

Out of Nothing (The Creation of the Universe)

(appropriate for Mid Schoolers and older)

Michael R. Daily September 2017

Other youth bible studies by Michael Daily available at: <http://gciweb.org/2011/04/youth-bible-study-materials-michael-r-daily/>

(reference: D. Russell Humphreys, Starlight & Time: Solving the Puzzle of Distant Starlight in a Young Universe, Master Books, 2006)

(this lesson is best taught just after the lesson, "Before the Beginning Began" located at the website above)

For a more detailed, high school level study on this topic please see the study titled, "Starlight and the God of the Universe" located at: <http://gciweb.org/2011/04/youth-bible-study-materials-michael-r-daily/>

Tonight we are going to talk about the Big Bang theory and why it is not a good idea to believe in it. Before we start, it is important that you understand a few things about science, otherwise it will be easy for people to deceive you.

What is science? When we say, "science says the universe is 15 billion years old, science says man evolved in the following way", what does that mean, "science"? That type of science is really made up of two things:

- 1) **Observational science** – observations, experimental data, repeatable experiments. We Christians love this stuff and we have no problem with it – we like it. But there is another part of science:
- 2) **Philosophical science** – This includes dogma or ideology (strongly held beliefs) and in science it usually is presented in the form of assertions. What is an assertion? The word "assertion" is a scientific word which means "to strongly insist" that something is true. When a scientist makes an assertion he is saying, "I have no data, I have no observational evidence, there are no experimental results that support what I am about to say, nevertheless I strongly insist that the following must be true". This is philosophy. We Christians reject philosophy in all its forms.

Colossians 2:8,9

See to it that no one takes you captive through philosophy and empty deception, according to the tradition of men, according to the elementary principles of the world, rather than according to Christ. For in Him all the fullness of Deity dwells in bodily form,

Its critical that you be able to tell the difference between observational science – observation and repeatable experimental results – and philosophy in the form of assertions. Accept the observational science but reject assertions. What makes this difficult is atheist scientists tend to take the observational science and their philosophical assertions and mix them all together and present all of it as if it was real science. You will need to get good at identifying which pieces of what they are saying are based on observational data and which pieces are philosophy. We will accept the observational pieces, but we will reject all of the philosophy and will replace it with what the Bible says.

Genesis 1:1-2

In the beginning God created the heavens and the earth. ²The earth was formless and void, and darkness was over the surface of the deep, and the Spirit of God was moving over the surface of the waters.

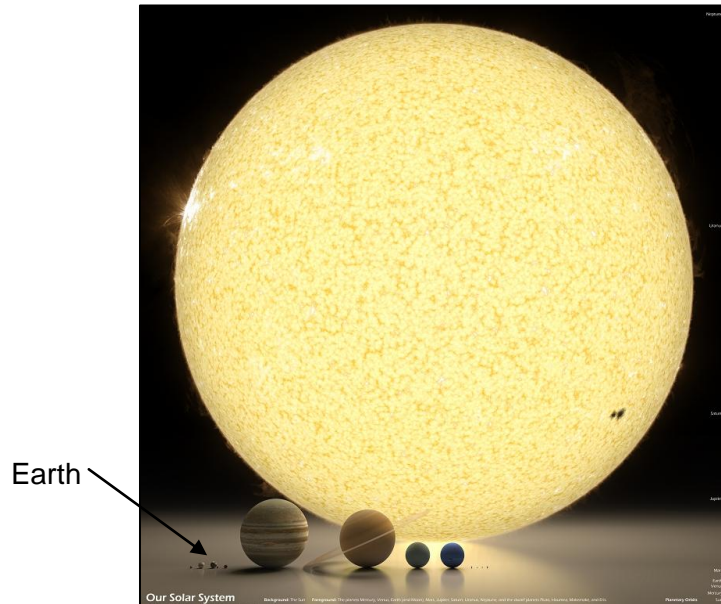
Genesis 1:2 says that the location of the creation event was Earth. Therefore, we would expect the Earth to still be located relatively close to the center of the universe today.

