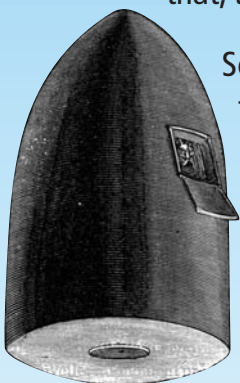


Fantasies and Facts

Water on the Moon? Until October 2009, the idea was a fantasy. Humans setting foot on the Moon? Before July 1969, when *Apollo 11* astronauts Neil Armstrong and Buzz Aldrin did just that, travel to another space body was still a dream.



A drawing of Jules Verne's imaginary Moon rocket

In 1865, author Jules Verne wrote *From the Earth to the Moon*. In this sci-fi novel, men build a spacecraft and shoot themselves to the Moon from a cannon. It was published more than 100 years before Armstrong and Aldrin walked on the Moon, but Verne's fantasy shares similarities with the real thing. Both spacecraft had three-man crews. Both took off from Florida. And the dimensions of Verne's ship are close to those of the craft that housed the *Apollo 11* crew.

The main difference, though, is that Verne's cannon-fired spacecraft could not have reached the Moon. It would take another 104 years of science and technological achievements to make his far-out sci-fi dream a reality.



Apollo 11

Science deals with facts, but what about fantasies and dreams? Aren't they what science fiction is all about? Yes, and sometimes science fiction even points the way from fantasy to fact.

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Water on the Moon?

By Ron Fridell



The white capsule crashed into the Moon's surface, while the blue craft recorded information on the impact.

On October 9, 2009, the U.S. space agency, NASA, sent a two-ton projectile the size of a school bus hurtling toward a crater near the Moon's south pole. Bull's-eye! Hundreds of tons of Moon dust exploded into the Moon's atmosphere. Scientific instruments were watching. Some were aboard a satellite looking down from above; others were in the hands of scientists watching from Earth.

The instruments recorded the light and heat from the blast, and then scientists analyzed the results. They were looking for signs of water, and they found them! The blast proved that there really is water on the Moon—lots of it—but not water as we know it on Earth.

See *Water* on page 2



Water

Continued from page 1



Carle Pieters

Researcher Carle Pieters put it this way: "When we say 'water on the Moon,' we are not talking about

lakes, oceans, or even puddles." Moon water is made of a thin film of H_2O molecules stuck to the Moon's surface. "If you harvested all the H_2O from an area the size of a baseball field," she said, "you might get a glassful."

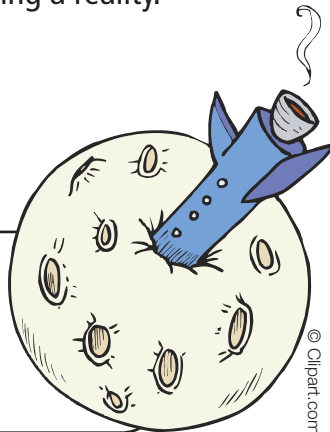


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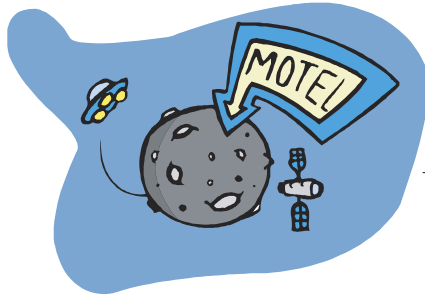
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WOWSER!

When the NASA projectile hit the Moon crater, it was traveling at 9,000 kilometers (5,600 miles) per hour, or twice the speed of a bullet!



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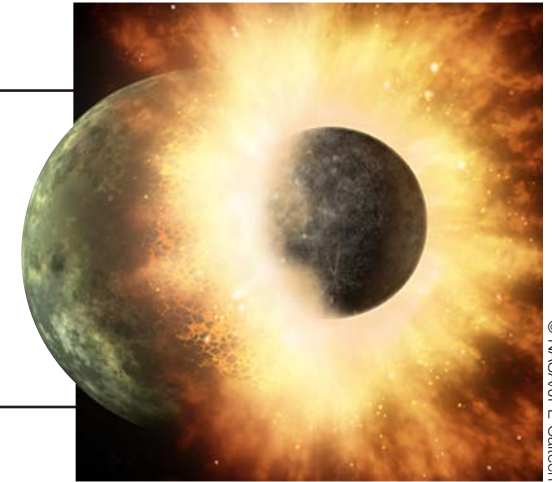


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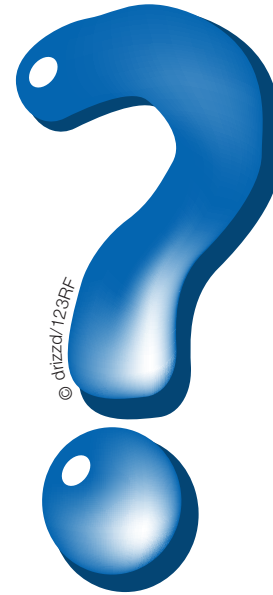
So what's the big deal? NASA wants to build a permanent colony on the Moon, where scientists and astronauts would live year round. This project would be expensive, and water would be one of the biggest expenses. Water is heavy and costly to transport from Earth to the Moon. But if the colonists can use Moon water instead, NASA's Moon colony stands a far better chance of someday becoming a reality.

Do You Know?

Scientists believe that the Moon was created 4.4 billion years ago, when a heavenly body the size of Mars collided with Earth.



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HOW DID IT GET THERE?

Scientists aren't sure how all that Moon water got there, but they have a theory. Some of the H_2O may have come from streams of highly charged particles that the Sun ejects into space. Hydrogen atoms are among these particles. When these hydrogen atoms (H) hit oxygen atoms (O) in the soil on the Moon's surface, they may have combined to form molecules of H_2O .

Write About This!

The Moon revolves around Earth while Earth spins on its axis. Think of other things that revolve and spin. Make a list. Then use your list to write a poem about things that go round and round.



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