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The origin of the universe and of life on earth is a controversial topic. This issue of *Awake!* invites you to examine some intriguing facts on this subject and to reach your own conclusion. Did the universe come about as a result of a mindless process or the work of a Creator? Your answer could matter more than you realize.

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Were the universe and the life in it created by God or did they come about by chance? The words of the two physicists quoted in this article and the opening words of the Bible provide two radically different answers to that question. Both views have fervent supporters. Yet, many people are not so sure. Best-selling books and public debates have pitted one side against the other.

Your schoolteachers may have confidently stated that the universe and life in it arose spontaneously, that no Creator was involved. But did your teachers provide you with evidence that a Creator does not exist? On the other hand, you may have heard religious

leaders preach that there is a Creator. But did they give you evidence to back up their claim? Or did they ask you to accept their statement as a matter of "faith" or doctrine?

You, no doubt, have thought about this question and may feel that no one can say for sure whether a Creator exists. And you may have another question: Does the answer really matter?

This issue of Awake! will first of all present some of the facts that have persuaded many people to believe in a Creator. It will then discuss why the answer to this question about the origin of life on earth matters.

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What the Universe Tells Us

The universe continues to astonish astronomers. And they have never had better tools to use in analyzing it. What have they discovered?

The universe is organized. "Galaxies are not randomly splayed out across the sky but instead follow a weblike pattern," according to an article in *Astronomy* magazine. How is this possible? Scientists believe that the secret may lie in an invisible material known as dark matter. This dark matter has been called "a kind of unseen scaffolding upon which . . . galaxies, galaxy clusters, and

galaxy superclusters . . . are aligned and supported."

How did the universe become so organized? Is it likely that such order came about as a result of a mindless process? Note the comment made by the late Allan Sandage. He is regarded as "one of the greatest and most influential astronomers of the 20th century," and he believed in God.

"I find it quite improbable," he said, "that such order came out of chaos. There has to be some organizing principle."

The universe is fine-tuned to support life. Consider what scientists call the weak force. It keeps our sun burning at a steady rate. If the force were weaker, the sun would never have formed. If it were stronger, the sun would have disappeared long ago.

The weak force is just one of several finely tuned features that we depend on. Science writer Anil Ananthaswamy says that if even one of those features had been different, "stars, planets, and galaxies would never have formed. Life would have been all but impossible."

The universe has an ideal home for humans. The earth is equipped with the right atmosphere, the right amount of water, and a moon that is the perfect size to stabilize the earth. "Our tangled web of geology, ecology, and biology," says *National Geographic*, "makes this strange rock [earth] the only one in reach that's just right for humans."*

Our solar system is, according to one writer, "in the middle of nowhere" in our galaxy. But that very isolation is what makes life on earth possible. If we lived closer to other stars—either at our galaxy's center or among its spiral arms—the radiation would jeopardize our life. Instead, we find ourselves in what some scientists have coined the "galactic habitable zone."

Based on his scientific knowledge of the universe and its properties, physicist Paul Davies concluded: "I cannot believe that our existence in this universe is a mere quirk of fate, an accident of history, an incidental blip in the great cosmic drama... We are truly meant to be here." Davies does not teach that God created the universe and human life, but what do you think? The universe and the earth seem to be designed to make life possible. Could it be that they seem that way because they were designed?



CONSIDER THIS:

Newspapers and weather apps predict the exact time the sun and the moon will rise and set. If those predictions were created by someone, who created the astronomical laws on which those predictions are based?

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^{*} This *National Geographic* article did not intend to imply that God created the earth and humans. Rather, it was commenting on how suitable the earth is for human habitation.

What Life Tells Us

Living things grow, move, and multiply all around us. They make our planet uniquely beautiful. And today mankind knows more about living things than ever before. What does life tell us about its origin? Consider the following.

Life appears to be designed. Cells are spoken of as the building blocks of life. Like tiny factories, they perform thousands of extremely complex tasks to sustain and reproduce life. Such intricate complexity can be found virtually everywhere. For example, consider baker's yeast, which is a single-celled organism. Compared to the human cell, the yeast cell may seem simple. Yet, it is incredibly complex. Yeast cells have a well-organized nucleus with DNA. They are equipped with microscopic "machines" that sort, transport, and modify molecules —steps that are vital for these organisms to live. When a yeast cell runs out of food, it

launches a sophisticated chemical process that slows down its activity. This allows baker's yeast to remain dormant, but alive, in a kitchen pantry until it is activated by the baking process.