In fact, up until the early 1600s, pretty much everyone believed the Earth was the center of the universe, primarily because the Bible seemed to indicate that that is where it should be.

In 1610, an Italian scientist named Galileo Galilei, made some observations with a crude telescope about the movements of objects in the night sky. Based on his measurements and some mathematics, Galileo came to the conclusion that the Earth is not the center of the universe, the Sun is!

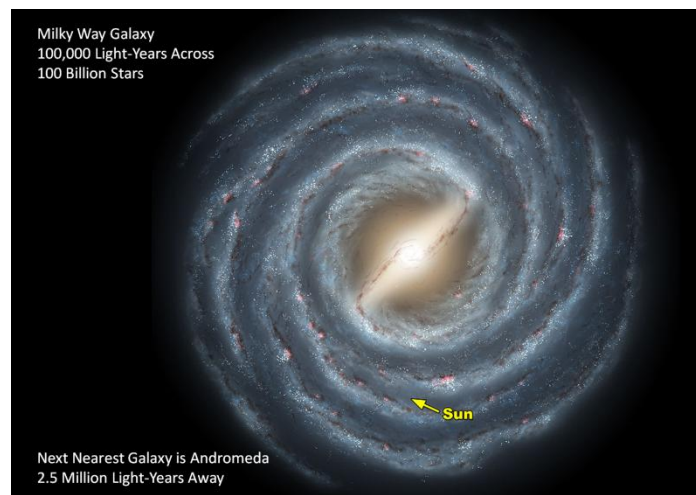
Today, when you go to school, you may hear a teacher say that Christians in the 1600s were not very smart because they believed the Earth was at the center of the solar system, because that is what their Bible said, and the great scientist, Galileo, proved that, actually, the Sun is the center of the solar system. They may go on to say that this is why the Bible cannot be trusted, instead, put your trust in science! But that is not what Galileo said he discovered. He said the Sun was the center of the universe, not the center of the solar system! So, Galileo was actually wrong.

What's the problem? The problem is that in the early 1600s the telescopes and measuring instruments they had back then were not very good. For example, Galileo tried to measure the size of celestial objects by holding a piece of string in front of his telescope and comparing the celestial object to the size of the string! Because of the limitations of their equipment, they thought the solar system was the universe. So, Galileo was right in saying the Earth and other planets revolve around the Sun, but he was wrong in saying the Sun was the center of the universe.



In this picture the Sun and planets are to scale. Earth is the third dot from the left!
<https://twistedstifer.files.wordpress.com/2014/11/our-solar-system-in-perspective.jpg>

Over time our instruments improved and we realized that the universe is much bigger than the solar system. Instead of the universe being our solar system, we thought this (see picture below) was the universe (up until 1919). In this picture, our solar system is 1/30,000 the diameter of what was then thought to be the universe (but was really just our Milky Way galaxy) and neither the Sun nor the Earth is in the center of the universe. Now, both Galileo and the Bible appeared to be wrong!



Artist's conception of the Milky Way Galaxy viewed from 200,000 light-years away
<http://abyss.uoregon.edu/~js/ast122/lectures/lec25.html>

But that's not the end of the story. During the last 100 years, our instruments continued to improve and we realized that the picture above is not the universe, it is merely one galaxy out of 100 billion galaxies in the universe. The universe is actually much, much bigger than one galaxy.

The observable universe that we see today is a sphere that has a radius of about 15 billion light years. Our Milky Way galaxy, in the picture above, has a radius of 50,000 light years which is 1/300,000 of the radius of the universe. (draw the largest possible circle on the board)

So, if we draw the Milky Way galaxy to scale on a sphere of the universe, the entire galaxy our solar system is in would be a tiny dot in the universe. (put a tiny dot off to the side of the large circle, not inside it).

The big question is: “Where in the universe (large circle) would our galaxy (tiny dot) be located”?

