

Creation vs Evolution

Lesson 2: Contrasting Creation & Evolution

Introduction: In our lesson today, we will contrast the biblical account of Creation with the evolutionary story. Read Genesis 1 on your own and answer the following questions.

- a) What five different repeating patterns of words do you find in the biblical account of Creation? What is their significance?

- b) What day of Creation do you find the most “mysterious” or “puzzling”? Why?

- c) What day of Creation do you most wish you would have been able to witness? Why?

1. Watch the video. Then fill in the blanks below with the help of the word bank.

WORD BANK

4.54 billion 13.81 billion “Big Bang” chemicals creator god death “historical narrative”
“historical science” humans hydrogen imagine iron stars ‘star stuff’ story

Since evolutionists start with the assumption that there is no _____, evolution, then, is the best _____ they can write about how they _____ the universe came into existence. Evolutionists themselves describe the theory of evolution as a _____ or a _____ which is “largely based on concepts.”

The story of evolution begins _____ years ago. When a very small point rapidly expanded producing time, space, and energy. This is called the _____.

Then supposedly, over thousands of years, that energy cooled becoming _____ which was pulled into a ball under its own gravity to form _____. Some of these stars were big enough to produce heavier elements like _____ which they scattered across the universe when they exploded as super novae. Material from these exploding stars pooled together to make new stars and planets.

According to the evolution story, our planet, Earth, was formed _____ years ago. Living things on earth came about naturally from non-living _____. Over billions of years, one-celled forms of life gradually morphed into all the world's plants and animals. Through a process of _____, animals evolved into new kinds of animals. Ape-like creatures evolved into _____ through this same process of death and suffering. The famous evolutionist, Carl Sagan, once said: "We are all _____. He said this because evolutionists believe that over billions of years, humans evolved from material from exploding stars, all by itself.

2. Imagine this situation. A medical doctor doesn't believe that there is such a disease called cancer. What is the danger to her patients?

What is the parallel with evolutionists who deny the existence of the Creator God of the Bible?

3. Because evolution is a story about how some imagine the universe came into existence, evolutionists often use speculative words like "might," "could have," or "perhaps" in their writing. Analyze the articles below and circle the speculative words.

Excerpts from "‘Living fossil’ fish surprises scientists with 100-year lifespan"

Full article at cbc.ca/news/science/coelacanth-fossil-1.6074328 (June 21, 2021)

The coelacanth — a wondrous fish that was thought to have gone extinct along with the dinosaurs 66 million years ago before unexpectedly being found alive and well in 1938 off South Africa's east coast — is offering up even more surprises.

Scientists said a new study of these large and nocturnal deep-sea denizens shows that they boast a lifespan about five times longer than previously believed — roughly a century — and that females carry their young for five years, the longest-known gestation period of any animal...

After being found alive, the coelacanth was dubbed a "living fossil," a description now shunned by scientists. "By definition, a fossil is dead, and the coelacanths have evolved a lot since the Devonian," said biologist and study co-author Marc Herbin of the National Museum of Natural History in Paris.

It is called a lobe-finned fish based on the shape of its fins, which differ structurally from other fish. Such fins are thought to have paved the way for the limbs of the first land vertebrates to evolve. Coelacanths reside at ocean depths of as much as 800 metres. During daylight hours they stay in volcanic caves alone or in small groups...

A Textbook Evolutionary Story About Moths and Bats Is Wrong

theatlantic.com/science/archive/2019/10/textbook-evolutionary-story-wrong/600295/

For 50 years, researchers have thought that moths evolved ears to detect the ultrasonic calls of attacking bats—but a new study shows that ears came first.

By [Ed Yong](#) (October 21, 2019)

The standard version of the tale—the one told in textbooks and hundreds of scientific papers—goes like this. Millions of years ago, bats evolved a kind of sonar, allowing them to perceive the world by making high-pitched calls and analyzing the rebounding echoes. This ability,

known as echolocation, allowed them to pick out and pick off flying insects, even in total darkness. In response, moths repeatedly evolved ultrasonic ears that could detect bat sonar, giving them time to make evasive maneuvers. An evolutionary arms race began.

Scientists have been studying this ancient battle for 50 years, but they've been laboring under a critical misunderstanding for all that time. A team of researchers led by [Akito Kawahara](#) of the University of Florida has now shown that moth ears almost always evolved *before* bat sonar. They came first, by at least 28 million years. Their original purpose is unclear—but spotting bats wasn't it. "I think it's going to be a bit of a bombshell for the field," Kawahara says.

"Most of the introductions I've written in my papers are wrong," adds [Jesse Barber](#) of Boise State University, who has studied bats and moths for years, and was involved in the new study.

Though moths and butterflies are familiar, popular, and extraordinarily successful—there are more than 160,000 species—the details of their origin story have been murky. Researchers have tried to decipher those details by comparing the physical features of living and fossilized moths. But it's "extremely difficult to estimate" how fast such features evolve, says Adriana Briscoe from the University of California, Irvine, and this approach tends to underestimate the timing of important evolutionary events—such as the origin of ears.

To get better answers, Kawahara and his team spent years traveling around the world's nighttime forests and luring moths with ultraviolet lamps. By comparing the genes of 186 species, they created a family tree that shows how different groups are related and, crucially, when the major milestones in their evolutionary history occurred.

