Chang | DiLorenzo | Poggioli

School Closing Science Assignments

In the event that school closes, you will follow the day-to-day assignment schedule below. All hardcopies of materials can be found in your science binder (given to you on Friday, 3/13 to take home). If you do not have your binder with you, you may access the articles via Google Classroom, print the article from home, and complete. Any assignments completed during the school closure must be turned in on the first day we return to school.

Day 1: "A top astronomer says: Don't think we are all alone in the universe"
Read the article and answer the multiple choice questions.
Annotate the article while you read- highlight or underline information you found *interesting or thought-provoking*.

Day 2: "Huge new telescope in Hawaii could lead to huge discoveries"
Read the article and answer the multiple choice questions.
Annotate the article while you read- highlight or underline information that tells *about the kinds of future discoveries that could be made with this telescope.*

Day 3: "Mini-moon discovered orbiting Earth, but won't be there for long"
Read the article and answer the multiple choice questions.
Annotate the article while you read- highlight or underline information that tells *3 facts about this mini-moon.*

Day 4: "The sun, an engine of nuclear energy"
Read the article and answer the multiple choice questions.
Annotate the article while you read- highlight or underline information you found *difficult to understand or confusing (i.e. technical vocabulary).*

Day 5: "Astronomers find a black hole 54 million light-years from Earth"
Read the article and answer the multiple choice questions.
Annotate the article while you read- highlight or underline information that tells *what is a black hole, and how astronomers found it.*

A top astronomer says: Don't think we are all alone in the universe

By Washington Post, adapted by Newsela staff on 04.01.19
Word Count **768**
Level **830L**

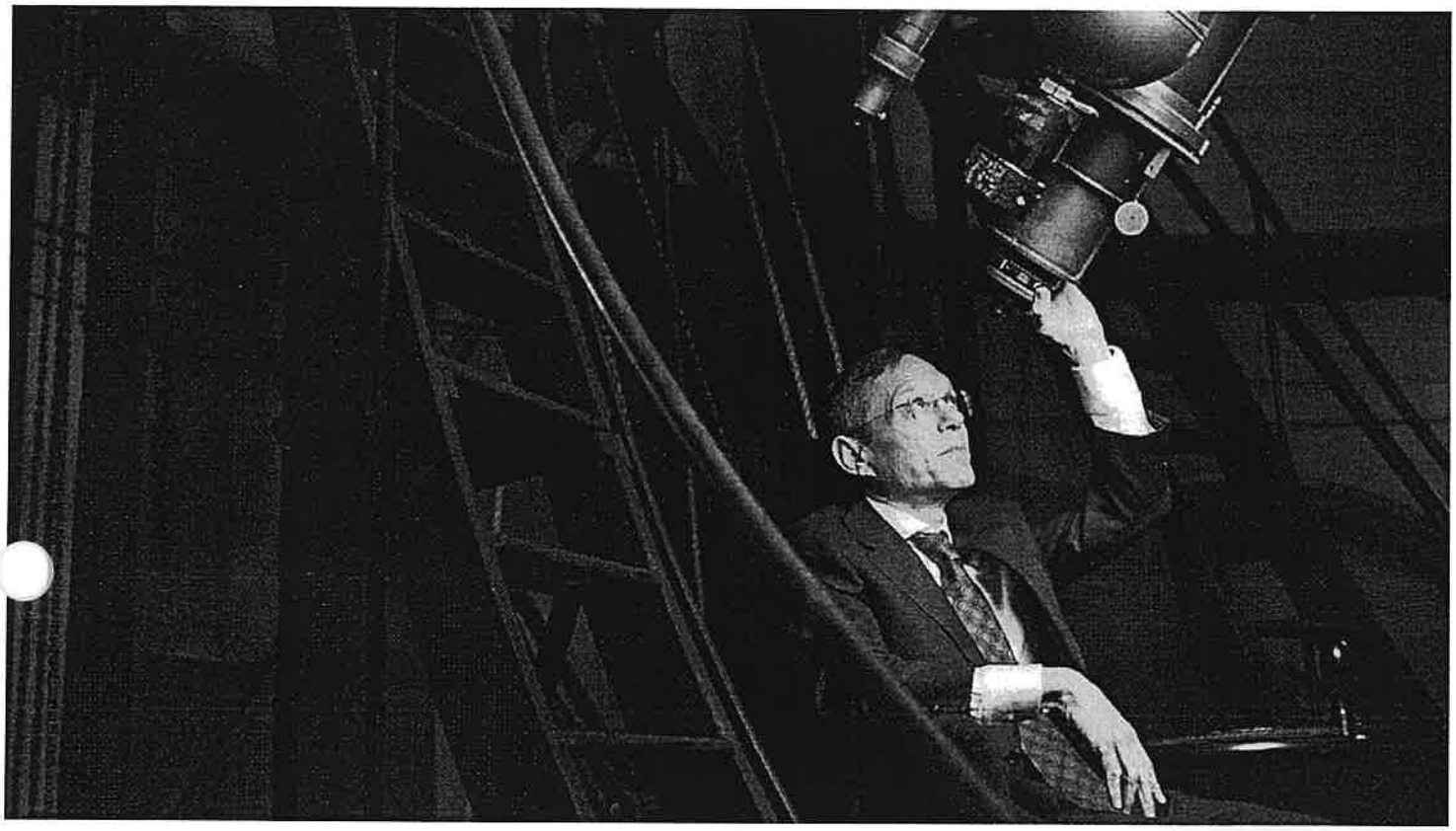


Image 1. Avi Loeb poses in the observatory near his office in Cambridge, Massachusetts. His theory about an alien spaceship has made the rounds in the media and caused controversy in the academic community. Photo: Adam Glanzman/The Washington Post

CAMBRIDGE, Massachusetts — Avi Loeb is the head of Harvard University's astronomy department. He thinks that it is wrong to assume that we are alone in the universe. This belief goes along with Loeb's alien spaceship theory, which grabbed a great deal of attention last year.