Dr. Edwin Hubble's Measurements

Early in the 20th century Dr. Edwin Hubble made a series of astronomical measurements to better understand where our galaxy was located in the universe. Although Hubble was an atheist, his astronomical observations and measurements overwhelmingly indicated that the Earth, Sun, and our Milky Way galaxy appear to be located at the center of the universe! The observations were: 1) uniform distribution of stars around us, 2) red-shift measurements.

- 1) **Uniform Distribution of Stars** - As we look around us in all directions as deep as possible (now even as deep as 15 billion light years) we notice a strange thing. Stars and galaxies appear to be evenly distributed around us in all directions. There are local areas of variation but when you average over large volumes of space the distribution of stars and galaxies is unexpectedly even or uniform. This seems to indicate that the Earth is within no more than a million light years of being at the very center of the universe. If we were close to the edge of the universe we would expect to see part of the sky densely filled with stars and galaxies and part of the sky almost completely empty – but that is not the case. In fact, the uniformity is so good that it indicates we must be at the center of the universe. (Our instruments are only good enough to tell that we are somewhere within 1 million light-years of the center of the universe).
- 2) **Red-Shift Measurements** - Einstein's special theory of relativity says that objects moving away from us will have the frequency of the light they emit shifted to longer or “redder” wavelengths and objects moving toward us will have the frequency of the light they emit shifted to shorter or “bluer” wavelengths. (Although the physics is not the same, we can think of it as being similar to how a train with its whistle blowing or a car with its horn blowing sounds higher in pitch as it approaches you and lower in pitch as it passes you and speeds away). Shortly after the theory of special relativity was published, Edwin Hubble became the first to measure these frequency shifts of other galaxies in the universe and found that most galaxies are red-shifted (they are moving away from us). The Hubble Law says that the farther away an object is from the Earth the more “red-shifted” the frequency of its light is. Hubble also discovered that if we backtrack the paths that the galaxies appear to be moving away on, they all point to one place where the universe began. That place appears to be our location!

The shocking result of Hubble's measurements and observations is that the Earth (i.e. our galaxy), appears to be located at the place where the universe began – at least within 1 million light years of the center of the universe.

When the atheists saw the results of Hubble's measurements, they panicked. These are intelligent people and they immediately recognized that if the Earth was really located that close to the center of the universe, they had no choice but to believe in God, even if they did not want to.

Let me show you why.

What are the odds that Earth would be located at the center of the universe based on random chance ?

The question we need to look at is, “if the Earth is located at the center of the universe could it have happened just by pure dumb luck?” (what scientists call “random chance”). We can calculate this probability if we know the total volume of the observable universe (radius equals 15 billion light-years) compared to the volume of a sphere with a radius of a million light years (our instrument error).

As all you Algebra students know, the equation for the enclosed volume of a sphere is: $V = \frac{4}{3}\pi r^3$.

So, the volume of the observable universe in cubic light years is = $1.33 \times 3.14 \times 15 \times 15 \times 15 \times 10^{27} = 1.4 \times 10^{34}$

And the volume of a sphere within a million light years of the center of the universe in cubic light years is = $1.33 \times 3.14 \times 1 \times 1 \times 1 \times 10^{18} = 4.2 \times 10^{18}$

So, the probability that the Earth would be at the center of the universe by chance is = $4.2 \times 10^{18} / 1.4 \times 10^{34}$

Or, 1 chance out of 3×10^{16} which is: **1 chance out of 30 million billion!** (1 out of 30,000,000,000,000,000)

Both Christians and atheists agree that this number is so small it is effectively zero. In other words, it is impossible for the Earth to be located this close to the center of the universe based on pure dumb luck.

As Christians we read Genesis 1.

Genesis 1:1-2

In the beginning God created the heavens and the earth. The earth was formless and void, and darkness was over the surface of the deep, and the Spirit of God was moving over the surface of the waters.

Genesis 1 says that the location of the creation event was Earth. Therefore, we would expect the Earth to still be located relatively close to the center of the universe today. Hubble’s measurements confirm that the Earth is at the center of the universe – so us Christians – we’re in good shape.

