

Directions: Read the following article and answer the accompanying questions at the end. Use the “Definitions” list on the last two pages to search up any definitions of words you might not know.

Why are scientists suddenly interested in UFOs?

Avery Elizabeth Hurt

In 2015, U.S. Navy pilots were flying training missions off the U.S. East Coast when they spied something highly unusual. An oval-shaped object appeared to skim across the top of the water. It moved at incredibly high speed and seemed to be rotating as it flew. Soon, the pilots realized there seemed to be many of them and started commenting to each other about what they were seeing.

“There’s a whole fleet of them.”

“My gosh.”

“Look at that thing, dude!”

“Wow. What is that, man? Look at it flying!”

Pilots had seen similar objects almost daily for months. These didn’t look like typical aircraft. They had no visible engines. They didn’t seem to give off exhaust. And they didn’t just skim the sea. Some appeared 30,000 feet (more than 9 kilometers) in the air and moved at supersonic speeds.

Hardly quacks or UFO fanatics, these were highly trained pilots. And they weren’t newbies, either. One who reported the sightings was Lt. Ryan Graves, an F/A-18 Super Hornet pilot. He had been in the Navy for 10 years. He and the others knew what normal aircraft looked like. They also knew how to keep their cool under pressure.

The public only became aware of their sightings four years later. That’s when *The New York Times* published an article about them. The online article included leaked video recorded by cameras on the Navy planes. In April 2020, the U.S. Navy confirmed those videos were real — and then officially released them.

In 2020, an international service shared these videos captured in 2015 by U.S. Navy pilots watching a UAP. The military only formally released the video in April of 2020.

In recent years, these and other very credible sources have reported seeing UFOs — unidentified flying objects. Now they’re called Unexplained Aerial Phenomena, or UAP. But whatever you call them, the U.S. government has lately begun taking these mystery objects seriously. Very seriously. And it’s recruited a lot of scientists to investigate what’s behind them (albeit quietly).

We still don't know what the pilots and others have seen. But here's what's motivated the new and growing scientific interest in them.

The summer of UFOs

Military pilots reporting UFOs may be new. The public, however, has reported UFO sightings for decades. It began in the summer of 1947.



In July 1947, Major Jesse Marcel inspects the debris recently found on Mac Brazel's ranch. Roswell Daily Record's Roswell Incident

On June 14 of that year, Mac Brazel found some strange debris on his ranch. His land sits on the outskirts of Roswell, N.M. He thought the debris might have come from a kite. However, he couldn't reassemble the bits of rubber, tinfoil, paper and wood strips into anything that looked like a kite.

Brazel told the local sheriff what he'd found. The ranch was near Roswell Army Air Field (RAAF), a military base. So the sheriff reported this to the Army.

Officers from RAAF went to the ranch for a look. They couldn't identify the wreckage, either. The next day, the Army base issued a press release saying that the military had found remnants of a flying saucer.

The local newspaper even ran the headline: "RAAF Captures Flying Saucer on Ranch in Roswell." A few days later, the Army changed its story. They said the debris came from a weather balloon. But it was too late to dampen the excitement about flying saucers. UFO fever had gripped the nation.

And since then, it's never let go.

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ROSWELL, NEW MEXICO, TUESDAY, JULY 8, 1947

Movies as Usual



Leaves broke and flood waters rolled into the town of Grand Tower, Ill., but while the manager of the movie theater sweeps out the water that has entered the lobby those youngsters are standing in line for tickets for the night's performance. (AP Wirephoto).

Some of Soviet Satellites May Attend Paris Meeting

Paris, July 8 (AP)—Indications received today that at least some of the nations which the Soviet Union would attend the Paris conference on the Marshall plan.

Roswellians Have Differing Opinions

A local dispatch quoted an anonymous source as saying "probably Roswellians will participate in the conference, which opens in Paris Saturday. The dispatch had the Roswellians' opinion of whether they should be invited to discuss the Marshall plan."

