

Before the Beginning Began
(appropriate for Mid Schoolers and older)
Michael R. Daily, December 2020

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

Tonight we will be learning about Jesus Christ and the universe He created.

Play the video, "To Scale: The Solar System" by Wylie Overstreet at: <https://vimeo.com/139407849>
You can download it and edit it to 6 minutes.

John 1:1-2

In the beginning was the Word, and the Word was with God, and the Word was God. 2 He was in the beginning with God.

A more literal translation of the Greek words for "in the beginning" mean "before the beginning began". So before the beginning of Creation the Word was what? The Word was with God and was Himself God.

Who is the Word? Let's look at John 1:14-15

John 1:14-15

And the Word became flesh, and dwelt among us, and we saw His glory, glory as of the only begotten from the Father, full of grace and truth. ¹⁵ John testified about Him and cried out, saying, "This was He of whom I said, 'He who comes after me has a higher rank than I, for He existed before me.'"

So, the Word was God but He also became flesh and dwelt among us. According to the Bible, has God the Holy Spirit ever become flesh? No. Has God the Father ever become flesh? No. Has God the Son (Christ) ever become flesh? Yes. Therefore, The Word is Jesus Christ. Always use the Bible to interpret the Bible.

John 1:3

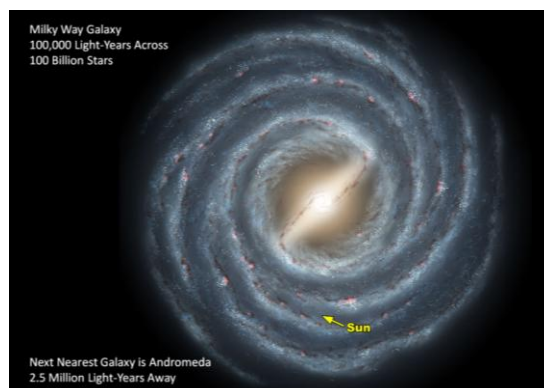
All things came into being through Him, and apart from Him nothing came into being that has come into being.

Colossians 1:15-17

He is the image of the invisible God, the firstborn of all creation. 16 For by Him all things were created, both in the heavens and on earth, visible and invisible, whether thrones or dominions or rulers or authorities—all things have been created through Him and for Him. 17 He is before all things, and in Him all things hold together.

What do we learn about Christ in this verse? He created the entire universe! If you study physics you will find that the universe we live in is made up of 4 types of things. The first two are: 1) Matter or Mass, 2) Energy

For example, Jesus Christ created all of the stars in the universe. How many stars did He create?



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

This is a picture of the galaxy that we live in. Its called the Milky Way galaxy. In the middle of our galaxy, a supermassive black hole holds the galaxy together gravitationally.

Our galaxy is 100,000 light-years in diameter which means it would take a beam of light 100,000 years to travel from one edge of our galaxy all the way over to the other edge while traveling at a speed of 186,282 miles per second! Our entire solar system is a tiny dot in the middle of the bottom half of the galaxy. If the Milky Way Galaxy were scaled to a 6 foot diameter, our solar system would be a dot less than a millionth of an inch thick – $1/2,000^{\text{th}}$ the thickness of a human hair!

One light year = 5.88 trillion (5.88×10^{12}) miles and the universe is at least 30 billion light-years in diameter!

How many stars are in our galaxy? Over 100 billion stars. Jesus Christ created our galaxy and each of these 100 billion stars. But there are many galaxies in the observable universe. How many galaxies are there? So, far we have counted more than 100 billion galaxies! So, how many stars did Jesus Christ create? That would be 100 billion squared or about 10 billion trillion stars (1×10^{22})! You are familiar with one of these stars. You call it the Sun. But Jesus created another 10 billion trillion stars along with the Sun.

Psalm 147:4

He counts the number of the stars; He gives names to all of them.

God gave Adam authority to name the animals and to have dominion over the Earth. But Christ is the one who has the authority to name the stars!