Loeb stands beside his desk in his office one morning. It is the first day of spring courses at Harvard, and he is getting ready for his afternoon class. He says that four TV crews were in this office last fall, the day his spaceship theory took off. Now five film companies are interested in making a movie about his life, he says.

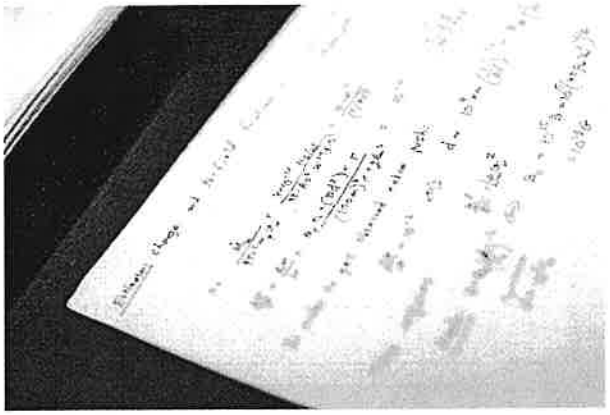
A handwritten page of equations sits on the desk.

"This is something I did last night," Loeb says. The calculations support his theory that an alien spacecraft, or at least a piece of one, might be flying past the orbit of Jupiter.

Not So Fast In Dismissing This Alien Opinion

Since publishing his paper, Loeb has had a busy media schedule. He has welcomed the fame that comes with being a top scientist who suspects technology from another solar system just showed up. Other scientists have questioned his theory, though. Some wonder why he will not stop talking about aliens.

Some scientists might want to dismiss Loeb's opinion, but it is not so easy. Loeb is very successful in his field. He has been a professor at top universities for 30 years. He has published hundreds of scientific papers, too.



In late 2017, scientists in Hawaii found the first known interstellar object. An interstellar object is one that comes from interstellar space, the region of space beyond the influence of our sun. This particular object looked like a blip of light. It was moving so fast past the sun that it could only have come from another star.

Scouting Around The Milky Way

Many scientists were trying to figure out how the interstellar object got to our part of the Milky Way galaxy. The object was called 'Oumuamua, which is Hawaiian for "scout." It is pronounced Oh-mooah-mooah.

Loeb had an idea about it. He suggested that the object came from an alien civilization. One possibility is that 'Oumuamua is part of a type of spaceship, he wrote in the Astrophysical Journal Letters. This journal allows scientists to publish short notices about things they are currently studying. His co-writer on the note was Shmuel Bialy, who is also a scientist at Harvard.

Fans of alien life might have been thrilled by Loeb's idea. Other scientists, however, were not very pleased.

"'Oumuamua is not an alien spaceship," Paul Sutter wrote. He is a scientist at the Ohio State University.

North Carolina State University scientist Katie Mack had another idea. She suggested Loeb was seeking attention.

Astronomy's Rock Star

Most scientists think 'Oumuamua is some sort of rock, such as an asteroid or a comet. Loeb disagrees. He says the object is moving too fast to be a rock. It's zooming away from the sun as if something is pushing it.

Loeb says that 'Oumuamua's behavior means it cannot be a clump of rock shaped like a long potato. That's what some scientists think it looks like. He thinks it is more likely something very long and thin,

perhaps like a long pancake or a ship's sail. It might be so light and thin that sunlight is pushing it out of our solar system.

He's not saying it is definitely an alien. He is just saying he can't think of anything other than aliens that fits the data. His statements are getting all over the news.

It's A Love Of Space

Now Loeb is famous. He considers himself a risk-taker in an age of too-safe scientists.

Loeb grew up in a farming village in Israel. He would sit in the hills and read books on the universe, he says. This led him into education and studying space.

When Loeb talks about his work in science, he mentions the many famous people he has met. The famous scientist Stephen Hawking had dinner at his house, Loeb says. Now, Russian billionaire Uri Milner asked him to help design an interstellar spaceship. Milner is putting $100 million toward this project.

Quiz

1 Read the introduction [paragraphs 1-4].

Which sentence from this section supports the conclusion that producers think Avi Loeb has interesting stories to tell?

(A) Avi Loeb is the head of Harvard University's astronomy department.

(B) He thinks that it is wrong to assume that we are alone in the universe.

(C) This belief goes along with Loeb's alien spaceship theory, which grabbed a great deal of attention last year.

(D) Now five film companies are interested in making a movie about his life, he says.

2 According to the article, where did 'Oumuamua originally come from?

How do you know?

(A) Jupiter; The calculations support his theory that an alien spacecraft, or at least a piece of one, might be flying past the orbit of Jupiter.

(B) Earth; In late 2017, scientists in Hawaii found the first known interstellar object.

(C) Interstellar space; It was moving so fast past the sun that it could only have come from another star.

(D) Russia; Now, Russian billionaire Uri Milner asked him to help design an interstellar spaceship.

3 What effect did Avi Loeb's claim about 'Oumuamua have on other scientists?

(A) Many other scientists agreed with Loeb's idea that 'Oumuamua was part of an alien spaceship.

(B) Many other scientists doubted Loeb's idea that 'Oumuamua came from an alien civilization.

(C) Many other scientists offered to help Loeb work on his interstellar spaceship to study 'Oumuamua.

(D) Many other scientists laughed at Loeb for trying to build an interstellar spaceship to find 'Oumuamua.

4 How did Avi Loeb arrive at his conclusion about 'Oumuamua's origin?

(A) He was not able to think of any other solution that fit the data available on 'Oumuamua.

(B) He was able to perform mathematical calculations that definitely proved his theory about 'Oumuamua.