Claims Army Is Stacking Courts Martial

Indiana Senator Lays Protest Before Patterson

Washington, July 8 (AP)—Senator James H. Doolittle announced today that "the high command in the European theater is stacking the courts martial defendants in court martial."

In a letter to Secretary of War Patterson demanding a full investigation of army military trial procedure, Doolittle stated that the said was unnecessary proof that:

1. "Prisoners are not being permitted to employ either civilian or military counsel of their own choice in the preparation and presentation of their defense."

2. "Every effort is being made to prevent attorneys who were associated with the German Luftwaffe from being in contact with the European theater."

The Indiana senator made public a copy of an informal "report" that was said to have been signed by Brig. Gen. Cyrilus E. Frank, assistant chief, military government headquarters for Germany, and written by Col. Francis M. Vandewater, junior, who was said to be the routing slip supervisor of the report. The report, addressed to the chief of staff, GEFET (Germanic Theater), was dated Oct. 23.

It called attention to the impending arrival of Earl J. Carroll and Thomas Lester Perry, California attorneys, to act as special defense counsel for the prisoners then awaiting trial by court martial at Frankfurt, Germany.

RAAF Captures Flying Saucer On Ranch in Roswell Region

House Passes Tax Slash by Large Margin

Defeat Amendment by Demos to Remove Many from Rolls

Washington, July 8 (AP)—The house passed today the Republican-backed bill to cut income taxes by \$4,000,000,000 annually for 45,000,000 taxpayers beginning Jan. 1.

It was the second time the measure was passed in the house.

The vote was 202 to 11, or more than the two-thirds majority needed to override a presidential veto.

The action, which may encourage another presidential veto, came after Speaker Martin (R-Ore.), personally opposed the house to pass the bill by such a decisive margin as to persuade the president that the people should have the bill signed.

The measure is identical with one passed by President Truman June 18 as "the wrong kind of tax reduction at the wrong time."

—except that the effective date is changed from July 1, 1947 to Jan. 1, 1948.

Congress leaders expect to have the second bill on Mr. Truman's desk before the week ends.

Security Council Paves Way to Talks On Arms Reductions

Take Surra, July 8 (AP)—The United Nations security council today approved an American proposal for arms reduction discussions despite a Russian veto.

The vote was 9 to 0, with Russia and Poland abstaining.

In view of Russia's firm stand against the U. S. plan it had been believed the draft treaty, the big power veto to block it.

Secretary of State Acheson said the United Nations security council today approved the plan in a new effort to revive the Soviet, American plan which already had been rejected by the commission for comprehensive disarmament.

The challenge was taken up primarily by French delegate Andre-Francois Perrot and U. S. Representative Hiram Bingham, who announced their opposition to any substitute for the American plan.

Perrot insisted that no program for arms reduction could proceed unless the plan was limited directly with an absolute prohibition of atomic weapons.

He declared that the U. S. plan approved by the commission did not lack the problems of arms reduction and the banning of atomic weapons and, for this reason, it offered no basis for a solution.

Perrot stated that the U. S. plan would have reduced taxes by \$4,000,000,000 and removed 45,000,000 taxpayers from the tax rolls completely.

No Details of Flying Disk Are Revealed

Roswell Hardware Man and Wife Report Disk Seen

The intelligence office of the Sixth Army Air Force announced at Roswell today that the field has come into possession of a flying saucer.

According to information released by the department, an intelligence officer, the disk was seen recently after an unidentified rancher had notified Sheriff Crockett, here, that he had found the instrument on his premises.

Major Stewart and a detail from the department went to the ranch and recovered the disk, it was stated.

After the intelligence office here had inspected the instrument it was taken to "higher headquarters."

The intelligence office stated that no details of the saucer's construction or its appearance had been revealed.

Mr. and Mrs. Don Wilson, who were the only persons in Roswell who have seen what they thought was a flying disk.

They were driving on their property at 100 South First, last Wednesday night at about 10:30 p.m. when they saw what they thought was a flying disk. It was a dark, saucer-shaped object, about 10 inches in diameter, which was moving in a northwesterly direction at a high rate of speed.

