

SPACE ACE



ASK A SPACE SCIENTIST

Our universe is full of mysteries, and some of the most mind-boggling are in space. Curious kids asked questions, and we sent them to two Bahá'í scientists who work for the National Aeronautics and Space Administration (NASA). Have questions about space? Send them to brilliant@usbnc.org (with your name and age).



How fast is the fastest rocket? –Noura, age 11

Why is there gravity on Earth and not any gravity in space? –Safa, age 10

Hi, Safa,

Gravity is a force that is found everywhere—in space as well as on Earth. If you were orbiting the Earth on the International Space Station, the gravity force there is only a little smaller than it is on Earth. However, you would think there is no gravity there, because you would feel weightless. The gravity of the Earth is what keeps the space station orbiting the Earth and not flying off into deep space. You feel weightless, because everything in the space station is moving toward the Earth at the same speed, so it seems like there is no gravity. It's like being in freefall after jumping from an airplane—but because you're orbiting so fast, you never reach the ground.

—Steve

Hi, Noura,

The fastest rocket ever launched was the Atlas V (above), which carried the New Horizons probe into space. When it left Earth in 2006, the spacecraft was traveling 36,373 miles per hour. That's 63 times faster than a passenger jet. At that speed, you could fly all the way around the Earth in 42 minutes. Even going that fast, it took New Horizons nine years to reach Pluto. That's how big the solar system is. If you could walk to Pluto, it would take about 100,000 years!

—George

BACH IN TIME

In 1786, German astronomer Caroline Herschel (at right) became the first woman to discover a space object of this kind. She went on to find seven more and receive many honors. Fill in the blanks to find the item's name:



O E

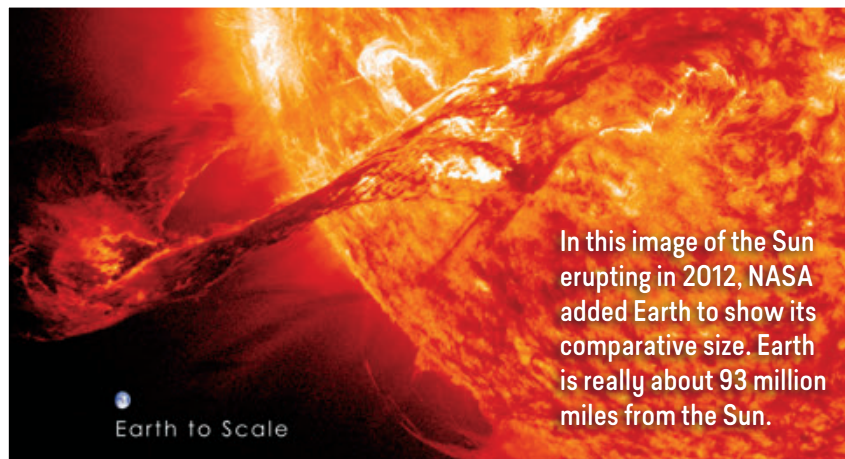
What was the *Friendship 7*?

- A) NASA's first class of astronauts
- B) First U.S. space capsule to orbit Earth
- C) Popular band from the 1970s
- D) The seventh rover to explore Mars

The answer is B: In 1962, John Glenn was the first American to orbit Earth, in the *Friendship 7*.



OUT OF THIS WORLD



In this image of the Sun erupting in 2012, NASA added Earth to show its comparative size. Earth is really about 93 million miles from the Sun.

Why is the Sun orange? – Domani, age 11

Hi, Domani,

In space, the Sun looks white. White light is the combination of all the colors of the rainbow. On Earth, sunlight is scattered by the air, water, and dust in our atmosphere. The longer the path the light has to travel through the atmosphere, the more it gets scattered: purple first, then blue, then green, yellow, orange, and red. When overhead, the Sun looks yellow. But when it's near the horizon at sunset or sunrise, the path of the light through the atmosphere is longer and the yellow light is scattered away, making the Sun look orange. The image above was produced by superimposing two wavelengths of ultraviolet light that we can't see, so scientists colored them yellow and red to get the pretty orange color.

–George



STEVE SCOTTI is a research engineer at NASA Langley Research Center in Virginia, U.S. He works to develop lighter, stronger materials and structures for aircraft and spacecraft. Watching the first astronaut launched into space inspired his interest in space exploration. He enjoys sharing his enthusiasm about science and space with kids.

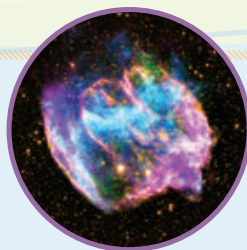


GEORGE HATCHER is an avionics engineer at the Kennedy Space Center in Florida, U.S. He works on electrical systems of uncrewed rockets. He also studies planetary science at the University of Central Florida. Working for NASA is a dream come true for George. He's aspired to be an astronaut since he was three. He's one of 100 finalists in the Mars One Project, which aims to create a human settlement on Mars.

COSMIC QUIZ

A supernova is:

- A) A cluster of galaxies
- B) A super bright group of stars
- C) A sports car that can go over 200 mph
- D) A star's destructive explosion at the end of its life



The answer is D: When a large star gets old and runs out of fuel, it collapses into its core, then explodes. Above is a remnant of a supernova called W49B, from 26,000 light-years away!