(C) He was able to meet with other famous scientists who convinced him about 'Oumuamua.

(D) He was not able to find any other mention of 'Oumuamua in scientific journals.

Huge new telescope in Hawaii could lead to huge discoveries

By Associated Press, adapted by Newsela staff on 08.05.19
Word Count **630**
Level **840L**

The sun sets behind telescopes at Maunakea, Hawaii, July 14, 2019. Scientists are expected to explore fundamental questions about the universe when they use a giant new telescope planned for the summit of Hawaii's tallest mountain. Photo by: Caleb Jones/AP Photo

Is there life on planets outside our solar system? How did stars and galaxies form in the earliest years of the universe? How do black holes shape galaxies?

Scientists hope to explore those and other important questions using a new telescope. The telescope will be at the top of Hawaii's tallest mountain.

This mountain is holy to Native Hawaiians. They say placing another telescope on the peak of Maunakea will ruin the sacred place. Protesters have already tried to stop construction. They have blocked a road to the mountain and they are planning another protest.

State Supreme Court Allows Telescope

The state Supreme Court has ruled that the telescope can still be built.

The large size of the telescope would mean that it can collect more light. More light means it can see faint and far-away objects like stars and galaxies.

This telescope is a visible light telescope. That means it uses only the wavelengths of light that we can see. Its main mirror will be three times as wide as the world's largest telescope of this kind now. The mirrors keep the light of stars from affecting what you see.

Christophe Dumas is in charge of the new telescope. He says that it would be 200 times better than present-day Earth telescopes. It will be able to see objects 12 times better than even the Hubble Telescope in space.

The Presence Of Life?

The telescope would see distant planets. Astronomers have discovered that planets orbit other stars in our universe. They do not know much about those planets, though. The new telescope would allow scientists to decide if the planet's atmospheres, or the gasses surrounding them, contain water or methane. These elements might show the presence of life.

For the first time in history, we would be capable of seeing life on other planets, Dumas said.

The telescope might help scientists spot other galaxies and black holes in greater detail. Scientists believe black holes are an important part of how galaxies are formed and grow. They are at the center of most galaxies. Their atoms are so closely packed that nothing, not even light, can escape their pull. There is a black hole in our own Milky Way.

Yet, so far astronomers have only been able to observe this in detail in our Milky Way because the next possibility is 100 times farther away.

The telescope may also help scientists understand the forces that we use in technology every day. Some of these forces are used in cellphone mapping, for example. It will also look at invisible materials. Most of the materials in the universe cannot be seen by humans, but they have mass. Everything you interact with in the universe has mass. Air, water, whatever you are reading this article on, you — they all have mass.

Light From Distant Galaxies

Mass bends light, so the new telescope would measure how the materials change light. It will study the paths of light from far-away galaxies.

The weather at the top of Maunakea is perfect for looking at the skies.

The mountain is already home to 13 other telescopes. They have made incredible discoveries. The black hole in the Milky Way was found by telescopes there. Other discoveries over the years include the first images of planets outside of the Milky Way. Telescopes there spotted the first meteor that came from outside of the Milky Way.

In Chile, two other giant telescopes are being built. The Extremely Large Telescope will have a mirror that measures 39 meters, or 128 feet, across. The Giant Magellan Telescope will be 24.5 meters, or 80 feet across.

The Canary Islands in Spain is the backup site. They will only use that site if protests stop them from building in Hawaii.

Quiz

1 The term "black hole" is essential to understanding the use of the new huge telescope.

Which sentence from the article explains what "black hole" means?

(A) The telescope might help scientists spot other galaxies and black holes in greater detail.

(B) They are at the center of most galaxies.

(C) Their atoms are so closely packed that nothing, not even light, can escape their pull.

(D) There is a black hole in our own Milky Way.

2 Read the following selection from the section "The Presence Of Life?"

It will also look at invisible materials. Most of the materials in the universe cannot be seen by humans, but they have mass.

What is the meaning of the word "invisible" as it is used in the selection above?

(A) dark

(B) tiny

(C) unseen

(D) transparent

3 If this article were organized as chronological, which sentence would come FIRST?

(A) Mass bends light, so the new telescope would measure how the materials change light.

(B) Telescopes there spotted the first meteor that came from outside of the Milky Way.

(C) In Chile, two other giant telescopes are being built.

(D) They will only use that site if protests stop them from building in Hawaii.

4 Read the introduction [paragraphs 1-3] and the final section, "Light From Distant Galaxies."

What is one connection between these two sections?

(A) The introduction states a cause and the last section states the effect.

(B) The introduction states a problem and the last section states the solution.

(C) Both talk about the potential for the telescope to discover life on other planets.

(D) Both talk about the potential for protesters to stop construction of the telescope.

"Mini-moon" discovered orbiting Earth, but won't be there for long

By USA Today, adapted by Newsela staff on 03.09.20
Word Count **428**
Level **840L**

