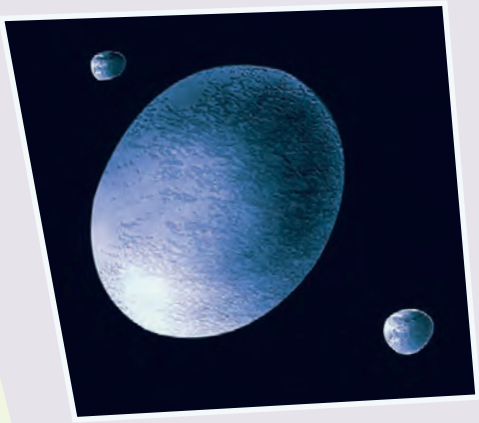
SPACE ACE

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

Why is the dwarf planet Haumea shaped like an egg? –Samuel, age 12



An illustration from NASA of Haumea, named for a Hawaiian goddess. Its moons, Hi'iaka and Namaka, are named for her daughters.

Hi, Samuel,

When we refer to Haumea as egg-shaped, we don't mean like a chicken egg, with one side pointier than the other. This special dwarf planet is more like a potato or a slightly flattened watermelon.

Haumea's shortest axis, the one that connects its north and south poles and around which it spins, is about 707 miles (1,138 km) across, while its longest axis is at least 1,443 miles (2,322 km) long. The fact that Haumea's spin axis is the shortest one gives you a clue as to why it has such a unique shape: it's rotating so fast that it's stretching itself apart. Haumea rotates all the way around in less than four hours—it's one of the fastest rotating large objects in the solar system. If it rotated much faster, it would stretch apart into a dumbbell shape before splitting itself in two.

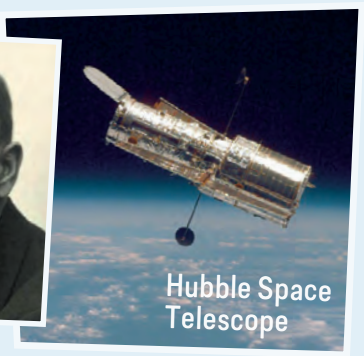
Scientists think Haumea is spinning so quickly as a result of a giant collision early in the history of the solar system.

–George

BACK IN TIME

In the 1920s, when scientists weren't sure if the universe was bigger than the Milky Way, American astronomer Edwin Hubble (1899–1953) proved the existence of other:

G ☐ L ☐ X ☐ E S



Hubble Space Telescope

ANSWERS ON PAGE 28

Did NASA send a probe to Jupiter's moon Europa? If they did, what did they discover? —Luvuyo, age 15

Hi, Luvuyo,

NASA's Galileo robotic spacecraft spent almost eight years studying Jupiter, Europa, and other moons of Jupiter before NASA intentionally sent it crashing into Jupiter in 2003. It was destroyed to avoid contaminating Europa with Earth microbes if it ever crashed into that moon. Europa is about the size of Earth's moon. Galileo's close-up photos of Europa showed a surface that looked smooth, but was cracked and had features that look like ice floes do in the Arctic regions of Earth. Galileo's measurements of the magnetic field near Europa led to theories that a saltwater ocean lies beneath the surface ice.

Several years later, the Hubble Space Telescope took photos of vapor plumes that could be water spouting from Europa's surface, almost 125 miles (201 km) high. A new mission to Europa, the Europa Clipper, is now being planned by NASA to determine whether Europa has the water and other ingredients necessary for life.

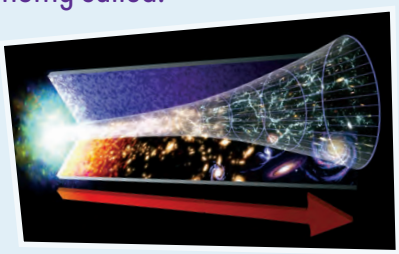
—Steve

In this illustration, NASA's Europa Clipper flies over the surface of Europa. The mission is expected to launch around 2022.

COSMIC QUIZ

The study of the origin, evolution, and future of the universe is a branch of astronomy called:

A) The Big Bang Theory
B) Dark Energy Evolution
C) Gravity Reversal
D) Chameleon Theory
E) Cosmology



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 was an avionics engineer at the Kennedy Space Center in Florida, U.S., from 2004–2017. He worked on electrical systems of the space shuttle and uncrewed rockets. He also studied planetary science at the University of Central Florida. Working in avionics was 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, Johan Hagemeyer, NASA/JPL-Caltech