Scientists have been studying yeast cells for decades in order to understand human cells better. But they still have a long way to go. "There are just not enough biologists around to do all the experiments we want to do to understand how even yeast works," laments Ross King, professor of machine intelligence at Chalmers University of Technology in Sweden.

The yeast cell is incredibly complex. It has a well-organized nucleus with DNA and microscopic machines that sort, transport, and modify molecules —all of which are vital for the life of the cell.





What do you think? Does the mind-boggling complexity of the humble yeast cell give evidence of design? Could such design have come about without a designer?

Life can come only from life. DNA is made up of molecules called nucleotides. Each human cell has 3.2 billion nucleotides. These compounds are arranged in a precise pattern so that the cell can make enzymes and proteins.

The chance of even the simplest strand of nucleotides spontaneously forming the right pattern has been calculated to be $1 \text{ in } 10^{150}$ (1 followed by 150 zeros). An event such as this would be a virtual impossibility.

The fact is that no scientific experiments have proved that life can arise spontaneously from nonliving matter.

Human life is unique. As humans, we possess characteristics that enable us to enjoy life to the full—and in ways that no other species can. We have advanced creative abilities, social skills, and feelings. We fully appreciate tastes, smells, sounds, colors, and sights. We plan for the future and search for meaning in life.

What do you think? Did those characteristics evolve in us because we needed them to survive and reproduce? Or could they indicate that life is a gift from a loving Creator?



Discover fascinating examples of design in nature.
Search for articles and videos entitled "Was It Designed?" on jw.org.



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Meet Adam—a robot designed to study yeast cells

Adam is about the size of a small van. It has a freezer, robotic arms, cameras, sensors, and four computers. This sophisticated machine was designed to perform complex experiments on yeast cells and has successfully done so without much assistance.

If you were told that Adam appeared spontaneously, without a design or a builder, would you believe it? Likely not. Yet, the simplest of living cells is far more complex than a robot. If the robot required a designer, what about living cells?



Scientists seem to have studied just about every aspect of the known universe. Still, there are many important questions they cannot answer.

Has science established how the universe and life began? The simple answer is no. Some say that a branch of science known as cosmology can explain the origin of the universe. However, a professor of astronomy at Dartmouth College, Marcelo Gleiser, who is agnostic, replies: "We have not explained the origin of the universe at all."

Similarly, regarding the origin of life, an article in *Science News* magazine says: "It may be impossible to nail down how life truly began on Earth: Most geologic records of what actually happened during Earth's earliest days have long disappeared." Those statements suggest that science has not yet answered the question, How did the universe and life begin?

But you may wonder, 'If life on earth was designed, who is the designer?' You may also have asked the following questions: 'If a wise and loving Creator exists, why would he allow his human creatures to suffer? Why would he allow so many conflicting forms of worship? Why would he allow his worshippers to do so many bad things?'

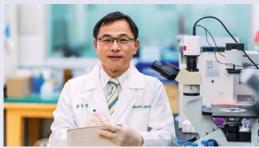
On its own, science cannot answer those questions. But that does not mean that you cannot find reasonable answers. In fact, many people have found satisfying answers in the Bible.

If you would like to see why some scientists who have taken the time to study the Bible say that they believe in a Creator, visit jw.org. Search for "viewpoints on the origin of life."

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SCIENCE AND THE BIBLE CONVINCED THEM





Georgiy N. Koidan, chemist

"My work often involves 'assembling' molecules. It is like playing chess: you need to plan several moves in advance. If you leave out one step, the molecule can fall apart. Although my work is complicated, it is simple compared to the thousands of chemical reactions that happen inside living cells to produce complex chemical molecules. That leads me to believe that there must be a Great Chemist—a Creator.

"When I studied the Bible, I realized that it is not an ordinary book. The Bible was completed almost 2,000 years ago, but I feel that its advice is just as valuable today. What it says about settling disputes in the family, at work, and with neighbors really works. I came to the conclusion that only someone who possesses a superior intelligence can give such trustworthy counsel."

Yan-Der Hsuuw, embryologist

"As an embryo develops, all cells must cooperate with one another to transform certain cells into nerves, muscles, bones, blood, and other tissues and ultimately form an individual. The mechanism that regulates the development of an embryo is far beyond our understanding. The way I see it, life must come from an intelligent designer.

"The growth of an embryo in its mother's womb, as described in the Bible at Psalm 139:15, 16, seems to me to be similar to what scientists have discovered in recent decades. How could such an accurate description have been recorded so long ago unless it was revealed to the writer by the Creator?"



Watch the video **Rocío Picado Herrero: A Chemistry Teacher Explains Her Faith.** Search for the video title on jw.org.