Ex-King Carol Weds Mme. Lupescu



Former King Carol of Romania and Mrs. Elena Lupescu relax aboard the S. S. America bound for Cuba and Mexico in May, 1941. A member of Carol's household in Rio de Janeiro said the ex-king and his companion for 23 years in reign and exile were recently married at their hotel Copacabana Palace suite. (AP Wirephoto).

Miners and Operators Sign Highest Wage Pact in History

Washington, July 8 (AP)—An agreement covering a nationwide coal strike was signed today by John L. Lewis and a

American League

Here's how one local newspaper reported the Army's report on analysis of debris found at the Brazel farm in 1947. Roswell Daily Record's Roswell Incident

The government comes clean

UFOs are real. There's no question about that.

The term simply means some witnessed object is unknown and moving through the air. If you see something in the sky that you can't identify, then by definition it's a UFO. But when people ask if UFOs are real, what they usually mean is: "Are we being visited by aliens?"

And science certainly has no answers yet for that.

After Roswell, people started reporting lots of UFOs. Some witnesses made wild claims they couldn't back up. Someone might say they'd encountered an alien. Some even claimed to have been abducted by aliens. But there was never any physical evidence to support such statements.

SAUCERS OVER WASHINGTON, D.C.

HARRY G. BARNES, SENIOR AIR ROUTE TRAFFIC CONTROLLER FOR THE CIVIL AERONAUTICS ADMINISTRATION, WAS IN CHARGE OF THE NATIONAL AIRPORT, WASHINGTON, D.C., A.R.T. CONTROL CENTER ON THE NIGHT OF JULY 19, 1952. "BRIEFLY," HE STATES IN A NEWSPAPER ARTICLE, "...OUR JOB IS TO CONSTANTLY MONITOR THE SKIES AROUND THE NATION'S CAPITOL WITH THE ELECTRONIC EYE OF RADAR..." SHORTLY AFTER MIDNIGHT ON THAT DATE, SEVEN PIPS APPEARED SUDDENLY ON THE CONTROL CENTER'S SCOPE. ED NUGENT, JIM COPELAND, AND JIM FITCHEY, ALL EXPERIENCED RADAR CONTROLLERS, CHECKED THE OBSERVATIONS. THE AIRPORT CONTROL TOWER RADAR OPERATOR VERIFIED THE SAME SIGHTING. *THEY WERE OVER "THE RESTRICTED AREAS OF WASHINGTON, INCLUDING THE WHITE HOUSE AND THE CAPITOL..."*



CAPTAIN C.S. PIERMAN, A CAPITOL AIRLINES PILOT OF 17 YEARS FLYING EXPERIENCE, SHORTLY AFTER TAKING OFF, WAS ASKED TO CHECK THESE MYSTERIOUS OBJECTS. HE RADIOED BACK...



PIERMAN DESCRIBED IT AS A BRIGHT LIGHT MOVING FASTER, AT TIMES, THAN A SHOOTING STAR...

BARNES STATES: "DURING THE NEXT 14 MINUTES, HE (PIERMAN) REPORTED THAT HE SAW SIX SUCH LIGHTS... EACH SIGHTING COINCIDED WITH A PIP WE COULD SEE NEAR HIS PLANE. WHEN HE REPORTED THAT THE LIGHT STREAKED OFF AT HIGH SPEED, IT DISAPPEARED FROM OUR SCOPE..."



7-3712-41

This comic strip from the 1950s shows how much UFOs influenced popular culture. NAID: [595553](https://www.naid.gov/595553)/U.S. National Archives

Soon conspiracy theories started circulating. People said they'd heard an alien spaceship had crashed in Roswell. They shared rumors that the government had stashed away bodies of aliens who'd died in the crash. Those bodies were allegedly kept in a secret installation in Nevada known as Area 51.

These stories were ridiculous. But still they spread.

