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Most scientists dismiss the idea of alien life forms as utterly impossible.

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But recently, a startling discovery in outer space has even some of the country's most ardent skeptics

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reconsidering their position.

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For the first time in history, we may finally have proof that there is a spark of life beyond Earth.

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We use our intellect to try to understand this universe and to try to understand our place in the universe.

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Why do we exist?

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The origin of life on Earth.

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It's a question that astronomers try to answer by looking at the cosmos.

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And recently, one tiny piece of the puzzle fell into place when NASA astronomers used the Hubble telescope

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to confirm the existence of black holes.

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And the reason this is important is that black holes are more than just some science fiction, fantastic phenomena.

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It's our first glimpse of the edge of the universe as we know it.

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As a science writer for the San Francisco Examiner, Key Davidson is continually revising his definition of space.

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It's important to remember that a black hole is something that defies space and time as we intuitively think of them.

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We tend to think of space and time as things that are absolute.

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The gravitational pull is so strong that nothing can escape from it, not even a beam of light.

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That is why we call it black hole.

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According to Hubble project specialist Duccio Machetto, a black hole's extraordinary gravitational pull

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has the ability to capture the essence of the cosmos.

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We begin to get a better view, a better understanding of how the universe as a whole works,

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of how galaxies are formed, how stars are formed, how they evolve and how we came to be.

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Think of a black hole as a cosmic factory where raw materials are sucked in and then transformed into stars, planets and galaxies.

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If this is true, then perhaps life in outer space can be created in the same way.

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And recently one of the raw materials of life has been discovered floating in space, an amino acid called glycine.

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So it would be sort of like finding a brick floating around in space.

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From that you can infer the existence of brick houses in outer space.

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Now we don't know for sure that this glycine means that larger amino acid structures are forming in space,

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but it's a clue that the formation of the building blocks of life is a routine thing in the universe.

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If the building blocks of life are to be found routinely in space, can we presume that Earth is the only living planet?

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According to many scientists, no.

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Earth is the best prospect in the solar system at the moment for another life form.

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Planetary scientist Jay Malage theorizes that catastrophic collisions between celestial bodies millions of years ago

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could have sent enormous chunks of our planet hurtling into space.

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For example, the impact that killed the dinosaurs 65 million years ago left a crater almost 200 kilometers in diameter.

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That very well may have blown rocks off the surface of the Earth entirely,

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and those rocks could potentially carry microorganisms that would then be transported through space and fall on Mars.

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And if these planetary fragments carried life from Earth to Mars,

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Ian's ago, could the reverse also be true?

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We have in our laboratories and museums chunks of Mars that have come to the Earth.

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Maybe terrestrial life has its roots on Mars.

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Maybe we're all evolved Martians.

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But for life to exist, there must be water.

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Geologist Jeff Cargo has found evidence that water once flowed on Mars.

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I would say that Mars is extremely water rich.

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Now, most of its water is in the form of ice.

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It's a cryogenic planet today.

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There are certainly abundant indications that liquid water flowed on the surface.

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And some astrogeologists believe that microbes in a state of cryogenic suspension exist under Martian ice today.

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Life is very imaginative, and it finds ways of adapting to an extraordinary range of environments.

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We find living creatures in hot springs in Yellowstone.

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We find them living beneath the ice of Antarctica.

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And I have no doubt that given enough time, life forms could exist on Mars just as they exist on the Earth.

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Less than 100 years ago, a nanosecond in cosmic time, we rode in horse-drawn buggies and depended on the Pony Express.

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Today we're sending a robot to mine the surface of Mars.

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It may be sooner than we think before we have the ability to make contact with alien life forms we can only dream about today.

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Thank you.