

INTERNATIONAL SPACE TOURISM

– 'CAPTAIN KIRK' GOES BOLDLY INTO SPACE



It was an out-of-this-world adventure that lasted just 10 minutes and 17 seconds. Still, it was enough to move TV **icon** William Shatner to genuine tears.

Mr. Shatner is best known for his role as Captain James T. Kirk on the original Star Trek series. He was reacting to his real-life jaunt into space. The 90-year-old actor is the oldest person ever to reach the edge of Earth. He flew aboard the Blue Origin, a private spaceship owned by Amazon founder Jeff Bezos.

The rocket carrying Mr. Shatner and three others left Texas mid-morning on October 13. It shot through the sky traveling at nearly 2600 kilometres per hour. That's about the **velocity** of a speeding bullet. It reached a height of approximately 106 kilometres above the Earth. For

four minutes, the passengers floated weightlessly. They peered down at the shiny blue marble that is home to us all.

Mr. Shatner said he felt the Overview Effect. That is something astronauts have noted after seeing the Earth from a new perspective. It gave him a fresh sense of the need to tackle climate change.

“This air which is keeping us alive is thinner than your skin,” he marvelled, describing what he’d witnessed. “We need seven billion people to be angry. We need to get in motion,” he later added. “This is a struggle against the dark forces of pollution.”

SPACE TOURISM SOARS

Mr. Shatner’s voyage into space was the latest in a series of trips by private citizens to the borders of our planet. In fact, it was

the sixth rocket to transport amateur astronauts into the Great Beyond this year.

The TV captain was in select company. Only about 600 people have traveled to space since 1961. That was when Russian **cosmonaut** Yuri Gagarin took a one-orbit spin around the world. It was the first-ever trip outside the atmosphere.

Only about one dozen people since then have been space tourists like Mr. Shatner. But that is about to change. Mr. Bezos and other billionaires who build rocketships want to send ordinary people to new heights. Some estimates say the space tourism industry could be worth more than \$2.5 billion by 2031.

DEFINITIONS

COSMONAUT: an astronaut in the space program of Russia or the former Soviet Union

ICON: someone who is very famous and whom people think represents a particular idea

VELOCITY: quickness of motion



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COMPETITION HEATS UP

At present, two others are competing with Mr. Bezos for a piece of this pie in the sky. They are British businessman Richard Branson, who founded the Virgin group of companies, and American Elon Musk, inventor and founder of SpaceX, a space transport enterprise.

Mr. Branson and Mr. Bezos have both traveled on their rocketships to the perimeter of the sky. Mr. Musk, however, still hasn't experienced space travel. Yet many observers say his company could well be the frontrunner for space tourism.

The reason? The Blue Origin and Mr. Branson's Virgin Galactic spacecraft have only made **suborbital** flights. They barely ascended 100 kilometres before quickly returning to Earth.

By contrast, Mr. Musk's Falcon 9 rockets are fully orbital. They have even carried astronauts 408 kilometres to the International Space Station (ISS).

A COSTLY VACATION...

In any event, only the very rich can afford space tourism today.

Booking a flight on Virgin Galactic's SpaceShipTwo, for example, will cost over half a

THE EARTHSHOT PRIZE

Prince William, the heir to the British throne, is a critic of space tourism. "We need some of the world's greatest brains... fixed on trying to repair this planet, not trying to find the next place to live," he said.

To that end, he has founded the Earthshot Prize. It was inspired by former U.S. President John F. Kennedy's 1960s Moonshot program. That resulted in humans landing on the moon in 1969.

Winners and nominees get funding to work on solutions to problems in five areas: nature conservation, waste management, ocean revival, air quality, and climate change. On October 17, the first annual Earthshots were awarded. The winners included the makers of a green hydrogen alternative to fossil fuels, a company in India that inexpensively converts agricultural waste into fuel and fertilizer, and farms in the Bahamas that are growing coral to be replanted in the ocean.

million Canadian dollars. And you'd better really save your money if you're interested in a SpaceX mission. Mr. Musk plans to charge four passengers \$55 million each for a 2022 trek to the ISS. (For that money, he'll throw in sleeping bags and toiletries.) They will spend eight days aboard the station. As for Mr. Bezos, he won't say what customers will pay for a sprint into the black. But he has already reportedly sold \$100 million in tickets.

...IN SEVERAL WAYS

Many critics are more concerned about another cost – the cost to the environment. Rocketship fuel is what's worrying them. Mr. Musk's SpaceX Falcon 9 rocket, for example, is powered

in part by kerosene. As kerosene burns, it discharges carbon dioxide, chlorine, soot, and other dangerous substances into the upper atmosphere. Fuel emissions also add ozone to the **troposphere** where it acts like a greenhouse gas.

"We have no regulations around rocket emissions. The time to act is now – while the billionaires are still buying their tickets," said one professor.

Still, Mr. Shatner says that if everyone could see what he saw, people might resolve to be better stewards of the Earth.