The government didn't help much. It had secrets of its own that had nothing to do with aliens. Eventually, the government admitted it had been hiding something — it just wasn't little green men. A 1995 Air Force report tried to put the hidden-aliens story to rest. It said the debris that landed on the Brazel ranch had not been a weather balloon after all.

It was part of [Project Mogul](#) — a secret program to develop balloons that could identify and track Soviet missile launches. (Remember, this happened in 1947, during the Cold War. At that time, the United States and the Soviet Union were stockpiling nuclear weapons in case of another world war.)

The Air Force also explained away the alien “bodies” that people thought they had seen. These were crash-test dummies used to test ejection seats in experimental aircraft.

Coming clean about Roswell didn't end the conspiracy theories, however. Wild tales continued. And for years the government didn't say much more about UFOs.

But when the story about the 2015 Navy pilot sightings broke, the government began to talk more openly about UFOs.

Congressional hearings and government reports

In 2021, [the government released a brief report](#). It had turned up no evidence of aliens. It did admit, however, that many UAP sightings have been recorded since 2004. And they remain unexplained.

That doesn't mean these were craft built or piloted by aliens, of course. There are probably several explanations, the report said. Some might be birds. Others might be trash, such as escaped party balloons. Some could be secret military projects. And some might be new technology developed by other countries.

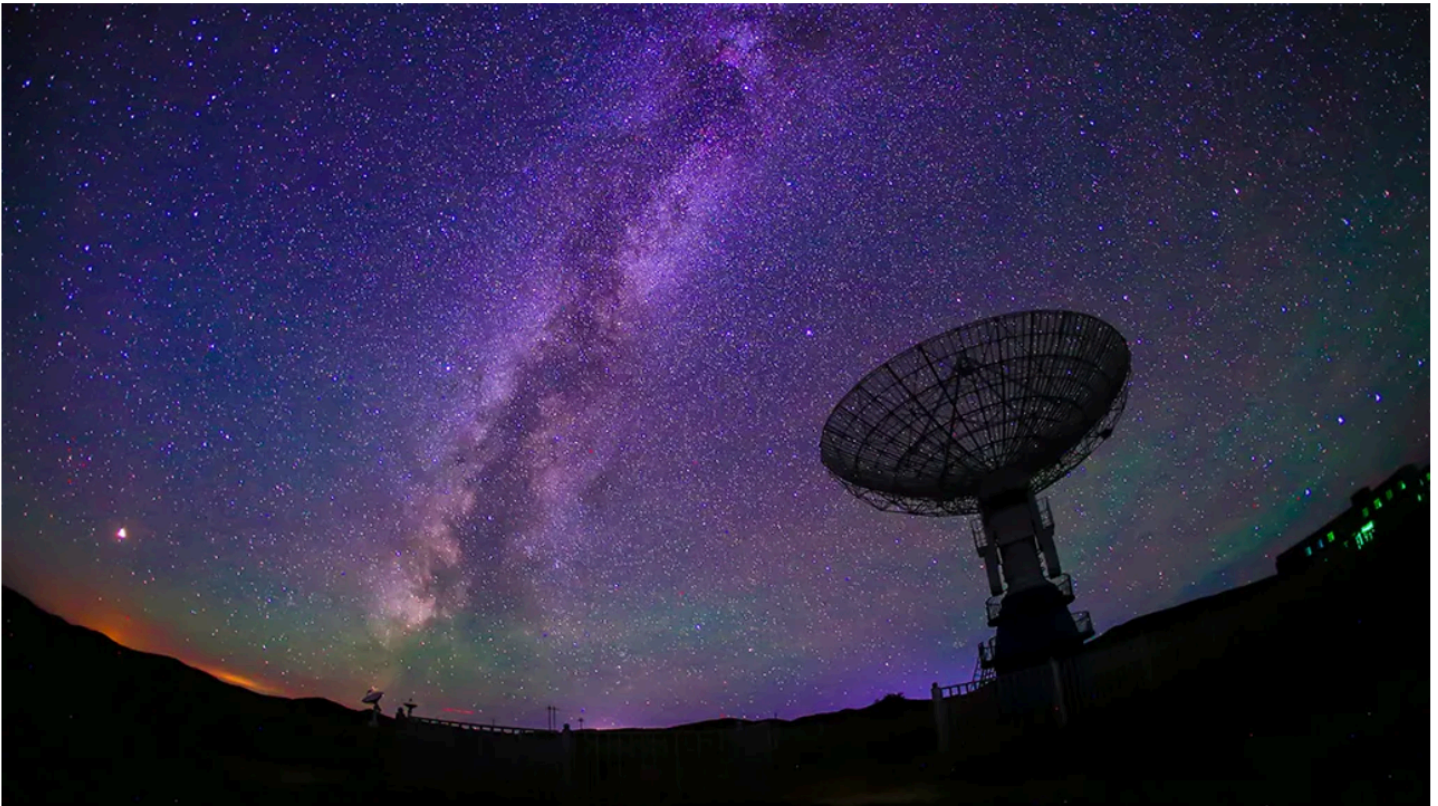
That last one is what concerned many members of Congress and the military.