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What the Bible Tells Us

"This is a history of the heavens and the earth in the time they were created." (Genesis 2:4) With those words, the Bible summarizes its account of how the universe and our planet came to be. Does what the Bible says harmonize with scientific facts? Consider a few examples.

Has the universe always existed?

Genesis 1:1 states: "In the beginning God created the heavens and the earth."

Up until the second half of the 20th century, many prominent scientists believed that the universe always existed. But based on more recent discoveries, most scientists now acknowledge that our universe did, in fact, have a beginning.

What did the earth originally look like?

Genesis 1:2, 9 describes the ancient earth as "formless and desolate," covered in water.

That description is echoed by modern scientific findings. Biologist Patrick Shih says that our planet started with "an unbreathable atmosphere devoid of oxygen . . . overall looking more like a science fiction landscape." Astronomy magazine reports: "New research suggests ancient Earth was a water world, with little to no land in sight."

The Beginning: The material heavens and earth are created

First Day: Diffused light evidently penetrates the earth's atmosphere.—Genesis 1:3-5



How did our atmosphere change over time?

Genesis 1:3-5 indicates that when light first began to penetrate the atmosphere, its source could not have been discernable from the earth's surface. Only later would the sun and the moon have been distinctly visible from the earth.—Genesis 1:14-18.

The Smithsonian Environmental Research Center says that our atmosphere first allowed only diffused light to reach the earth. It says: "Methane droplets in the air shrouded the young Earth in a global haze." Later, "the methane haze cleared and the sky turned blue."

In what order did life appear on the earth?

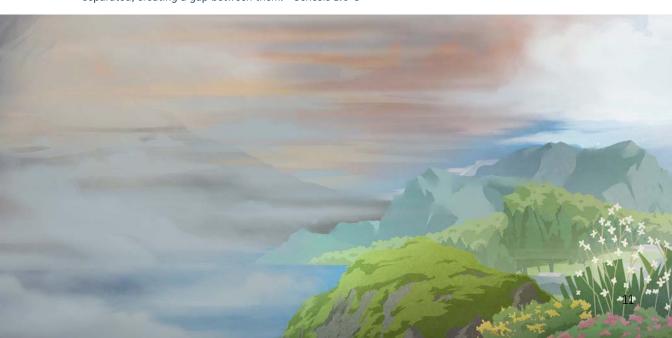
Genesis 1:20-27 states that fish, birds, land animals, and finally humans were created. Scientists believe that the first fish appeared long before the first mammals and that humans appeared much later.

The Bible does not say that all life on earth was created in six 24-hour days

"Considering the brevity of the biblical narrative, the match between the statements and timing in Genesis 1 and the discoveries of modern science is phenomenal."—Gerald L. Schroeder, physicist.

2 Second Day: The earth is covered with water and a dense mantle of vapor. These two elements are separated, creating a gap between them.—Genesis 1:6-8

Third Day: Surface water subsides and dry ground appears.—Genesis 1:9-13



What Does the Bible Not Say?

Some people claim that the Bible does not harmonize with modern scientific discovery. However, such claims are often based on a misunderstanding of what the Bible actually says.

The Bible does not say that the universe or the earth is only 6,000 years old.

Rather, it says simply that the earth and the universe were created "in the beginning." (Genesis 1:1) The Bible does not specify how long ago that was.

The Bible does not say that all life on earth was created in six 24-hour days.

Rather, it uses the word "day" to refer to periods of time. For example, it states that the creation of the entire universe—including the six creative "days" spoken of in Genesis chapter 1—occurred in the period

of time called "the day that Jehovah* God made earth and heaven." (Genesis 2:4) So each of the six creative "days" during which God prepared the earth for life and created life on it could represent extremely long periods of time.

The Bible does not say that living things cannot undergo changes in their makeup over time.

The book of Genesis states that animals were created "according to their kinds." (Genesis 1:24, 25) The Bible word "kinds" is not a scientific term, but it seems to refer to broad divisions of life-forms. Thus, a single "kind" may include many species or varieties. This wording allows for the possibility that within a "kind," changes in the variety and the types of species that lived in the same community could occur over time.

Fourth Day: The sun and moon could have been discernible from the earth's surface.—Genesis 1:14-19

Fifth Day: God creates underwater creatures and flying creatures with the ability to procreate within their kinds.—Genesis 1:20-23



^{*} Jehovah is the name of God as revealed in the Bible.

What do you think?