Jesus created blue stars, white stars, yellow stars (like the Sun), orange stars, red stars, dwarf stars, super giant stars, neutron stars (a 1 sugar cube sized piece of a neutron star would weigh 100 million tons on Earth!), special stars that shine radio waves, X-rays or gamma rays instead of light (i.e. pulsars), and very strange stars called Black Holes that don't shine anything! But Jesus created each of them and named each of them.

To Scale

You saw on the video that in a 7 mile wide Solar System, Earth would be about the size of a 0.7 inch marble.

The Earth's diameter is about 8,000 miles. The diameter of the solar system is 5.6 billion miles (i.e Neptune's orbit). If the solar system were plotted to scale on a 6 foot wide circle, the Earth would be: $8 \times 10^3 / 5.6 \times 10^9 = X / 72$ inches, $X = 72 \times (8.0/5.6) \times 10^{-6}$ inches, $X = 0.000103$ inches.

Earth: $1/10,000$ of an inch in diameter in a 6 foot wide Solar System. **$1/20^{\text{th}}$ thickness of a human hair!**

The diameter of our solar system is 9.456×10^{-4} Light-Years (i.e. 5.6 billion miles). The diameter of the Milky Way Galaxy is =100,000 Light-Years. If the Milky Way Galaxy were plotted to scale on a 6 foot wide circle, the Solar System would be: $9.456 \times 10^{-4} / 1 \times 10^5 = X / 72$ inches, $X = 0.000000681$ inches.

Solar System: < 1 millionth of an inch in dia. in a 6 foot wide Galaxy. **$1/2,000^{\text{th}}$ thickness of human hair!**

The diameter of the Milky Way Galaxy is 100,000 Light-Years. The diameter of the observable universe is 30 billion Light-Years. If the Universe were plotted to scale on a 6 foot wide circle, the Milky Way Galaxy would be: $1 \times 10^5 / 3 \times 10^{10} = X / 72$ inches, $X = 72 \times (1/3) \times 10^{-5}$ inches, $X = 0.00024$ inches.

Milky Way: $1/5,000$ of an inch in diameter in 6 foot wide Universe. **$1/10^{\text{th}}$ the thickness of a human hair!**

How big would Earth be on a 6 foot wide map of the universe? $8 \times 10^3 / (3 \times 10^{10} \times 5.88 \times 10^{12}) = X / 72$ inches, $X = 3.3 \times 10^{-17}$ inches (330 million billionths of an inch), **Earth = much smaller than a single electron!**

You are a microscopic dot in the city of Albuquerque. Albuquerque is a dot on planet Earth. Earth is a microscopic dot in the solar system. The solar system is a microscopic dot in the Milky Way galaxy. The Milky Way galaxy is a microscopic dot in the universe, and the universe is a microscopic dot in the hand of Jesus Christ!

Jesus Christ is a being of unimaginable power. If He can create the vast expanse of the universe with 10 billion trillion stars, is there anything about your life that He can't handle? No. Nothing is too difficult for Him.

Jeremiah 32:17

'Ah Lord GOD! Behold, You have made the heavens and the earth by Your great power and by Your outstretched arm! Nothing is too difficult for You,

God created the physical universe as a demonstration of his power. If you ever wonder if God is powerful enough to do the things He promises to do, just look at His creation. Go out and measure it and measure it and keep measuring it until your measurements exceed the ability of your brain to comprehend what you are measuring. When you get to that point you will begin to get a feeling for how much power He has!

Atoms

But that is only half the story. Let's go in the other direction. Jesus Christ created every atom and every subatomic particle. He personally created every proton, neutron, electron, boson, muon, quarks ... all of them. Did you know that God told us about atoms thousands of years before science discovered them?

Hebrews 11:3

By faith we understand that the worlds were prepared by the word of God, so that what is seen was not made out of things which are visible.