The next spring, in May 2022, Congress held a public hearing on UFOs. High-ranking officials from the military testified. They said 400 more unexplained sightings had been reported *since* the 2021 report. Still, nothing pointed to aliens.

Scott Bray testified at the hearing. Deputy Director of Naval Intelligence at the time, he explained why the government wasn't saying much about these sightings: “We do not want potential [military enemies] to know exactly what we are able to see.” (Bray now works in intelligence for NATO, an international military alliance.)

Then, in July 2022, the Pentagon created AARO. That stands for All-domain Anomaly Resolution Office. Its job is to investigate UFOs. Again, the government doesn't call them that anymore. Their term is UAP. In fact, that name change was an attempt to remove some of the stigma associated with the study of UFOs.

The military now wants to know if these objects are a threat. Science will settle for a simpler answer: What are they?



Astronomers are enlisting new technologies in the quest to answer one of the most intriguing research questions of all: Are we alone in the universe? zhengzaishuru/iStock/Getty Images Plus

Scientists step up

There's reason to think we probably aren't alone in the universe. Earth is 4.5 billion years old. The earliest life on Earth is 3.5 billion or maybe 4 billion years old, explains Seth Shostak. This astrophysicist is senior astronomer at the SETI Institute. That's in Mountain View, Calif. (SETI stands for [Search for Extraterrestrial Intelligence](#).)

Life on Earth emerged fairly quickly. This suggests, Shostak says, that it wasn't hard for life to begin. And if it quickly started on Earth, life probably could have started in many other places throughout the cosmos, too.

And there are plenty of other places.

There are a trillion [planets](#) in the Milky Way alone. And that's just our [galaxy](#). There may be more than a trillion habitable planets in the universe, Shostak says. "So yeah," he adds, "there's plenty of opportunity for life." But that still doesn't mean that aliens have been visiting Earth.

Julia DeMarines is an astrobiologist. She studies how life might evolve on other planets. DeMarines works at the University of California, Berkeley and is a former SETI observer. SETI researchers look for signs of life elsewhere in the universe. They don't study UFOs. Few scientists do.

Until recently, DeMarines says, most scientists described the study of UFOs as pseudoscience. No surprise, then, that scientists who *are* interested in UAP have seldom talked about it. They didn't want other scientists to think they're kooks.

But that's changing.

In June 2022, NASA assembled a team of scientific experts. Their mission: Figure out how NASA can help study UAP.

As Bill Nelson, the space agency's administrator, put it: "NASA searches for the unknown in air and space. It's in our DNA." One of the goals of the new team, he said at a news event, would be to "shift the conversation about UAP from sensationalism to science."

The team made some specific recommendations. For instance, it said NASA should use its enormous body of space data for this study of UAP. And it should work with other government agencies to investigate reported sightings. The team also emphasized that all UAP studies must stay focused on evidence and data.

