

Notes

Use the Notes column to take notes and use SALSA™ strategies. There are a few hints to get you started.

Skim Before you begin, predict what the passage will be about. Use clues like the title, photo, caption, and emphasized words.

To Touch the Sky

Would you like to touch the sky? Today, flying is commonplace. A century ago, it was brand new, with none of the comfort or convenience we expect. The Wright Brothers made their famous first powered flight in 1903. Their glider, powered by a tiny motor using a bicycle chain, carried one man just 120 feet. The pilot, lying prone to reduce air resistance, made constant adjustments to avoid crashing.



Wilbur Wright after an unsuccessful flight, December 14, 1903.
Library of Congress

Solve Why would the author suddenly change the subject from the Wright Brothers to *SpaceShipOne*?

Despite those humble circumstances, the Wright Brothers' flight was one of those great moments when technology opens up new frontiers. The 2004 flight of *SpaceShipOne* may have been such a moment—one that brings *you* past the sky and out into the final frontier.

The Challenge

The Wright Brothers won no prize. But there have been awards offered to encourage people to tackle other difficult tasks in the history of flight. For example, in 1927, Charles Lindbergh won the \$25,000 Orteig Prize by flying solo and nonstop from New York to Paris.

In 1996, the \$10 million Ansari X Prize was announced to encourage private, commercial space travel. To win it, a team would have to launch the first piloted, privately funded spacecraft capable of carrying three people 100 kilometers (62 miles) above the ground.

On September 29, 2004, Mike Melville piloted *SpaceShipOne* up 64 miles. That is where the Earth's atmosphere ends and space begins. Only a few days later, Brian Binnie took the ship up again, to almost 70 miles. *SpaceShipOne* had won the X Prize.

Reaching the Frontier

Crossing into the frontier of space is nothing special. The Space Shuttle goes higher than 70 miles every time it flies. People have been going into space since the Russian cosmonaut, Yuri Gagarin, made the trip in 1961. But they have never done it twice, in the same spaceship, in less than two weeks.

Most rockets, like the Apollo rockets used to land men on the Moon in 1969, are **expendable**. They fly only once. To win the X Prize, the ship had to be reusable and repeat the flight within just two weeks.

Since its first mission in 1981, we have had a working, reusable way to reach the frontier of space—the Space Shuttle. However, it takes months of time and hundreds of millions of dollars to make it ready to fly again. Until a spaceship can be reused easily and cheaply, space travel will be a luxury only big countries and rich people can afford.

The Cost

SpaceShipOne costs a fraction of what traditional space programs cost. The total spent so far to design, build, test, and fly it is less than we spend on each Space Shuttle flight.

Unlike other spacecraft, *SpaceShipOne* does not launch from the ground. Instead, it hitches a ride on a large plane for part of the trip. This saves the weight and cost of carrying the fuel that gets it up from the ground. It also allows the ship to fly like an airplane, instead of a rocket.

On its return, *SpaceShipOne* glides down like the Space Shuttle. But the Shuttle slams down like a meteor, glowing red hot from the heat of re-entry. It needs expensive and delicate heat shields. *SpaceShipOne* folds back its wings at an angle to slow its descent. Not needing heat shields, it can fly more cheaply and more often.

The Future

Over time, expensive and complicated things often become simple, everyday things. The first airplanes were fragile and unreliable. In just 50 years, air travel went from the Wright Brothers to jet planes. But even after a half-century, space travel remained something that only big governments could do.

That is, until now. We are a long way from flying casually into orbit the way we fly to Europe. However, as the saying goes, the longest journey begins with a single step. In 2004, we took another small step toward the stars.

Notes

Ask Why was it so difficult to win the X Prize?

Look Look here for details on why *SpaceShipOne* is so cheap.

Assemble How would you summarize the passage?