In Hebrews 11:3 God tells us that the world we can see is made out of things that we can't see. Think about that. Imagine that you are in ancient Jerusalem 2,000 years ago and you say to everyone, "Hey, guess what. The world that you see is made up of things that you can't see!" What would people say? They would lock you up for saying crazy things that make no sense. At the time Hebrews was written, this statement made no sense.

Two thousand years after God wrote this in the Bible, scientists proudly announced that they had figured out what everything in the universe is made of. Tiny particles they called, "atoms" and guess what? You can't see atoms! In fact, we understand the physics well enough that we know that no matter how good our technology becomes we will never be able to see atoms. Why? Because atoms are 10,000 times smaller than the wavelength of light so the light waves go right past the atom without being reflected, and if an atom does not reflect light then you can't see it.

If you keep adding atoms to clump with the first atom, eventually you will get a large enough clump of atoms, say a few hundred thousand or so, that a light wave can be reflected. At that point, you will see one tiny white pixel in your image. That one little pixel is your image of a clump of hundreds of thousands of atoms. Any fewer atoms and the image is blank. As you keep adding more and more atoms the picture begins to look more and more like things we are familiar with. So, God told us about atoms thousands of years before science discovered them. That's pretty cool.

Space

In addition to matter and energy, the created universe is also made up of 3 dimensional Space. Just like Matter and Energy, before Jesus Christ created Space, there was no Space. So, He is the creator of Space.

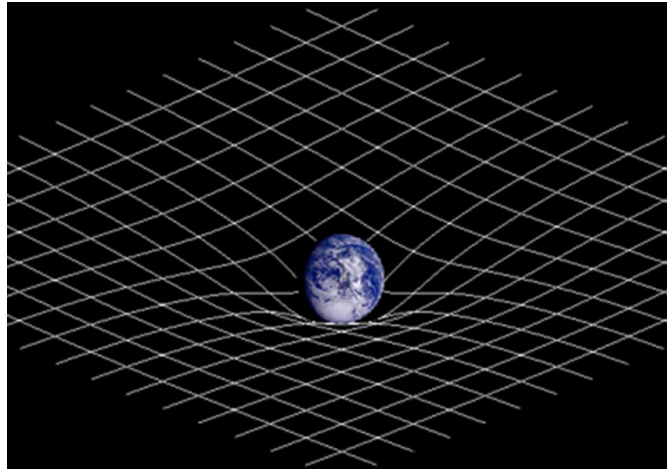
Now, Space is a little strange. Numerous times in the Old Testament God seems to describe Space (i.e. the Heavens) as behaving like a stretchy fabric (see appendix).

Psalm 104:1-2

Bless the LORD, O my soul! O LORD my God, You are very great; You are clothed with splendor and majesty, 2Covering Yourself with light as with a cloak, Stretching out heaven like a tent curtain.

For thousands of years people thought this must be metaphorical or symbolic language. After all, space is just space. There isn't any fabric in space, right? In 1915, a young man came along whose name was Albert Einstein. He created multiple new branches of physics including one we refer to as "Relativistic Physics".

Einstein showed that Space and Time are not two unrelated things but are both intimately related and interweaved with each other. In fact, the relationship between Space and Time is so inseparable that Einstein invented a new word to describe it – “spacetime”. He went on to create a system of tensor equations (mathematical equations) to describe the detailed interactions of Space and Time and how they are both distorted by the presence of Matter. One of Einstein’s friends, mathematician Hermann Minkowski, noticed that the equations had a similar form as equations describing the behavior of a stretchy fabric with small, heavy weights placed on it. As a result, Minkowski explained Einstein’s work by using the phrase, “the fabric of spacetime”. Today, physicists routinely talk about the Fabric of Spacetime and those are the exact words they use, “The Fabric of Spacetime”. Below is a common two dimensional picture that is used to help people understand these concepts. The white grid represents the fabric of spacetime and a heavy mass (the Earth) is shown distorting the shape of spacetime. Think of the Earth as a billiard ball sitting on a rubber sheet. If you then roll a ping-pong ball (the moon?) close to it, it will tend to circle around the Earth because Space itself has been distorted!