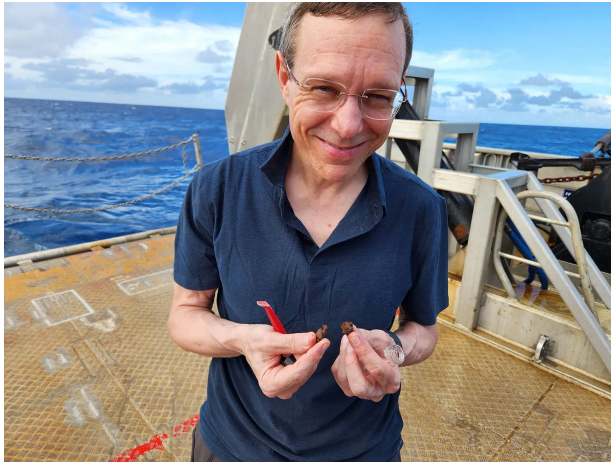
Avi Loeb agreed. And he wanted to help. Loeb is an astrophysicist at Harvard University in Cambridge, Mass. "To study those things," he argues, "is the duty of scientists."

In 2021, Loeb started [the Galileo Project](#) to scientifically investigate UAP. It doesn't collect stories about UAP. It doesn't rely on accidental sightings. Instead, it scans the skies with [telescopes](#) in an observatory at Harvard.

"We basically take a movie of the sky," explains Loeb. Then [artificial intelligence](#) helps analyze the data. Two more observatories are in the works. Loeb hopes to have 10 eventually. More than 100 scientists are already involved.

This is different from what AARO is doing, says Loeb. "Their job is to protect national security. I'm trying to figure out the world."

Loeb and his team are not the only ones. NASA's involvement changed things, says Greg Eghigian. He's a historian at Penn State University in University Park. He wrote a book titled *After the Flying Saucers Came: A Global History of the UFO Phenomenon*. NASA's involvement was a signal to scientists that talking openly about UAP is OK, Eghigian says. It allowed scientists to discuss ideas that had been taboo.



Avi Loeb of Harvard holds a few of bits of debris from a space object of unknown origin and type: a UFO. Some melted bits have a very unusual composition. They appear to be materials never before seen in our solar system. Galileo Project, led by Professor Avi Loeb (Harvard)

More mysteries

Now that science is on the job, what can we expect to learn about UAP and maybe even alien life? One possibility is that science may be able to explain the previously unexplained.

DeMarines says UAP could be due to some unusual weather conditions. For example, spacecraft launched from Earth around sunset can create weird effects. When the sun is setting, she explains, gases expelled by the spacecraft will reflect only that light reaching the upper atmosphere. What's more, she adds, "They stay reflective for a long time. So it looks unexplainable."

Or UAP could be an effect caused by light bouncing off communications satellites, Loeb says. And, of course, it could be technology not from another planet, but from another country on this one.

But what about aliens? Could UAP really be alien spaceships?

Garrett Graff is a historian and author. He wrote the 2024 book *UFO: The Inside Story of the US Government's Search for Alien Life Here — and Out There*. While doing research for it, he noticed something people often get wrong when they think about aliens and UAP. "We expect first contact with alien life to be like it is in movies, like *Independence Day* or *Contact*," he says. But in real life, he notes, it might not be that obvious.

Our first encounter with aliens, Graff says, might not be meeting them. It might be finding remnants of their tech.

For example, we might find a piece of space trash that doesn't come from our world. Graff compares this to spotting an empty plastic bag blowing through our cosmic backyard. We look at it and think: "That's not from *our* Walmart." We'll know it didn't originate on Earth, but we won't know where it did come from.

One reason we may not see the aliens themselves is that they may no longer exist. In 1961, astronomer Frank Drake came up with a way to estimate how many alien societies could be broadcasting signals. [It's called the Drake Equation](#). It accounts for several factors. These include the rate at which stars form and the number of planets with an environment that might support life — [the “Goldilocks zone.”](#)

But the last factor in Drake’s equation is very interesting, says DeMarines. It’s represented by the letter “L.” That stands for the length of time technological civilizations produce signs of their existence. These could be [radio waves](#), pollution from industry or even city lights.