"We need to take care of the planet. It's so fragile," he said. ★

DEFINITIONS

SUBORBITAL: not in orbit; not achieving an altitude and velocity needed to circle the earth at least once

TROPOSPHERE: the lowest layer of the Earth's atmosphere, between the planet's surface and about six to 19 kilometres above the surface



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COMPREHENSION QUESTIONS

1. Who was the first person to travel to space?

2. How many people have traveled to space since 1961? How many have been space tourists?

3. List the three main competitors in the developing space travel industry.

4. What is the key difference between the travel capabilities of these three spacecraft?

5. What is the cost for a trip on one of these spacecraft?

6. Describe the trip that Blue Origin took on October 13.

7. Which well-known passenger was on this trip? What is he famous for?

8. After his trip, Mr. Shatner said he experienced the Overview Effect. What is the Overview Effect?

9. Why are some people concerned about the environmental impact of space flight? Explain.



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QUESTIONS FOR FURTHER THOUGHT

1. If money were no object, which of the three space tourism options, if any, would you be most interested in experiencing? Explain.

2. Following his space flight aboard the Blue Origin, William Shatner described his thoughts: "We need seven billion people to be angry. We need to get in motion... This is a struggle against the dark forces of pollution." Do you agree or disagree with his perspective? Give reasons for your response.

3. During a post-space flight interview, Jeff Bezos, owner of Amazon and Blue Origin, casually stated, "I want to thank every Amazon employee, and every Amazon customer because you guys paid for all this." Respond to this statement. What thoughts does it provoke, and what emotions does it evoke? Explain.



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QUESTIONS FOR ONLINE EXPLORATION

Note: The links below are listed at www.lesplan.com/en/links for easy access.

1. Three major companies have emerged as the big names in space tourism: Jeff Bezos' Blue Origin; Richard Branson's Virgin Galactic; and Elon Musk's SpaceX. Visit these links to learn about the similarities and differences between these companies, their owners, their spacecraft, and the tourism experience they offer:

<https://www.cnbc.com/2020/09/26/space-tourism-how-spacex-virgin-galactic-blue-origin-axiom-compete.html>

<https://news.sky.com/story/bezos-branson-musk-the-new-space-race-explained-as-virgin-galactic-prepares-to-launch-12347249>

https://www.yout-ube.com/watch?v=R_LqgcndmAo [20:21]

Working with a partner, use a triple Venn diagram to organize the information you gather about each company. Share your findings with another pair.

2. Visit these links to get a glimpse into what it would look and feel like from the inside of these three spacecraft:

Blue Origin: <https://www.yout-ube.com/watch?v=AT2KWso-OGs> [1:42]

Virgin Galactic: <https://www.yout-ube.com/watch?v=-UIuXR-RvdM> [4:05]

SpaceX: <https://www.yout-ube.com/watch?v=aetFZEwh73o> [5:04]

Which features caught your attention? Why?

3. Find out more about the Earthshot Prize and the finalists for 2021:

<https://earthshotprize.org/>

https://www.yout-ube.com/watch?v=8od6_5LIhyY [13:54]

What three interesting or important facts did you learn?

4. Why does space tourism matter anyway? Find out at this link, then summarize what you learned:

<https://www.bbc.com/future/article/20140408-six-reasons-space-tourism-matters>



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Imagine that you are an investigative reporter interviewing one person in this scene. Generate two powerful questions to ask in your interview. (*A powerful question is not easy to answer, is specific to the situation, is open-ended and requires further research.*) Then, record plausible answers – those that are most likely to be given, believable, and supported by evidence in the image.



Blue Origin vice president of mission and flight operations Audrey Powers, Star Trek actor William Shatner, Planet Labs co-founder Chris Boshuizen, and Medidata Solutions co-founder Glen de Vries wave on the landing pad of Blue Origin's New Shepard after they flew into space on October 13, 2021 near Van Horn, Texas. (Photo by Mario Tama/Getty Images)

INFOGRAPHIC

Captain Kirk flies into space

William Shatner – Captain Kirk in cult classic Star Trek – has boldly gone where no 90-year-old sci-fi actor has gone before, aboard Jeff Bezos' Blue Origin rocket. He is the oldest person ever to travel into space

NEW SHEPARD



Height: 18 metres

BE-3 engine:
 Fuelled by liquid oxygen and hydrogen

Diameter:
 3-3.5 metres

CAPSULE

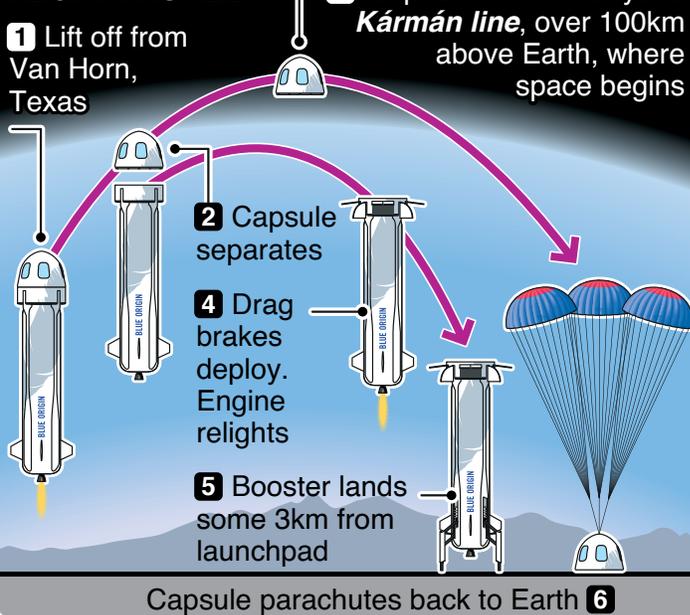
Pressurized capsule, featuring largest windows ever used in space, allows up to six people to experience few minutes of weightlessness