<https://i.stack.imgur.com/3vGJJ.png>

It took the genius of Einstein in the 20th century to discover that space behaves like a stretchy fabric. But God told us this numerous times in the Old Testament thousands of years before Einstein was even born. Jesus Christ created Space and He told us how it behaves! That’s pretty cool.

Time

The fourth part of the created universe is the strangest of all. Time. Is Time eternal? No. Until Jesus created it, Time did not exist! Before Jesus Christ created it, there was no Time.

Does Time flow at a constant rate? No. Time is not even constant in the physical universe we live in! Right now all across the universe, Time is flowing at drastically different rates at different locations, depending on how strong the gravitational field is at a location. The stronger the gravitational field, the slower time flows. And at the location of the strongest gravitational field we can observe (i.e. the event horizon of a black hole), time has come to a complete stop and does not exist!

So, Time is a created thing that flows at different rates at different points in the universe. This has been experimentally measured many times over the last 100 years. One example is the comparison of atomic clocks at different altitudes. Since the Earth’s gravitational field gets weaker the higher above sea level you are, we would expect an atomic clock in Colorado to tick along at a faster rate than one at sea level. Einstein’s equations of General Relativity predict that an atomic clock at sea level (i.e. at the Royal Observatory in Greenwich, England) will tick 5 microseconds slower per year than an atomic clock 1 mile above sea level (i.e. at the National Bureau of Standards in Boulder, Colorado). Since atomic clocks are accurate to less than 1 microsecond per year, we can see the 5 microsecond difference between the two clocks and that is exactly what we see.

Many other experiments have been done that verify that this effect, called gravitational time dilation, is real. (W. Rindler, *Essential Relativity*, 1977, Revised Second Edition, Springer-Verlag, New York, p. 21).

Eternal Life

These are some of the things that Jesus Christ has done as the creator of the universe and they are pretty cool things. But He has done some other things that are even cooler.

John 5:21

For just as the Father raises the dead and gives them life, even so the Son also gives life to whom He wishes.

Jesus has the authority and the power to give eternal life to whoever He wishes.

John 11:25-27

Jesus said to her, “I am the resurrection and the life; he who believes in Me will live even if he dies,”²⁶ and everyone who lives and believes in Me will never die. Do you believe this?”²⁷ She said to Him, “Yes, Lord; I have believed that You are the Christ, the Son of God, *even* He who comes into the world.”

Jesus has the power to raise you from the dead after you die. Do you believe that? If He can create all the things in the physical universe that we have discussed tonight, then when He says He can bring you back to life after you die, you can believe Him.

John 6:36-37

But I said to you that you have seen Me, and yet do not believe.³⁷ All that the Father gives Me will come to Me, and the one who comes to Me I will certainly not cast out.

Jesus promises that if you come to Him He will not cast you out. He will not reject you. It doesn't matter who you are or what you have done. You can turn to Him and He will forgive you of your sins and give you eternal life. That is a guarantee!

John 6:40

For this is the will of My Father, that everyone who beholds the Son and believes in Him will have eternal life, and I Myself will raise him up on the last day.”

Jesus has the power and the authority to give eternal life to whoever He wishes. He has promised that anyone who comes to Him will not be turned away. And He has stated that on the last day he will personally be the one who raises you from the dead!

Conclusion

If Jesus is powerful enough to create the vast expanse of the universe using atoms so small they can't be seen, is He powerful enough to raise you from the dead and give you eternal life? Yes. And if you come to Him, He will certainly not cast you out!

Epilogue: Question on the Resurrection

When you die, your atoms are going to go everywhere, including becoming part of other people. At the resurrection, who will get these shared atoms? Centuries ago, heretics were burned at the stake because there was a belief that if the body was completely burned, the person could not be resurrected! But resurrection is not a material problem because atoms are fungible (like dollar bills).