The closest living relatives of moths and butterflies are [caddis flies](#), insects that spend their larval lives in the water before changing shape and taking to the air. About 300 million years ago, insects with a similar lifestyle left the water to feed on early land plants, such as mosses, liverworts, and ferns. Larvae lived inside plants, devouring them from within and eventually emerging as winged adults that flew from leaf to leaf. These were the first moths.

These creatures would probably not have spawned a dynasty of 160,000 species without two important innovations. First, about 241 million years ago, the munching jaws of the adults transformed into a coiled straw—a proboscis. This allowed them to sip the nectar of flowering plants, which were then relative newcomers, only starting their long ascendance. Second, some of the caterpillars stopped mining the interiors of plants and began feasting on the surface, eating them from outside in.

With more room, they grew bigger bodies that measured in inches rather than millimeters. The larger caterpillars could walk about to find more nutritious leaves, other host plants, or places to pupate in safety. Bigger caterpillars produced bigger adults, which could fly greater distances in search of food. This likely cemented their relationship with flowering plants. "They pollinated the flowers, the plants became diverse, and the moths became diverse in synchrony," Kawahara says. His family tree shows that the two groups radiate in synchrony—another classic evolutionary story and one that, mercifully, "appears to be correct," he says.

Flying high on flower power, moths thrived, but mostly by night. But about 98 million years ago, some of them became active in the day, and gave rise to the butterflies—a group that Barber wryly describes as "an uninteresting diurnal group of moths." Here again, bats have been implicated. In 1999, Jayne Yack of Carleton University proposed that echolocating bats were such a threat that some moths escaped by fleeing the night entirely, shifting to daylight hours. "The butterfly, in effect, was therefore 'invented' by the bat," she wrote.

Or was it? Bat evolution is full of its own controversies, but several studies, accounting for both fossils and genetic evidence, roughly agree that bats emerged 55 million to 65 million years ago, and developed sonar about 50 million years ago. And Kawahara's new study, which Yack was involved in, shows that butterflies emerged far earlier than that.

Kawahara thinks the origin of butterflies is instead tied to plants—and bees. Bees evolved shortly before butterflies did, 100 million to 125 million years ago. Their appearance could have driven the

evolution of both bright colors and daytime blooming in flowers—traits that moths came to exploit. So bees invented butterflies? “I think so,” Kawahara says. “I think bees are a very important part of the story. They had a very tight interaction with flowering plants, and butterflies hopped onto that and benefit from it. It has nothing to do with bats.”

Neither do the ears. Kawahara’s new family tree shows that moths evolved hearing organs on nine separate occasions. Most of these events occurred 78 million to 92 million years ago, well before bats evolved sonar 50 million years ago. As always, there are exceptions: A few groups, including hawk moths and the nocturnal hedylid butterflies, evolved ears later ([on their mouths](#) and wings, respectively) and may have done so in response to bat sonar. But the vast majority of eared moths—some 96 percent of them, by Kawahara’s estimation—did not.

“It’s puzzling,” Yack says. “All of those ears, as far as we know, are tuned to ultrasound, and therefore most likely respond to bats. So if they were ultrasound-sensitive before bats, what were they listening to?” Clues can be found in bat-free places such as the Arctic or various islands. There, moth ears are usually tuned to lower frequencies that cover natural sounds such as the rustling of predators or the flapping of wings. “It seems likely that ears evolved for that reason: to survey the world,” Barber says.

When echolocating bats arrived in that world, moths then transformed their existing ears into specialized sonar detectors, by shifting their range toward higher frequencies. Some grew in size, becoming too big for small bats to tackle. Others, [like tiger moths](#), developed the ability to produce their own ultrasonic clicks to jam the sonar of bats. Yet others, like [the stunning luna moths](#), extended their wings into elaborate tails that baffle bat sonar—the tails spin as the moths fly, producing illusory echoes that confuse attacking bats. In the words of Donald Griffin, who first discovered bat echolocation, the duel between bats and moths is still a “[magic well](#)” of “surprising and significant discoveries.” And perhaps the most surprising yet is that the standard story of ears and sonar isn’t right.

If moths with decent ears already existed when bats first took to the air, is it possible that bats evolved echolocation to better capture prey that could already hear them coming? Bat sonar didn’t drive the evolution of moth ears, but could it have been the other way around? “We’re not sure, and bats feed on a lot of insects,” Kawahara says. “But they do eat moths a *lot*, so there’s a good chance that is true.”

Excerpt from the 2008 booklet: “**Science, Evolution, and Creationism**” by the National Academy of Sciences (p. 21-22)

“For life to begin, three conditions had to be met. First, groups of molecules that could reproduce themselves had to come together. Second, copies of these molecular assemblages had to exhibit variation, so that some were better able to take advantage of resources and withstand challenges in the environment. Third, the variations had to be heritable, so that some variants would increase in number under favorable environmental conditions.

No one yet knows which combination of molecules first met these conditions, but researchers have shown how this process might have worked by studying a molecule known as RNA. Researchers recently discovered that some RNA molecules can greatly increase the rate of specific chemical reactions, including the replication of parts of other RNA molecules. If a molecule like RNA could reproduce itself (perhaps with the assistance of other molecules), it could form the basis for a very simple living organism. If such self-replicators were packaged within chemical vesicles or membranes, they might have formed “protocells” — early versions of very simple cells.* Changes in these molecules could lead to variants that, for example, replicated more efficiently in a particular environment. In this way, natural selection would begin to operate, creating opportunities for protocells that had advantageous molecular innovations to increase in complexity.”

