaceport Authority, visiting a spaceport will be similar to the experience you have at an airport. "There will be a terminal just for passengers and you will need a form of government ID to get to that," she says. The first spaceports will cater for non-fliers as well: Spaceport America is expecting 200,000 sightseers a year to its visitors' centre, which opens at the end of 2013. And Spaceport Sweden aims to offer a whole range of space tourism experiences – on the ground, in the air and in space.

As for what to do airside before and after you fly, watch this space. There are no plans for duty free shopping just yet...



TRAINING AND FLIGHT

Training is an integral part of the spaceflight experience, although what you get very much depends on the company you chose. With Virgin Galactic, your ticket price includes five nights in accommodation 50 kilometres from Spaceport America. During this time you have three days of training, with the fourth day being your flight day. Included are things such as medical checks, techniques and training for high *g*, as well as evacuation drills and learning how to work your SpaceShipTwo seat, which changes position from take off to landing.

Other companies, such as Space Adventures, offer a slightly shorter training time but recommend that you take part in other space experiences in preparation – such as zero-gravity flights in which you'll be weightless for a few minutes.

The number of fellow tourists you fly with also depends on the company you use. Virgin Galactic is currently taking the most people into space, with six passengers per trip. Don't be surprised if you find yourself sitting next to a celebrity. According to the company's website, actor Ashton Kutcher has been confirmed as the 500th person to sign up. Or you could be next to working scientists, as companies are taking bookings from those wishing to bring small experiments on board.

As for the people taking you to space, the number of space pilots is currently small but will inevitably grow. Among those currently recruited by XCOR is former NASA space shuttle commander and pilot Richard Searfoss, while Virgin Galactic, who will have a crew of two on SpaceShipTwo, has a former Virgin Atlantic pilot among their test pilots.

On the day, you can expect a little bit of Hollywood, such as walking to the craft on the



RICHARD BAKER/CORBIS

Strike it lucky: Alan Watts will be the first frequent flier in space

"Allianz Global offers a spaceflight policy that works in a similar way to travel insurance, and costs about 3 per cent of the price of your flight"

morning of your flight suited and booted – imagine it in slow-motion with the soundtrack of your choice – and receiving your astronaut wings. As for documenting the trip, all this is done for you with photographs and videos of your flight so you can sit back and enjoy. One concern is the weather – as with all spaceflights, there is a risk that it could be postponed and moved to another day.

Virgin Galactic can't say yet what time of day you'll fly, or give the exact timing of events during the flight, such as when the seat-belt signs turn off. The flight is likely to be in the morning, although some companies, such as XCOR, hope to fly up to four times a day.

Once you take off, the smoothness of the ride depends on who you fly with and the weather. Rocket-powered flights of the type offered by XCOR would feel smoother than a flight on a small aeroplane, says the company's chief operating officer, Andrew Nelson. And because you're travelling faster than the speed of sound, it will be quieter than you might expect.

Once in space, you will experience the joy of weightlessness for several minutes. Don't expect to float around freely if you travel with XCOR, though, as you'll be unable to unstrap from your seat. The seat-belt signs will turn off with Virgin Galactic and Space Adventures and then turn on again before re-entry.

Virgin Galactic's SpaceShipTwo is designed so that everyone has a window seat. And as for the view, these initial flights will be from Spaceport America so you will see North America, as well as being able

to look out into the blackness of space.

In terms of refreshments, don't get your hopes up. The hefty price tag does not include a trolley full of peanuts and wine – although you may be allowed to take a drink aboard with you. In the early years, it is likely that you will wear a pressurised or pressurisable suit, which leads seamlessly into that all important issue: going to the toilet in space. Well, that's still to be worked out. But as the longest of the predicted spaceflights is 2 hours, with Virgin Galactic, hopefully most people will be able to contain it, if not their excitement.

PROSPECTS

It is difficult to predict exactly what is going to happen until the first flights have taken place. The Commercial Spaceflight Federation suggests that flights could become available from spaceports across the US over the next few years, with suborbital flights becoming common and orbital flights picking up.

It's not just about thrill-seeking. "We were built to go over the hill and explore," says Dula, who believes there is a bright future ahead. "There's only one industry bigger than the military, and that's tourism."

Although we are still a long way from budget trips to space, Nelson foresees the potential for prices to fall below \$50,000 in the next 10 years. For many more than the six tourists who followed Dennis Tito, a journey into space will no longer seem a million miles away – just the 100 kilometres it has always been. ■

Sarah Cruddas is a freelance broadcaster and writer in London



Virgin Galactic's hub is Spaceport America in New Mexico