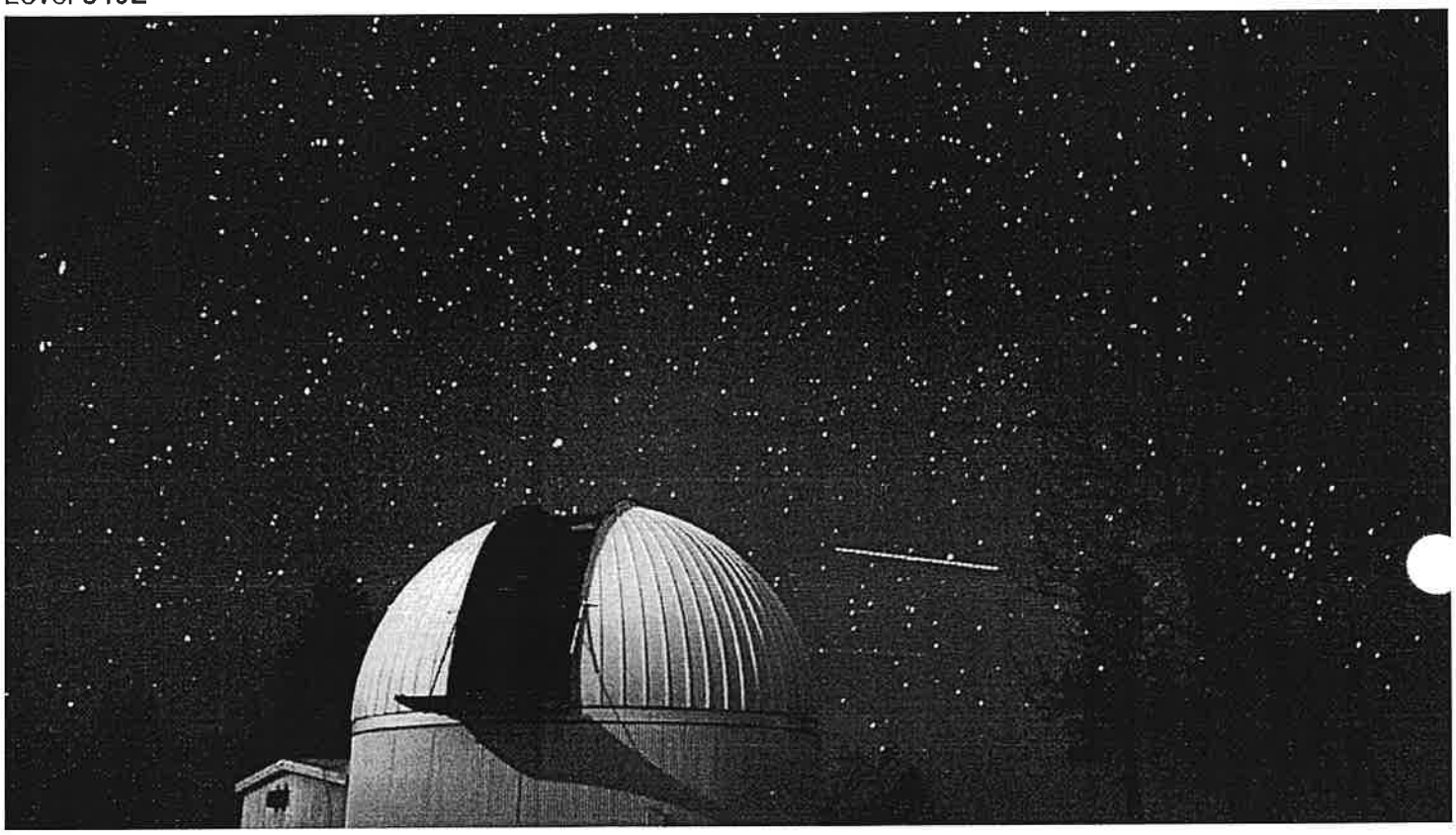


Image 1. The Catalina Sky Survey Telescope at the University of Arizona College of Science where the discoverers of the mini-moon, Kacper Wierzchos and Theodore Pruyne, work. Photo: Catalina Sky Survey/University of Arizona Lunar and Planetary Laboratory

For billions of years, Earth's moon has been on its own. Now it has some temporary company. A "mini-moon" has recently entered the Earth's orbit.

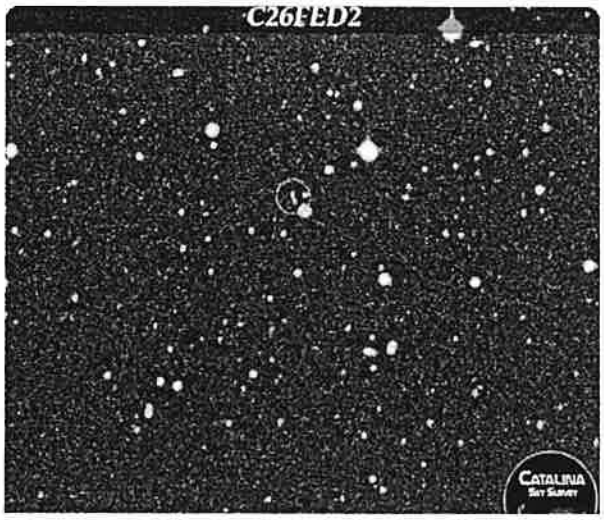
The discovery was made the night of February 15. Senior research specialist Kacper Wierzchos and research specialist Theodore Pruyne discovered it. Both scientists work with the Catalina Sky Survey at the University of Arizona College of Science. The project studies space objects near the Earth.

Wierzchos tweeted excitedly about the "mini-moon" on February 25. It is called 2020 CD3. Out of the nearly 1 million known asteroids, it is the second known asteroid in history to orbit Earth. The first was called 2006 RH120. It was also discovered by the Catalina Sky Survey.

The "mini-moon" is about 6 to 11 feet wide. It entered the Earth's orbit about three years ago, Wierzchos said in his tweet. For comparison, the radius of the moon is 2,158.8 miles, according to NASA. NASA is the U.S. space agency.

The International Astronomical Union's Minor Planet Center studies smaller bodies in space. It cataloged the asteroid on February 25. The center says the "object is temporarily bound to Earth." It added that "no link to a known artificial object has been found."

Asteroid Won't Stay In Earth's Orbit For Very Long



Derek Buzasi is a professor of physics at Florida Gulf Coast University. He said he does not expect the refrigerator-sized asteroid to stay in Earth's orbit for longer than another month or two. However, he is excited about the discovery. It could mean big things for astronomers in the future.