But the atheists have a serious problem. Their philosophy is that there is no god and therefore everything happens by random chance – pure dumb luck. Their observations and their philosophy directly conflict with each other. Their measurements say we are at the center of the universe but their philosophy (random chance) says that we can’t be.

At this point atheistic scientists have a choice:

- 1) Believe there is a God and the starting point of creation was the Earth as stated in the Bible.
- 2) Look for some way to explain how we appear to be at the center of the universe, but we really are not. This is not based on science, it is based on ideology – unproven ideas.

Science chose number 2

In physics there are two types of scientists, theoretical physicists and experimental physicists. The theoretical physicists come up with a new idea, then they see if they can develop a mathematical model (set of equations) that shows that their new idea does not violate any mathematical rules. They then see what the implications of the mathematical model are in the real world. In other words, the model will tell them that their idea will work but only if the following things are also true. Experimental physicists then run experiments to see if they can gather evidence that proves or disproves the mathematical model and its implications.

Science decided to try to create a mathematical model that would allow observations from the Earth to indicate Earth was at the center of the universe, but not be, both at the same time. To get around God they came up with the Big Bang theory. The Big Bang is not what you think. Most people think it is an explosion and expansion of matter from a single point in 3 dimensional space – this is not true. It is actually a very strange idea.

The Big Bang Theory

The Big Bang theory was proposed in 1922 by the Russian mathematician and meteorologist Alexander Friedmann to explain how the earth can appear to be at the center of the universe, but not be. There is no evidence for it – it is just a way to get around the idea of God.

Friedmann asserted (to insist without evidence) that for such a model to be created it must be true that every location in the universe would appear that it was the center of the universe if Hubble's measurements were taken from those locations, yet none of the locations would actually be the center of the universe. In other words, "the Earth cannot be in a special place". There are no data or observations to support this statement – it is merely an assertion. After all, you can't travel light-years from earth and take Hubble's measurements!

The assertion that the Earth is not in a special place even has a name – they call it the "Cosmological Principle," or more recently the "Copernican Principle", but its nothing more than a philosophical assertion based on a godless ideology.

Quote from Edwin Hubble after finding his measurements indicated Earth is at the center of universe:

"Such a condition would imply that we occupy a unique position in the universe... But the unwelcome supposition of a favored location must be avoided at all costs....Such a favored position, of course, is intolerable." (Hubble, E.P., *The Observational Approach to Cosmology*, pp. 50–59, Clarendon, Oxford, 1937.)

Quote from George Ellis, South African cosmologist, October 1995 issue of Scientific American:

"People need to be aware that there is a range of models that could explain the observations. For instance, I can construct for you a spherically symmetrical universe with the Earth at its center, and you cannot disprove it based on observations. You can only exclude it on philosophical grounds. In my view there is absolutely nothing wrong in that. What I want to bring into the open is the fact that we are using philosophical criteria in choosing our models. A lot of cosmology tries to hide that."

(W. Wayt Gibbs, "Profile: George F. R. Ellis," *Scientific American*, October 1995, Vol. 273, No.4, p. 55.)

Friedmann was able to construct a mathematical model that met these requirements without violating the equations of General Relativity. However, the model required that a fourth dimension of space would also have to exist. In order to get the model (what today is called the Big Bang Theory) to work he had to assert that space must have a fourth dimension that we can't detect. It is the only way his model works. We, of course, live in 3 dimensional space (height, length, and width) and are not able to detect a fourth dimension (although scientists today are continuing to try to detect this fourth dimension using particle accelerators such as the Large Hadron Collider).

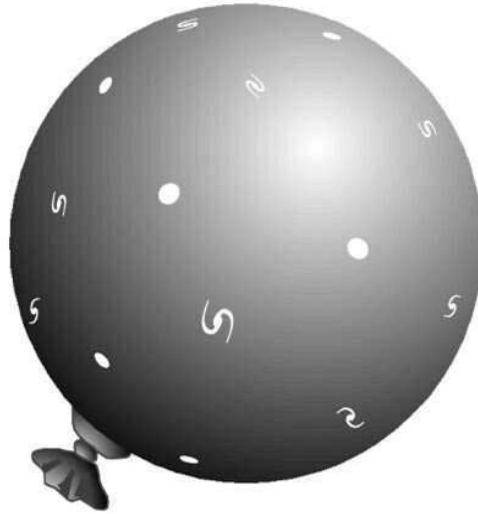
I will now try to explain the actual Big Bang Theory. Get ready because its really confusing! But when you are running away from God things get complicated in a hurry.