As noted above, the Bible describes in simple and accurate terms the beginning of the universe, the original state of the earth, and the development of life. Might it be, then, that the Bible has also accurately identified the One who created those things? "The origin of life [as] a result of a supernatural event," says the *Encyclopædia Britannica*, "is in its most general form not inconsistent with contemporary scientific knowledge."*

The Bible does not say that

living things cannot change

over time

CONSIDER THIS:

Read Genesis 1:1-2:4. Contrast that account with ancient creation myths. The Babylonians, for example, believed that the universe and humans were made from the corpse of a goddess and the blood of a god. Ancient Egyptians supposed that the god Ra created humans from tears. In China, some thought that the dead body of a giant had transformed into the natural elements of the earth and that humans descended from the fleas. on his body. Do you think that the Genesis account belongs among those myths? Or is it scientifically plausible?

6 Sixth Day: Land animals, both large and small, are created.
The sixth day culminates with the creation of the first human couple.—Genesis 1:24-31





Watch the four-minute video Was the Universe Created? Search for the video title on jw.org.



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^{*} The *Encyclopædia Britannica* does not endorse the idea that life was created.

Why the Answer Matters

Why does it matter whether there is a Creator? If the evidence convinces you that an almighty God exists, then you may want to examine the evidence that the Bible is inspired by him. And if you trust what the Bible says, then you stand to benefit in the following ways.

Add meaning to your life

THE BIBLE SAYS: "[God] did good, giving you rains from heaven and fruitful seasons, satisfying you with food and filling your hearts with gladness."—Acts 14:17.

WHAT IT MEANS: Everything you enjoy in the natural world is a gift from the Creator. You will appreciate these gifts even more when you discover how much the Giver cares about you.

Find reliable guidance for daily living

THE BIBLE SAYS: "You will understand what is righteous and just and fair, the entire course of what is good."—Proverbs 2:9.

WHAT IT MEANS: As your Creator, God knows what you need in order to be happy. By examining the Bible, you can learn lessons that can benefit you now.

Get answers to your questions

THE BIBLE SAYS: "You will find the knowledge of God."—Proverbs 2:5.

WHAT IT MEANS: Discovering that the Creator exists can help you find answers to fundamental questions, such as: What is the purpose of life? Why is there so much suffering? What happens when we die? You can find satisfying answers in the Bible.

Look at the future with hope

THE BIBLE SAYS: "'I well know the thoughts that I am thinking toward you,' declares Jehovah, 'thoughts of peace, and not of calamity, to give you a future and a hope.'"—Jeremiah 29:11.

WHAT IT MEANS: God promises that in the future he will eliminate evil, suffering, and even death. When you trust God's promises, your hope in such a future will help you face day-to-day problems with courage.



See the videos **How Can We Be Sure the Bible Is True?** and **Who Is the Author of the Bible?**on jw.org. You can find each of these videos
by typing the phrase "Bible true" or "author of
Bible" into the search box.





HOW SOME HAVE BENEFITED FROM THEIR BELIEF IN A CREATOR

"I continue to be amazed when I see how God helps us in so many aspects of life. From setting priorities in life to how to deal with conflict to how to become God's friend." —Cyndi, U.S.A.

"My belief in a Creator makes my life fulfilling and rich. It stimulates me intellectually, since there are endless beautiful things to be discovered about him, about his creation, and about his Word."—Elise, France.

"Applying what our Creator teaches us in the Bible makes me a happier person. It helps me to be less critical, more attentive, and more content. It has also helped me to be a better father."—Peter, Netherlands.

"Formerly, my life was a vicious circle of eating, sleeping, and scrambling to get to work on time. I was in survival mode! Now I see life as an incredibly wonderful gift—one meant to be enjoyed and nurtured."—Liz, Estonia.

"I am an anxious person. But knowing that there will be an end to wickedness, injustice, and suffering helps me to cope."—Adrien, France.



See how the Bible answers life's big questions. Watch the video **Why Study the Bible?**—Full Length.



MORE ON JW.ORG

This issue of Awake! presents some of the evidence that suggests that the universe was created. Examine this evidence for yourself, and determine if there is a basis for believing that a Creator exists. Listed here are some more videos and publications that you might find informative. Search for the titles on jw.org:

Examine the Evidence



Why do many educated people believe in a Creator?

Watch the interviews in the series "Viewpoints on the Origin of Life." Is the teaching of evolution based on solid facts?

Read the brochure **Was Life Created?**

Is it reasonable to believe in a Creator?

Watch the video **What Your Peers Say—Belief**in **God**.

Is it reasonable to believe in the Bible?

Read the brochure

The Origin of Life

—Five Questions Worth
Asking.







