# 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).

**Why is the moon necessary for Earth to function properly?** —Isaac, age 14

Hi, Isaac,

You mostly notice the moon as the brightest object you see in the sky at night. Another effect of the moon that you can see every day is the tides in the ocean. Tides occur as the moon's (and the sun's) gravity raises and lowers the sea level. Because scientists believe that the moon was formed from the Earth by a collision billions of years ago, they can only theorize what the Earth would be like without it. They believe that without the moon's gravity, the rotation of the Earth would be much different than today. A day would be less than 12 hours long, and the four seasons of the year would be very different, because the moon's gravity also affects the tilt of the Earth's rotation axis.

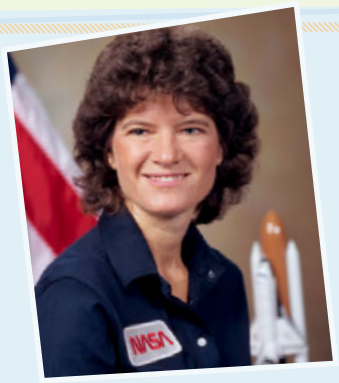
—Steve

Scientists believe that the moon was created by a celestial body colliding with Earth billions of years ago. This is an artist's depiction of the collision.

## BACK IN TIME

Dr. Sally Ride (1951–2012) became the first American woman in space in 1983. She cowrote seven books for kids and encouraged study of STEM: Science, Technology, Engineering, and Math. She went to space on the space shuttle called:

H A E N E





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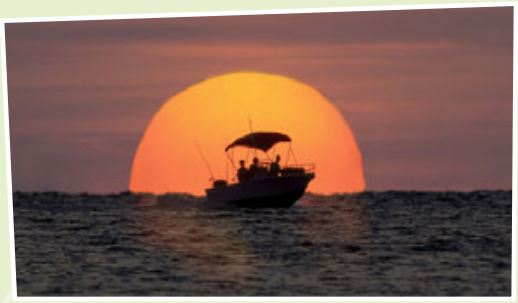
## Why does the sun look like it's going into the ocean?

– Quincy, age 6

Hi, Quincy,



The sun is 93 million miles (150 million km) away from Earth. Its gravity holds the solar system together.

Earth is shaped like a ball, and it spins all the way around once every 24 hours. You and I are stuck to one spot on the ball, and we ride along with the surface as it spins. The Sun is also ball-shaped, and shines like a giant light bulb, 93 million miles (150 million km) away. One side of the Earth is facing the Sun, and one side is facing away. The side facing the Sun experiences daytime, and the side facing away is in a shadow we call night. Remember, though, that the Earth is always spinning! To us, stuck to one point on the surface, that spin makes it look like the Sun moves across the sky. When we move from day to night, the Sun disappears behind the part of the Earth that is between us and the Sun. If we're standing on a western coast like California, that makes it look like the Sun goes into the ocean. But it's just an illusion; the horizon where the ocean meets the sky is only three miles away. The Sun is 31 million times farther.

– George

## COSMIC QUIZ

About 95% of the atmosphere on Mars is made of this substance, which is also common on Earth:

A) Argon
B) Oxygen
C) Carbon dioxide
D) Ice
E) Nitrogen
F) Cocoa powder


**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.

Images: NASA/JPL-Caltech, Laurie Schaerer