In the big bang, they imagine the three-dimensional space we can see as being merely the surface of a four-dimensional 'balloon' expanding out into a 'hyperspace' of four dimensions (none of these dimensions is time).

They picture the galaxies like buttons all over the surface of a balloon. No galaxies would be inside the balloon. As the expansion proceeds, the rubber (representing the 'fabric' of space itself) stretches outward. This spreads the buttons apart. From the viewpoint of each button, the others move away from it, but no button can claim to be the center of the expansion.

On the surface of the balloon, there is no center. The center of the expansion would be in the air inside the balloon, which represents 'hyperspace'. There is no way to detect or prove the existence of this 4th dimension of space – but it is necessary for the model to get around God.

Instead of the Big Bang a better name for this idea would be the Big Balloon. (To demonstrate this concept blow up a balloon and draw galaxies on it and then let the air out. You can blow the balloon up in front of the kids to let them see the idea).



<https://bibliscienceforum.com/2014/01/26/the-big-bang-theory-vs-the-big-god-theory/>

Here's another way to look at the concept. If you could travel infinitely fast in any particular direction, they claim you would never encounter any large volume of space unpopulated with galaxies and you would end up right back at the place you started from. You would not be able to define an 'edge' or boundary around all the galaxies, and so you could not define a geometric center. You'd be like a bug walking on the surface of the balloon – if you walked in a straight line long enough you would end up back where you started.

You will occasionally hear scientists (or a PBS commercial) say that “the universe has no center and no edge” as if it was proven fact. But these are just unproven assertions that result from believing in the big bang idea.

Why do people want to believe in a fourth dimension of space they cannot detect instead of believing in God? Because a fourth dimension of space is not going to judge you and send you to Hell – but God might.

Romans 1:18-22

For the wrath of God is revealed from heaven against all ungodliness and unrighteousness of men who suppress the truth in unrighteousness, ¹⁹because that which is known about God is evident within them; for God made it evident to them. ²⁰For since the creation of the world His invisible attributes, His eternal power and divine nature, have been clearly seen, being understood through what has been made, so that they are without excuse. ²¹For even though they knew God, they did not honor Him as God or give thanks, but they became futile in their speculations, and their foolish heart was darkened. ²²Professing to be wise, they became fools

The Big Bang Assertion Creates a Big Problem

The Big Bang is a complicated idea that requires the existence of a fourth dimension of space that we cannot detect. Its purpose is to allow atheists to not have to believe in a God who put us intentionally at the center of the universe as the Bible says He did and as Hubble's measurements indicate.

But the Big Bang also has implications in it that create other, really big problems. You see, a universe with no edge and, therefore, no center also has no gravitational gradient. In other words, mass would be evenly distributed in all directions (on the balloon) and so the gravitational effects of all that mass averaged over the entire universe cancel out resulting in no significant gravitational slope or gradient.

But according to General Relativity, if there is no gravitational gradient then there is also no gravitational time dilation and gravitational time dilation (which has been experimentally proven many times) is the key to understanding the starlight problem (i.e why a 6,000 year old universe can look much older away from Earth). Instead of going through all these mental gymnastics to get around God, if we just believe that our observations and the Bible are true and that we are, in fact, at the center of the universe, things are much clearer and easier to understand.

It turns out that in the special case where the earth is the central location of the creation event, Einstein's laws of General Relativity can be used to explain how a 6,000 year old universe appears to be 15 billion years old.

A Possible Scenario based on the scriptures

Below is a possible scenario that attempts to put together a White Hole Cosmology and the Biblical account of creation. Since no people were there to observe creation (just God and the angels) it is speculative in nature.