DeMarines points out that our civilization has been technologically advanced for little more than 100 years. And that’s in a universe [that’s almost 14 billion years old](#). Her point is that the timing might not overlap. There may have been many other civilizations like ours. And there may be many more to come. But the chances that ours and theirs occur at the same time aren’t terribly good, she says.

Shostak, however, thinks it won’t be long until we find alien life, or at least evidence that it’s out there somewhere. “There have been 10,000 generations of *Homo sapiens*,” he says. “And the people reading this article are probably members of the first one in which we learn that there’s life in outer space.”

So what about UAP? Is there evidence that alien life is visiting Earth? Science is on the case.

Fact Recall Questions

1. What does UAP stand for? _____
2. Debris was found near the Roswell Army Air Field and was the first major reported UFO. Years later the government reported this was actually part of Project Mogul. What was the goal of Project Mogul?

3. What was Scott Bray’s reason for why the government has not spoken much about UAP sightings?

4. NASA assembled a team of scientists to advise how the agency should study UAP. What were two of the specific recommendations given?

F.A.S.T. Style Questions

1. How do the quotes from the Navy pilots contribute to the tone of the article?
 - A) It makes the information more academic by citing a reputable source
 - B) It heightens the mysteriousness of the UFOs by showing how surprised the pilots were
 - C) It helps the pilots sound more relatable showing their use of plain language
 - D) It bores the reader by making the article longer

2. What is the primary takeaway the author hopes to convey by discussing the Drake equation?
 - A) It is statistically unlikely that humans will find evidence of alien life
 - B) We can calculate exactly when we will find an alien society
 - C) There is likely to be some evidence of extraterrestrial life in the next few years
 - D) Calculating the probability of finding aliens is difficult

3. Which quote from the passage best supports your answer from question 2 above?
 - A) “In 1961, astronomer Frank Drake came up with a way to estimate how many alien societies could be broadcasting signals.”
 - B) “And that’s in a universe that’s almost 14 billion years old.”
 - C) “Shostak, however, thinks it won’t be long until we find alien life, or at least evidence that it’s out there somewhere.
 - D) “But the chances that ours and theirs occur at the same time aren’t terribly good, she says.”

4. Sara wanted to write a one paragraph summary of the information discussed in the article. Write 1, 2, 3, and 4 on the lines to put the sentences in the most logical order as it appears in the article.

- __ Despite many non-alien explanations for UAP and a low chance of humans existing at the same time as aliens, scientists do agree with the possibility that we may find evidence of alien life in a way we might not expect.
- __ The stigma of scientists searching for potential alien life is changing as different groups study objects in our universe.
- __ People have observed many strange events in the sky from the cold war all the way up till the past few years.
- __ While the government has cleared up past sightings and proved they weren’t aliens, they also admitted many sightings are still unexplained.

DEFINITIONS

aerial: Of or taking place in the air.

alien: A non-native organism. (in astronomy) Life on or from a distant world.

anomaly: A brief and unexpected difference; something that is unusual and especially outside the normal range of what occurs.

artificial intelligence: A type of knowledge-based decision-making exhibited by machines or computers. The term also refers to the field of study in which scientists try to create machines or computer software capable of intelligent behavior.

astrobiologist: Someone who studies life everywhere in the universe, including on Earth and in space.

astrophysicist: A scientist who works in an area of astronomy that deals with understanding the physical nature of stars and other objects in space.

Cold War: A term for political and military tensions between the United States and the former Soviet Union. It began shortly after the end of World War II and lasted for decades. It is called “cold” because no major military clashes broke out. But each side engaged in lots of spying and there were the occasional international incidents that led to the threat of nuclear war.