"We know this happens all the time but finding them is very hard," he said. "It's a reminder that something that size can get close to us and it's worthwhile to invest the relatively small amount of money to find them."

Buzasi said bringing samples of small, close asteroids to Earth is helpful to astronomers. It is more useful than sending over robotic explorers to large asteroids. Studying these rocky asteroids can help scientists learn more about the early solar system.

Unfortunately, though, by the time June rolls around, our "mini-moon" will probably be long gone.

According to NASA, there are more than 200 known moons in our solar system. Most of them orbit big planets like Saturn and Jupiter. Saturn and Jupiter have 82 and 79 moons respectively.

Quiz

1 Which sentence from the article supports the MAIN idea of the article?

(A) For billions of years, Earth's moon has been on its own.

(B) Derek Buzasi is a professor of physics at Florida Gulf Coast University.

(C) It could mean big things for astronomers in the future.

(D) Saturn and Jupiter have 82 and 79 moons respectively.

2 Read the following paragraph from the article.

The "mini-moon" is about 6 to 11 feet wide. It entered the Earth's orbit about three years ago, Wierzchos said in his tweet. For comparison, the radius of the moon is 2,158.8 miles, according to NASA. NASA is the U.S. space agency.

Which statement summarizes the paragraph?

(A) The "mini-moon," like other asteroids, cannot stay in orbit long.

(B) NASA controls all the data and information about objects in space.

(C) Wierzchos excitedly tweeted about the discovery of a "mini-moon."

(D) The asteroid that entered the Earth's orbit is tiny compared to the moon.

3 WHY did Derek Buzasi feel excited after the discovery of the "mini-moon"?

(A) Small asteroids usually stay in orbit for many years.

(B) Discoveries of these small asteroids are not common.

(C) A robotic explorer will get samples from the asteroid.

(D) NASA will invest more money in response to the discovery.

4 What effect did the Catalina Sky Survey have on the study of space objects near Earth?

(A) It cataloged the more than 200 moons in the solar system.

(B) It identified the two known asteroids that orbit the Earth.

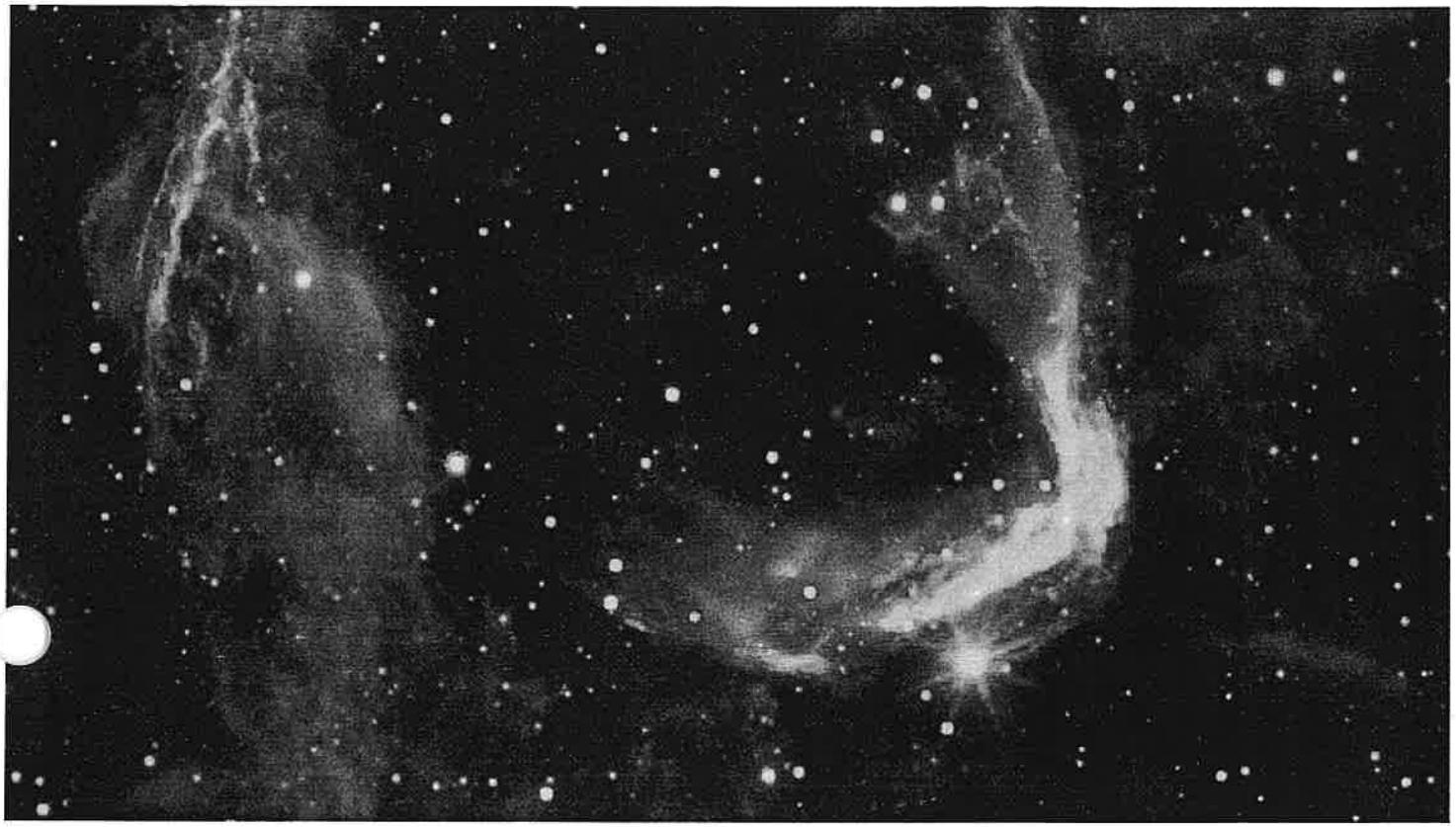
(C) It funded a project that collects samples from asteroids.