All the mass of the universe is located together in the form of water. This ball of water would be about 2 light-years in diameter. Such a ball of water would create a black hole with an event horizon at 500 million light-years away. God then initiates the current laws of gravity. The ball of water rapidly collapses on itself tearing apart the molecules and initiating thermonuclear fusion.

God begins stretching out space causing the ball of matter to expand rapidly – changing the black hole to a white hole (a black hole running in reverse). During Day 1 and 2 God Himself is the source of light. Matter expands out in all directions and passes through the event horizon of the white hole. As the white hole sends out matter beyond the event horizon, this matter experiences billions of years of physical processes and time while only a few days have transpired on Earth. The collapsing event horizon reaches Earth early on the fourth day and disappears. During a few ordinary days, as measured on Earth, billions of years worth of physical processes take place in the distant cosmos, the stars and galaxies are formed and their light has plenty of time to reach the earth. The White Hole is now gone, massive gravitational time dilation ends, but the universe continues its expansion. Fish, birds, and great sea monsters are created on Day 5. Animals and people are created on Day 6. By the time Adam and Eve are able to look up at the sky, all the stars and galaxies have been formed and are in their places.

(note: General Relativity allows for the existence of both Black Holes and White Holes. Although numerous black holes have been observed in the physical universe we have never seen a white hole. It may be that the only white hole that ever existed was one God used in His creation of the universe).

Conclusion

Put your faith in God and what He says in the Bible. Eventually, God is always shown to be right. It may take 100 years or 1,000 years or more. But in the long run whenever man and God disagree, God is always shown, eventually, to have been right.

Appendix on "Waters Above the Heavens"

Genesis 1:6-8 (Day 2)

Then God said, "Let there be an expanse in the midst of the waters, and let it separate the waters from the waters." 7God made the expanse, and separated the waters which were below the expanse from the waters which were above the expanse; and it was so. 8God called the expanse heaven. And there was evening and there was morning, a second day.

On Day 2 the initial ball of water was divided into two parts with the expanse of heaven in between. As a result the Bible is indicating that a significant portion of this mass that was initially water currently exists at the boundary of the universe that is so far away we cannot currently detect it.

Psalms 148:1-4

Praise the LORD! Praise the LORD from the heavens; Praise Him in the heights! 2Praise Him, all His angels; Praise Him, all His hosts! 3Praise Him, sun and moon; Praise Him, all stars of light! 4Praise Him, highest heavens, And the waters that are above the heavens!

This verse confirms that there are waters above the heavens (universe) or mass beyond the observable universe. It is interesting to note that science currently believes that most of the mass in the universe is "dark matter". Dark matter is mass that we can't detect but appears to have gravitational effects on mass that we can see. Perhaps this "water above the heavens" plays a role.

QUIET TIMES ALONE WITH GOD

JEREMIAH 15:16

THEME: *Out of Nothing (The Creation of the Universe)*

PASSAGE FOR MEDITATION: *Colossians 2:8-9*

How does this passage relate to the theme?

When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:

How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?

PASSAGE FOR MEDITATION: *Genesis chapter 1*

How does this passage relate to the theme?

When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:

How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?

PASSAGE FOR MEDITATION: *Job 26:7-10*

How does this passage relate to the theme?

When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:

How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?

QUIET TIMES ALONE WITH GOD

JEREMIAH 15:16

THEME: *Out of Nothing (The Creation of the Universe)*

PASSAGE FOR MEDITATION: *Proverbs 8:12, 22-27*

How does this passage relate to the theme?

When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:

How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?

PASSAGE FOR MEDITATION: *Romans 1:18-22*

How does this passage relate to the theme?

When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:

How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?

PASSAGE FOR MEDITATION: *Psalms 148:1-4*

How does this passage relate to the theme?

When I reflect on this passage, does it primarily convict, encourage or challenge me? Explain why:

How will I apply this passage to my life in the coming week and is there anything I can do today to make this passage a part of my Christian life?