Congress: The part of the U.S. federal government charged with writing laws, setting the U.S. budget, and confirming many presidential appointments to the courts, to represent the U.S. government interests overseas and to run administrative agencies. The U.S. Congress is made of two parts: the Senate, consisting of two members from each state, and the House of Representatives, which consists of a total of 435 members, with at least one from each state (and dozens more for the states with the biggest populations).

conspiracy theory: A term for the belief that some secret and influential group is behind some event or phenomenon — or is trying to cover up some event or phenomenon.

cosmos: (adj. **cosmic**) A term that refers to the universe and everything within it.

credible: (n. **credibility**) An adjective meaning believable or convincing

debris: Scattered fragments, typically of trash or of something that has been destroyed. Space debris, for instance, includes the wreckage of defunct satellites and spacecraft.

Drake equation: A mathematical statement created in 1961 by radio astronomer Frank Drake. It posits that science can estimate the number of technological civilizations in distant star systems by considering: how many civilizations in our Milky Way galaxy would have electromagnetic emissions that could be picked up on Earth, the rate at which new stars that are suitable for hosting intelligent life form, the share of those stars with planets, the number of planets per solar system having an environment that could support life, the share of those planets on which life actually developed, the share of those planets on which the life was intelligent, the share of civilizations that then developed a technology that could signal its existence into space, and how long such civilizations would issue those detectable signals.

ejection: A sudden or forceful removal or jettisoning of something from its position, container or housing.

evolve: (adj. **evolving**) To change gradually over generations, or a long period of time. In living organisms, such an evolution usually involves random changes to genes that will then be passed along to an individual’s offspring. These can lead to new traits, such as altered coloration, new susceptibility to disease or protection from it, or different shaped features (such as legs, antennae, toes or internal organs).

exhaust: (in engineering) The gases and fine particles emitted — often at high speed and/or pressure — by combustion (burning) or by the heating of air. Exhaust gases are usually a form of waste.

extraterrestrial: (ET) Anything of or from regions beyond Earth.

generation: A group of individuals (in any species) born at about the same time or that are regarded as a single group. Your parents belong to one generation of your family, for example, and your grandparents to another. Similarly, you and everyone within a few years of your age across the planet are referred to as belonging to a particular generation of humans. The term also is sometimes extended to year classes of other animals or to types of inanimate objects (such as electronics or automobiles).

Goldilocks zone: A term that scientists may use to describe some narrow range within a continuum that is “just right” for something to happen. For instance, astronomers use the term to describe some region extending out from a star where conditions there might allow a planet to support life as we know it. This distance would be not too close to its sun (otherwise the extreme heat would evaporate liquids). It also can’t be too far (or the extreme cold would freeze any water). But if it’s just right — in that so-called Goldilocks zone — water could pool as a liquid and support life.

habitable: A place suitable for humans or other living things to comfortably dwell.

observatory: (in astronomy) The building or structure (such as a satellite) that houses one or more telescopes. Or it can be a system of structures that make up a telescope complex.

phenomena: (sing. **phenomenon**) Events or developments that are surprising or unusual.

plastic: Any of a series of materials that are easily deformable; or synthetic materials that have been made from polymers (long strings of some building-block molecule) that tend to be lightweight, inexpensive and resistant to degradation. (adj.) A material that is able to adapt by changing shape or possibly even changing its function.

reflective: Adjective that refers to the ability of something to reflect light strongly. Such objects can produce a strong bright glare when sunlight bounces off of them. Examples of reflective objects include a mirror, a smooth metal can, a car window, a glass bottle, ice, snow or the watery surface of a lake.

remnant: Something that is leftover — from another piece of something, from another time or even some features from an earlier species.

resolution: (in optics) A term having to do with the degree of clarity or detail with which some object can be seen. (v. resolve)

SETI: An abbreviation for search for extraterrestrial intelligence, meaning life on other worlds.

stigma: A disgrace, source of shame or a stain on one’s reputation — often not justifiably — due to something that one did, experienced or represents to others.

supersonic: Moving at somewhere between one and five times the speed of sound in air.

taboo: A term for some activity that is considered wholly inappropriate and/or forbidden within a particular religious or social group. Many times the idea of this practice is so off limits that people won’t even discuss it in public.

wave: A disturbance or variation that travels through space and matter in a regular, oscillating fashion.