(D) It discovered a way to use asteroids to study the solar system.

The sun, an engine of nuclear energy

By Big History Project, adapted by Newsela staff on 08.22.17

Word Count **720**
Level **850L**



This image shows a view of all that remains of the oldest documented example of a supernova, called RCW 86. A supernova is one of the most dramatic events in the universe. All of the elements in the universe are created in supernova explosions. Photo by: NASA

The sun has been burning for five billion years. What is the fuel that keeps it going?

The key is a process called nuclear fusion. An atom contains subatomic particles called protons, neutrons, and electrons. Heavier atoms have more of each subatomic particle. Nuclear fusion is when lighter atoms combine to make heavier ones.

The Recipe For Nuclear Fusion

The main ingredients for nuclear fusion are simple: atoms, heat and pressure. At the hearts of stars are billions of tiny atoms. If they smash into each other with enough force, they can join together to make a single atom (they "fuse"). When this happens, an enormous amount of energy is released.

Nuclear fusion produces a huge amount of energy. Here's an example: suppose you have a gallon of water and you take out all of its hydrogen. You then fuse the hydrogen atoms together until

you've turned it all into helium. Along the way, you would have created enough energy to power New York City for three days.

Now imagine if you had an entire star's worth of hydrogen.

The Sun's Core Is Very Hot

Though the idea of nuclear fusion is simple, that doesn't mean that making fusion happen is easy. In fact, it's extremely hard. Huge amounts of heat and pressure are required. The sun's core, for example, burns at about 10 million degrees Celsius, or 18 million degrees Fahrenheit.

In this frenzy, groups of hydrogen atoms are constantly fusing together to become helium. Every fusion creates more heat, which creates more fusion. It such a powerful process that can power stars for billions of years.

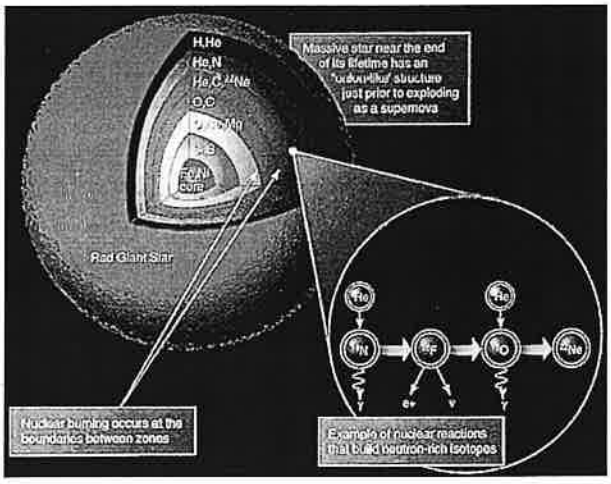
Stars cannot live forever, though, as they eventually use up all of their hydrogen. This means the end of the line for small stars, which quietly fade into the darkness after running out of hydrogen.

Bigger stars, like our sun, do not fade into the darkness. As their hydrogen runs out, they shrink, which makes them heat up. This releases more energy, and the stars balloon into "red giants." If they get hot enough, their helium can then start to fuse. This can create heavier elements like carbon, oxygen, and neon.

The Cycle Of Stars

Some big stars can then enter a cycle. They grow and shrink and then grow again. Each time they heat back up, another round of fusion takes place. How many times a star goes through this cycle depends on how big it is.

Most stars, like our sun, stop burning after they make carbon, oxygen and neon. Stars that are a couple of times bigger can keep going. They get so hot that carbon and oxygen can start fusing as well. This forms even heavier elements: sodium, magnesium, silicon, phosphorous and sulfur.



The biggest stars can heat their cores to several billion degrees. Here, a complex chain of fusion can form metals like nickel and iron. Only a few stars get this far, though. To make iron, a star has to be about eight times bigger than the sun.

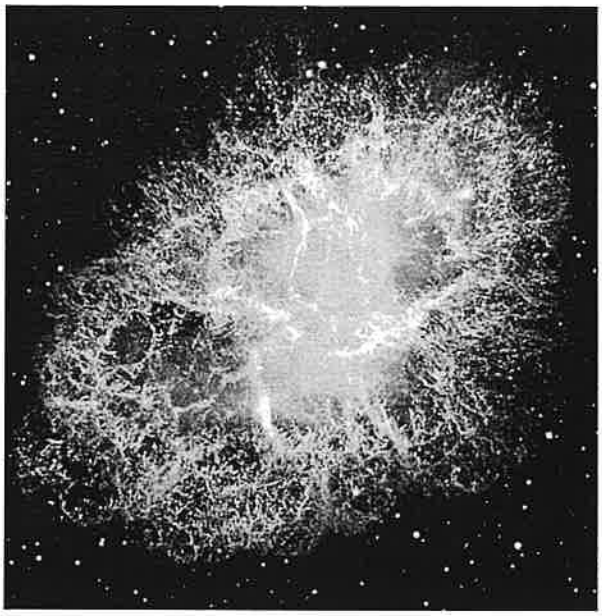
Creating The Supernova

For the biggest stars, the next stage is called a supernova. All the gas that makes up a star comes crashing down on its center. The resulting collision causes a supernova - a massive explosion that is one of the most dramatic events in the universe.

Here, in the fires of a supernova, the rest of the elements in the universe are created. All the gold in all the world can only have come from one place: a nearby supernova.

It is amazing that the largest of stars are fueled by the tiniest of atoms. All the light and energy in our universe is the result of nuclear fusion at the centers of stars. Fusion has kept stars burning for billions of years. When big stars die, the resulting explosion produces even bigger fusion reactions, creating new, heavier elements.