Fungible: *something (such as money) of such a nature that one part or quantity may be replaced by another equal part or quantity, capable of mutual substitution, interchangeable.*

In other words, a carbon atom is a carbon atom. Any carbon atom will do because they are identically interchangeable (like dollar bills). You don't need the exact carbon atom from a person's body before they died in order to resurrect them. For God to resurrect you all He needs is the information on how you were designed (He has that since He created you) and the right number of carbon, hydrogen, oxygen, etc. atoms. If He has those two things He can resurrect you exactly. How you died or what happened with your body after death has no relevance on God's ability to resurrect you!

Appendix on the Fabric of Spacetime

Einstein's General Theory of Relativity showed that the red-shift in the frequency of light of stars moving away from us was caused by the "stretching" of the "fabric" of space itself or what Einstein referred to as "spacetime". Although the idea of space and time acting like a fabric that has been stretching since the beginning of the universe was considered one of Einstein's greatest scientific discoveries, the Bible mentioned it thousands of years ago. See the verses below:

Job 9:7-9

Who commands the sun not to shine, And sets a seal upon the stars; 8Who alone stretches out the heavens And tramples down the waves of the sea; 9Who makes the Bear, Orion and the Pleiades, And the chambers of the south;

Psalms 104:1-2

Bless the LORD, O my soul! O LORD my God, You are very great; You are clothed with splendor and majesty, 2Covering Yourself with light as with a cloak, Stretching out heaven like a tent curtain.

Isaiah 40:22

It is He who sits above the circle of the earth, And its inhabitants are like grasshoppers, Who stretches out the heavens like a curtain And spreads them out like a tent to dwell in.

Isaiah 42:5

Thus says God the LORD, Who created the heavens and stretched them out, Who spread out the earth and its offspring, Who gives breath to the people on it And spirit to those who walk in it,

Isaiah 44:24-25

Thus says the LORD, your Redeemer, and the one who formed you from the womb, "I, the LORD, am the maker of all things, Stretching out the heavens by Myself And spreading out the earth all alone, 25Causing the omens of boasters to fail, Making fools out of diviners, Causing wise men to draw back And turning their knowledge into foolishness,

Isaiah 45:12

"It is I who made the earth, and created man upon it I stretched out the heavens with My hands And I ordained all their host.

Isaiah 48:13

Surely My hand founded the earth, And My right hand spread out the heavens; When I call to them, they stand together.

Isaiah 51:13

That you have forgotten the LORD your Maker, Who stretched out the heavens And laid the foundations of the earth, That you fear continually all day long because of the fury of the oppressor, As he makes ready to destroy? But where is the fury of the oppressor?

Jeremiah 10:11-12

Thus you shall say to them, "The gods that did not make the heavens and the earth will perish from the earth and from under the heavens." 12It is He who made the earth by His power, Who established the world by His wisdom; And by His understanding He has stretched out the heavens.

Jeremiah 51:15

It is He who made the earth by His power, Who established the world by His wisdom, And by His understanding He stretched out the heavens.

Zechariah 12:1

The burden of the word of the LORD concerning Israel. Thus declares the LORD who stretches out the heavens, lays the foundation of the earth, and forms the spirit of man within him,

QUIET TIMES ALONE WITH GOD

JEREMIAH 15:16

THEME: *Before The Beginning Began*

PASSAGE FOR MEDITATION: *John 1:1-3, Colossians 1:15-17*

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: *John 1:14-15*

How does this passage relate to the theme?

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PASSAGE FOR MEDITATION: *Psalm 147:4, Isaiah 40:26*

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PASSAGE FOR MEDITATION: *Hebrews 11:3*

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PASSAGE FOR MEDITATION: *Psalm 104:1-2, Isaiah 40:22*

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QUIET TIMES ALONE WITH GOD

JEREMIAH 15:16

THEME: *Before The Beginning Began*

PASSAGE FOR MEDITATION: *John 5:21*

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: *John 11:25-27, John 6:40*

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: *John 6:35-37*

How does this passage relate to the theme?

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

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