PASSENGERS

William Shatner (left), film and TV actor best known as *Captain James T. Kirk* in *Star Trek* (inset); *Audrey Powers* (right), Blue Origin's vice president of missions and flight operations; two paying passengers, *Chris Boshuizen* and *Glen de Vries*

FLIGHT PROFILE

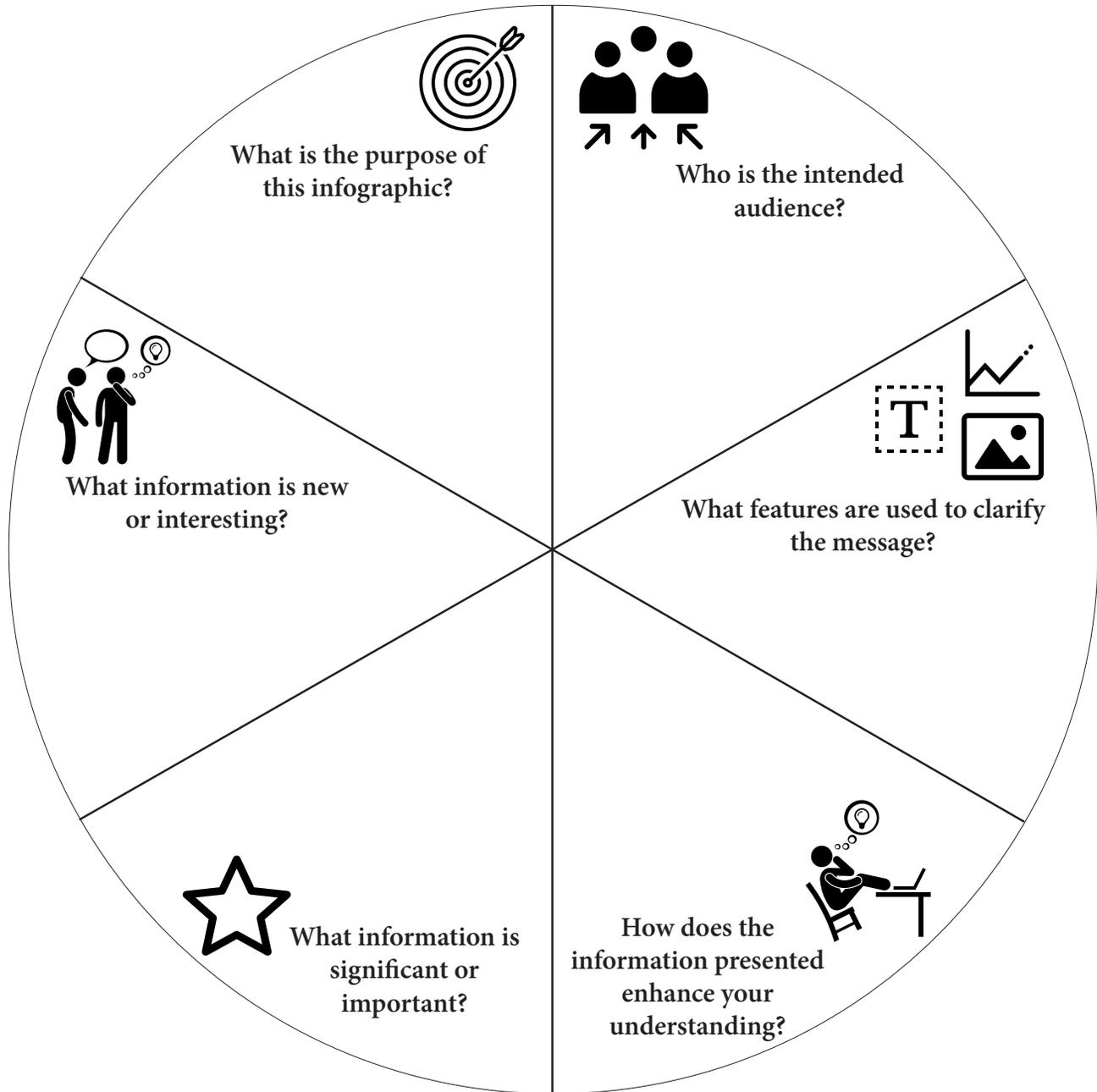


Sources: Blue Origin, BBC, Sky News

Pictures: Blue Origin, CBS

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ANALYZING AN INFOGRAPHIC



What questions do you still have about the topic presented?