Everything that we are is the result of nuclear fusion inside stars. As the astronomer Carl Sagan once famously said, we truly are star stuff.



Quiz

1 The term "nuclear fusion" is essential to understanding how the sun is powered.

Which selection from the article BEST explains what "nuclear fusion" means?

(A) At the hearts of stars are billions of tiny atoms. If they smash into each other with enough force, they can join together to make a single atom (they "fuse"). When this happens, an enormous amount of energy is released.

(B) Though the idea of nuclear fusion is simple, that doesn't mean that making fusion happen is easy. In fact, it's extremely hard. Huge amounts of heat and pressure are required. The sun's core, for example, burns at about 10 million degrees Celsius, or 18 million degrees Fahrenheit.

(C) It is amazing that the largest of stars are fueled by the tiniest of atoms. All the light and energy in our universe is the result of nuclear fusion at the centers of stars.

(D) Everything that we are is the result of nuclear fusion inside stars. As the astronomer Carl Sagan once famously said, we truly are star stuff.

2 Read the following selection from the section "The Sun's Core Is Very Hot."

> *Bigger stars, like our sun, do not fade into the darkness. As their hydrogen runs out, they shrink, which makes them heat up. This releases more energy, and the stars balloon into "red giants."*

What is the meaning of the word "balloon" as it is used in the selection above?

(A) float

(B) explode

(C) expand

(D) crash

3 Read the first two paragraphs and the final two paragraphs.

What is the connection between these paragraphs?

(A) The first two paragraphs explain how nuclear fusion works and the final two paragraphs describe how it was discovered.

(B) The first two paragraphs define nuclear fusion and the final two paragraphs explain why it is important.

(C) The first two paragraphs ask a question about nuclear fusion and the final two paragraphs give the answer.

(D) The first two paragraphs present research about nuclear fusion and the final two paragraphs describe a researcher.

4 Which option BEST describes the structure of the sections "The Cycle Of Stars" AND "Creating The Supernova"?

(A) different perspectives

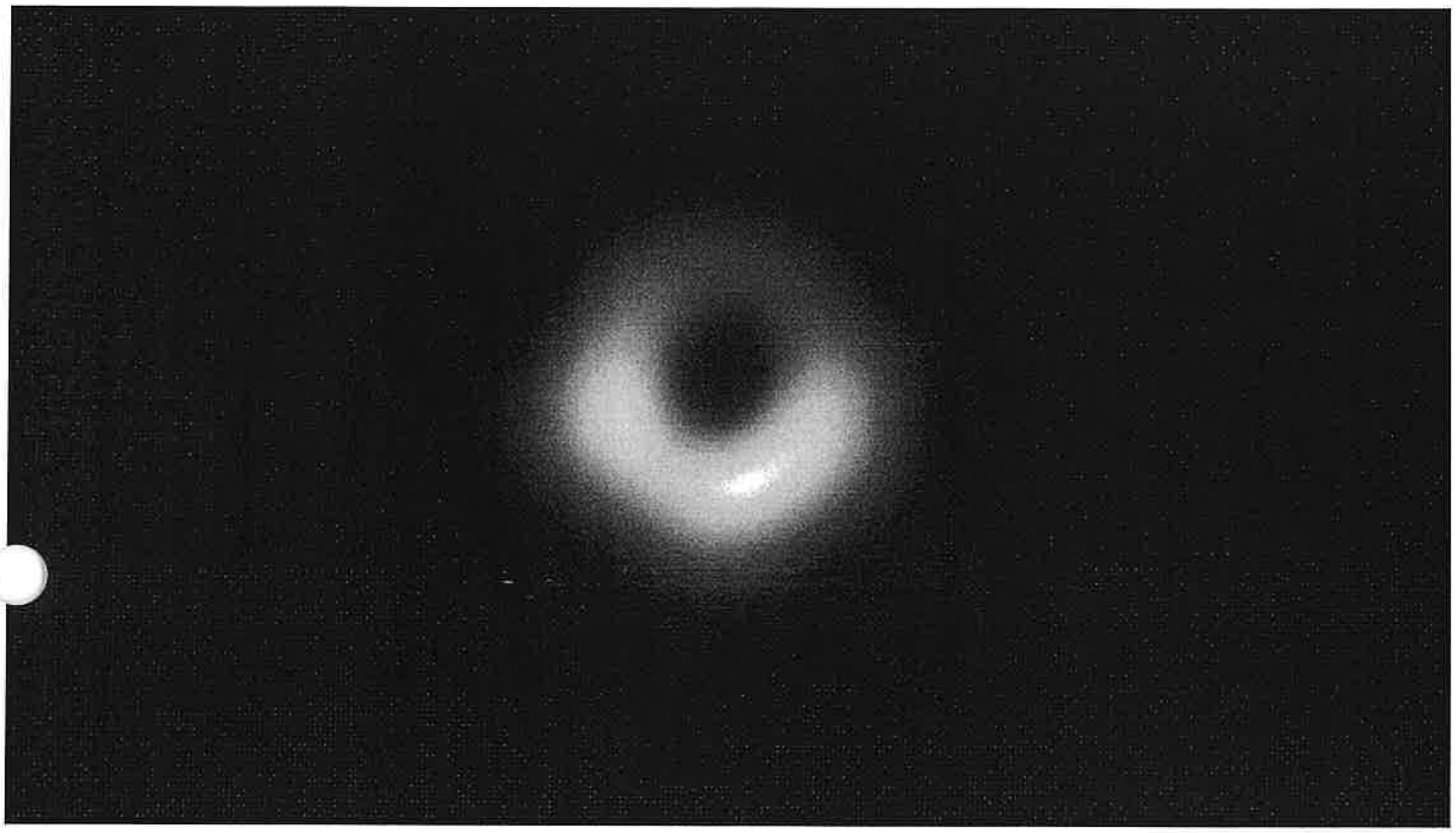
(B) list of historical events

(C) cause and effect

(D) compare and contrast

Astronomers find a black hole 54 million light-years from Earth

By Washington Post, adapted by Newsela staff on 04.12.19
Word Count **664**
Level **820L**



Scientists have captured the first direct image of a supermassive black hole. The cosmic portrait belongs to the black hole at the center of Messier 87, the largest galaxy we know of, about 54 million light-years away. Photo by: Event Horizon Telescope collaboration

Scientists have finally managed to take a picture of a black hole.

