



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 space scientists. Have questions about space? Send them to brilliant@usbnc.org (with your name and age).

How did you know you wanted to become an astronaut?
— Sanjay, age 14

Hi, Sanjay,
I never imagined going to space as an astronaut. When I started working for NASA, a friend of mine said I would be a good astronaut, because I had science and engineering degrees and had been part of good sports teams. Another friend of mine, Charlie, became an astronaut, and I started to see what you did as an astronaut. I thought I could do it. Sometimes, later in life you find out about careers and realize they are perfect for you. Always explore any possibilities, Sanjay. —Leland

What does it feel like when a rocket is launching?
— Amelia, age 11

Hi, Amelia,
3-2-1 liftoff! The space shuttle roars to life, and you are propelled off the planet, traveling 17,500 miles per hour (28,164 kph)! My head was shaking, and it was hard to breathe. But it was exhilarating, and I felt really excited to be working with this great team of explorers. Amelia, I hope you get the chance to go to space one day if you want to. —Leland



On the International Space Station in 2009, Leland Melvin and Commander Charles Hobbaugh help Mike Foreman (left) and Robert Satcher Jr. (right) prepare for a space walk.

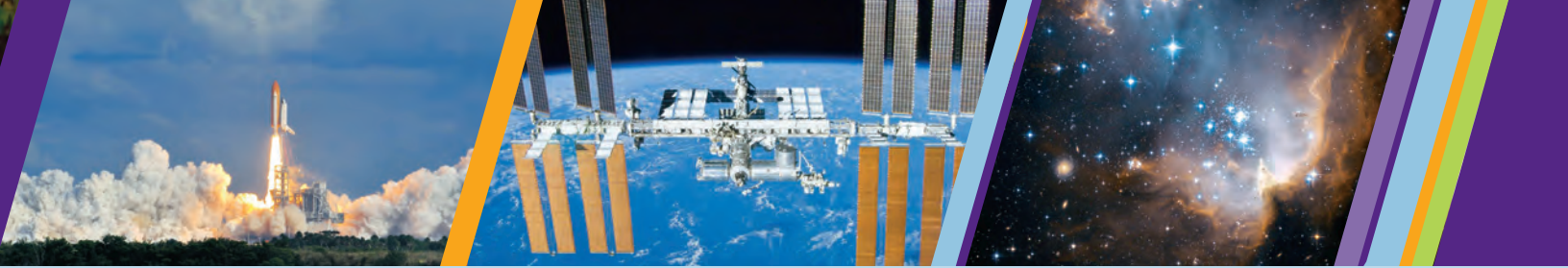
COSMIC QUIZ

Astronauts and football players both love touchdowns, but what's a splashdown?

- A) A pool party at NASA
- B) Landing in a body of water
- C) A crash landing
- D) Landing on a ship



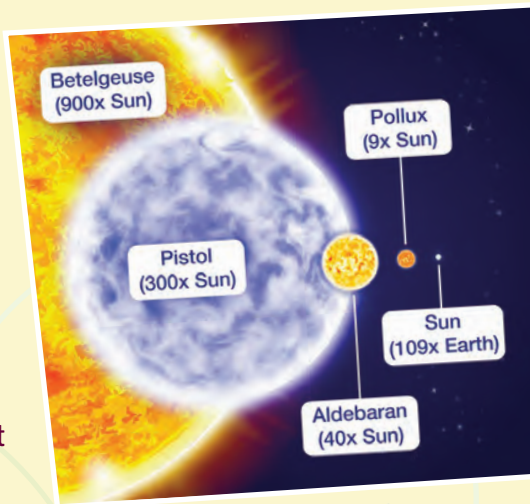
The three main parachutes on the Orion spacecraft weigh over 300 pounds (136 kg) each. Together, they would almost cover a football field!



How long will our planet exist? – Alexi, age 11

Hi, Alexi,
One way of looking at this question is to ask what will happen to our Sun. Scientists calculate that about a billion years from now, the brightness of the aging Sun will increase so much that the oceans will boil and the Earth will become an inhospitable desert. In about five billion years, the Sun will expand to many times its current size, and Earth may be engulfed.

Another answer involves the Earth's ecosystem—the sum of all the ecosystems on Earth. In an ecosystem, the Earth and living things exist in balance and support each other. For example, a meadow is an ecosystem where bees pollinate plants and flowers, which provide food for animals. A balanced ecosystem can last indefinitely. But it can be upset by natural disasters or by human activity. The Bahá'í teachings support caring for Earth and its creatures, saying that we are tied to the world around us: "All created things are connected one to another by a linkage complete and perfect . . ." By being good stewards of our planet, we can live on Earth for a very long time. —Steve



Our Sun is an average-sized star. This artist's illustration compares the Sun to some huge stars (not to scale).



LELAND MELVIN has excelled in both science and sports. After his pro football career was shortened by an injury, he did research at NASA, flew to space as an astronaut, then focused on education and outreach for NASA. In 2017, he published his book, *Chasing Space: An Astronaut's Story of Grit, Grace, and Second Chances*. He encourages everyone to follow their dreams.



STEVE SCOTTI is *Brilliant Star's* STEM Education Advisor and a Distinguished Research Associate at NASA Langley Research Center in Virginia, U.S. His background is in developing lighter, stronger materials and structures for aircraft and spacecraft. Watching the first astronaut launched into space inspired his interest in space exploration, and he enjoys sharing his enthusiasm about science and space with kids.

BACH IN TIME

NASA Astronaut Dr. Peggy Whitson was the first female commander of the International Space Station. She broke other records, too. Check out our video!*

How long does Peggy say it takes to go from launch to space?

- A) 2 weeks
- B) 1.5 hours
- C) 8.5 minutes
- D) 42 seconds



*Watch the video at www.brilliantstarmagazine.org/videos/space-ace-video-questions-answers-with-astronaut-dr.-peggy-whitson