mystery science

Grades K-5
Mini-Lesson: “Have scientists found life in outer space?”

VIDEO TRANSCRIPT

VIDEO 1

Hi, it's Danni. Check out this video taken by the Artemis II astronauts who traveled around the Moon in 2026. That's the Moon in front. And in the back, there's just a glimpse of Earth.

[Wow. There it goes.]

It's incredible to think that one small planet out in the darkness is home to every living thing you know. Someone named Noah is curious about what else might be out there in space. Let's give Noah a call now.

[Video Call]

- Hi, Danni!

- Hi, Noah!

- I have a question for you: Have scientists found life in outer space?

- That's a great question.

A few years ago, we made a video that asked, “Are aliens real?” And the answer hasn't changed much since then. We still don't know. But there have been some exciting discoveries, like new planets. You've probably heard of planets like Mars, Jupiter, or Saturn. They circle the same Sun that Earth does, so we're all part of one solar system. The new planets being discovered are much farther away. Scientists call them exoplanets. That exo part means outside. So exoplanets are outside our solar system. More than 6,000 exoplanets have already

been found. And in 2025, scientists announced that one exoplanet had possible signs of life. That's big news. But it's not like an alien popped up with a welcome sign. Scientists haven't found any alien life yet. Searching for signs of life is more like being a detective. It's finding clues that something might live there. Let me show you what I mean. On our planet Earth, there are lots of living things, like animals and plants and tiny living things you need a microscope to see. I've got two photos here of Earth. One was taken on the ground, and the other was taken way out in space. I'm curious if you see any signs of life in these pictures. What clues can you find that tell you something might live there?

VIDEO 2

Let's start with the photo on the ground. Maybe you noticed these shapes. There is a sort of triangle with four smaller circles above. Here they are again. It's a pattern that keeps repeating, and it might look familiar to you. They're paw prints. You probably know lots of animals that use their paws to walk. And even though you can't see an animal in this picture, these marks are a strong clue that a living thing was once here to make them. The space picture is trickier. This is a photo of planet Earth at night. Maybe you notice these bright spots and glowing lines. That's light coming from the many buildings and streetlights in cities. You'd need to zoom way in to actually see a person here. But the lights are a sign that people live on Earth. It's a sign of life. Think about all those different living things on Earth. They don't all make paw prints or build lit-up cities, but each one creates signs of life. Like, see how the water here looks kind of green and murky? That's because there are lots of tiny living things there called algae. Algae make certain chemicals, which release into the water and air here on Earth. It's hard to see the chemicals, but scientists have ways to detect them, and those chemicals are a sign of life. Chemicals like these are important to search for life in space, and this picture helps explain why.

See that bright spot? That's a faraway star. And notice the blurry dot over here? That is an exoplanet. Photos like this are about as much as we can see of exoplanets for now. There's no way to notice paw prints on the ground or anything like that. Exoplanets are so far away that it's hard to get a close look, even with powerful telescopes. So scientists have to think like long-distance detectives and gather other clues. Like, remember those chemicals made by algae on Earth? Scientists figured out something really cool. They came up with ways to detect chemicals on faraway planets. Wild, right? Chemical clues from a blurry dot like this. Now scientists can compare those chemical clues to the chemicals made by algae on Earth, and amazingly, they discovered a possible match. It's from a place scientists call K2-18B. Does that mean there's alien algae living on a distant planet? The short answer is no, at least for now. When I'm recording this in 2026, we don't know enough yet. Here on Earth, living algae release those chemicals. But on K2-18B, something else might make them. Like, what if the chemicals come from something that's not alive, like a volcano? In that case, they're not a sign of life. Or maybe they do come from living things, maybe not algae, but some alien life we've never seen. It's exciting to imagine, but we don't know for sure. So, in summary, scientists continue to search for signs of life on other planets. Because exoplanets are so far away, scientists have to be long-distance detectives. They search for clues that something might be living there. We don't know yet if the chemicals detected on K2-18B are a sign of life. But even if they're not, each clue helps us learn more about what's out there. Scientists are searching for lots of different clues in outer space. Not only chemicals, but things like radio waves, too. Maybe someday you'll become a long-distance detective and join the search. That's all for this week's question. Thanks, Noah, for asking it.