A black hole is an area of huge gravitational force. It is a kind of bottomless pit in space. Anything that gets too close to it is swallowed by its gravity. Not even light can escape.

Black Hole Located In The Messier 87 Galaxy

The new image shows a supermassive black hole located around 54 million light-years away from Earth. It sits at the center of the Messier 87 galaxy.

The image was captured by the Event Horizon Telescope (EHT). EHT is not a single telescope. Rather, it is a group of eight telescopes that work together.

The new image shows the boundary between light and dark around a black hole. This region is called the event horizon. It is the point of no return, where the gravity of the black hole is so

extreme that nothing that enters can ever escape.

Over the course of a week in April 2017, EHT astronomers on four continents coordinated their efforts to take pictures of Messier 87. The astronomers had to battle bad weather. They wore oxygen tanks and climbed three-mile-high mountains to escape the interference of Earth's atmosphere.

The scientists then spent two years studying the data they had captured. Finally, they found what they felt confident was the image of a black hole.

Scientist Feryal Ozel is a member of the EHT team. She called the captured image the highlight of her career. "We got another look into the unknown," she said.

Plenty Of Evidence, But No Picture

The existence of black holes was first proposed over 100 years ago. Since then, scientists have found a great deal of proof they do indeed exist. For example, scientists have observed the paths of stars being bent as they would be if near a black hole. In addition, brilliant jets of light have been detected in outer space. Scientists believe these are rings around black holes. They are produced when some superheated material swirling around the hole is splashed back into space.

Still, seeing is believing, said astrophysicist Dan Marrone. Scientists have long been eager to take a snapshot of a real black hole. Sometimes a picture is worth a thousand words.

The black hole in the center of Messier 87 seemed like a promising target. This is because it is enormous. Still, it is so distant that from Earth it appears about as large as a doughnut on the moon. To see it in any kind of detail, scientists would need a telescope as big as the planet. Of course, no such thing exists.

So in the mid-2000s, scientists began linking up telescopes around the world. The goal was to collect a huge number of images, each from a different angle. Coordinating the 10 telescopes was very tricky, and took a great deal of fine-tuning. Finally, in 2017, the EHT was ready to go.

2 Billion Images Collected

Ozel recalled the excitement as hundreds of astronomers around the world prepared for their first night of work. Everyone was eager, but also worried.

"There was an element of the unknown," she said. Technical difficulties or bad weather at any of the telescope locations could end up making a whole night of work worthless.

After five nights of observing, the project had collected around 2 billion images. Somewhere in that vast collection was the image of a black hole. Now the scientists had to find it, even though they weren't entirely sure what a real black hole would look like. They had to rely on what theory told them a black hole should look like and hope for a definite match.

Four groups at four different laboratories around the globe were given the task of locating the image by sifting through the billions of images. The work often seemed endless.

If the scientific promise hadn't been so great, the project "probably would have fallen apart," Ozel said. "The science kept us together."

Quiz

1 Why did scientists believe they could get a picture of a black hole? How do you know?

(A) Scientists now have the necessary equipment they did not have before. "They wore oxygen tanks and climbed three-mile-high mountains to escape the interference of Earth's atmosphere."

(B) Scientists have other kinds of proof they exist. "For example, scientists have observed the paths of stars being bent as they would be if near a black hole. In addition, brilliant jets of light have been detected in outer space."

(C) Other scientists have gotten pictures of black holes. "Still, seeing is believing, said astrophysicist Dan Marrone. Scientists have long been eager to take a snapshot of a real black hole."

(D) Other scientists had created drawings of what a black hole looked like. "Four groups at four different laboratories around the globe were given the task of locating the image by sifting through the billions of images."

2 Read the paragraph from the section "2 Billion Images Collected."

After five nights of observing, the project had collected around 2 billion images. Somewhere in that vast collection was the image of a black hole. Now the scientists had to find it, even though they weren't entirely sure what a real black hole would look like. They had to rely on what theory told them a black hole should look like and hope for a definite match.

Which answer choice is an accurate explanation of what this paragraph means?

(A) Scientists had to use their best guesses about what a black hole could look like to find it in billions of pictures.

(B) Scientists were happy that they collected billions of images showing what different black holes looked like.

(C) Scientists had to stop observing after five nights because they had too many images of matching black holes.

(D) Scientists were worried that they had missed the black hole completely when taking their billions of images.

3 Read the sentence from the section "Black Hole Located In The Messier 87 Galaxy."

Over the course of a week in April 2017, EHT astronomers on four continents coordinated their efforts to take pictures of Messier 87.

Which sentence from the section helps the reader understand the meaning of "coordinated"?

(A) The new image shows a supermassive black hole located around 54 million light-years away from Earth.

(B) Rather, it is a group of 10 telescopes that work together.

(C) The new image shows the boundary between light and dark around a black hole.

(D) She called the captured image the highlight of her career.

4 Read the selection from the section "Plenty Of Evidence, But No Picture."

The black hole in the center of Messier 87 seemed like a promising target. This is because it is enormous.

What is the meaning of the word "promising" as it is used in the selection above?

(A) swearing

(B) assuring

(C) favorable

(D) gloomy