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THE NEW SPACE AGE

How to travel to space, Earth's hottest new destination

Go boldly, but pack lightly

By Ben Guarino

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The space just above our planet <u>is booming</u>. Offworld trips are rapidly increasing: 42 of the 51 <u>commercial astronauts</u> recognized by the Federal Aviation Administration left Earth within the past two years.

The FAA predicts their ranks will balloon in the next decade — which may also bring new destinations, such as a rotating space hotel whose construction, planners claim, will begin in 2026 — and some experts have expressed optimism that relatively affordable space travel could be possible by the middle of this century.

For now, though, costs remain enormous. A \$450,000 ticket reserves a spot on Virgin Galactic's space plane, which flies 50 miles above Earth — six times a passenger plane's cruising altitude. Expect to pay even more to go higher. Blue Origin's 11-minute journey by rocket, which reportedly cost more than \$1 million, shoots above the 62-miles-high Kármán line, the generally agreed-upon boundary between Earth and space. Others spend days in space. In September 2021, four civilian Americans orbited for three days aboard a SpaceX Dragon capsule. No word on how much it cost them.

For \$55 million, Axiom Space will send astronauts via a SpaceX rocket to the International Space Station, a laboratory that circles Earth once every 90 minutes. For two weeks last April, the ISS's first Axiom crew members worked in the lab while forgoing proper showers.

The New Space Age

As humanity looks once again to the heavens, this series examines the recent boom of the private space industry, the long-term ambitions of NASA and foreign space agencies, and the potentially profound implications of this moment for society.

Read the section.

Space "ought to be on everybody's bucket list," said former NASA astronaut Michael López-Alegría, the Axiom Space vice president who commanded the April mission. "We'd be the first to admit that it's not quite democratic yet, because it's still pretty expensive, but we'll get there." The Houston-based company has already begun to build a segment of what will be a private space station.

Here's how to pack and prep for Earth's hottest new destination.

Getting ready

Training takes days to months. Axiom Space crew members spent at least 700 hours learning new tasks: how to run experiments, dock a transport vehicle to the ISS and respond to fires.

They also practiced on a centrifuge, the rapidly spinning machine that simulates the extreme acceleration of space travel. You don't need to be in tiptop shape — floating in microgravity is effortless, López-Alegría said — but you will have to endure intense G-force as you exit and reenter the atmosphere.

You should be mentally prepared for a unique psychological experience called the overview effect, which occurs when people witness their home planet from above. "When we came back to Earth, I could not stop crying," said aerospace PhD student Sara Sabry, founder of the Deep Space Initiative, who traveled to space last August via Blue Origin (whose founder, Jeff Bezos, owns The Washington Post).

Suiting up

Aboard SpaceX, you'll wear spacesuits: sleek, pressurized white outfits with black-visored helmets. On Virgin Galactic and Blue Origin flights, the fit is closer to a jet pilot's, with gear that's not designed for loss of pressure. Sabry said her suit was comfy and custom-tailored. Under Armour makes the clothes — underwear, jumpsuit and zip-up boots — for Virgin Galactic, which founder Richard Branson wore in his July 2021 journey to space's edge.

Going boldly, packing lightly

Space may be the one place you can fly without packing an ID or <u>passport</u>. "When we walk onto the vehicle, we're wearing our spacesuits and pretty much nothing else," López-Alegría said.

Expect to leave the rest of your worldly possessions on Earth, with a few exceptions. Sabry packed three pounds of mementos in a bag, including photographs and a single dirty sock belonging to her niece. On Inspiration4, the Earth-orbiting SpaceX mission, one astronaut brought his ukulele to serenade his teammates in the capsule.

Snapping selfies

Don't plan on filling your Instagram feed with your space travels to make your friends jealous. You won't have your phone.

On Sabry's Blue Origin flight, a few people had a GoPro strapped to their wrists to capture video — especially of the three minutes of weightlessness.

The ISS provides cameras to use. Astronauts can browse the <u>internet</u> on the space station, but posting requires help. Pictures snapped in space are beamed to Earth, López-Alegría said, where someone on the ground uploads them to social media.

Eating and drinking

There wasn't any snacking on the Blue Origin craft, Sabry said, and the up-and-down trips don't leave time for in-flight meals. Hot food isn't always an option with other carriers, either. The first course served on the orbiting Dragon capsule was cold pizza, though SpaceX founder Elon Musk apologized for the unheated pie and promised future astronauts would have a food warmer.

That's how the crew heats dinner on the ISS, which boasts a varied menu: about 200 options, mostly freeze-dried or thermostabilized. Tortillas replace bread to avoid crumbs; what's just a tabletop mess on Earth becomes a hazard when bits can float into electronics or eyeballs. There's no soda or beer because, according to NASA, carbonation bubbles would be unpleasantly routed through the digestive system without gravity to help an astronaut burp.

Staying clean-ish

Space is like backcountry camping. Both lack laundry machines and require some hygienic compromises. When astronauts must bathe, they squeeze packets of soap and water on their skin and apply rinseless shampoo to their hair. Toilets on the ISS and Dragon Capsule collect waste via suction hoses and fans. On the space station, urine is recycled into <u>drinkable water</u>. Toothbrushes and paste are the same, but without sinks, there's <u>no spitting</u>.

Falling asleep

You'll roll out sleeping bags in the SpaceX spacecraft or as an Axiom crew member on the ISS. Vehicles are temperature-regulated because the outside of the ISS can swing from minus-250 in the shadows to 250 degrees in the sun. Still, some modules, or sections, of the ISS can be chillier than others: López-Alegría said he donned long underwear to be cozier when drifting off in space.

Illustrations by Elizabeth von Oehsen. Editing by Amanda Finnegan.