Stephen Hawking vs God:
His assumptions about the universe

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On March 14, 2018 the world learned that Stephen Hawking had passed away. With that news came many broadcasts and articles that highlighted the scientist's work and how he had a lasting impact on the scientific community. Hawking will be counted among the pantheon of scientific and mathematical geniuses such as Einstein and Newton. He gathered fame from his work with black holes in the 1960s and 1970s[1]. He would continue to work on topics such as cosmology,[2] artificial intelligence, and the search for extraterrestrial life.[3]

While talking to a friend about what we knew of Hawking and his work, I was reminded of a Discovery Channel special that had aired during the summer of 2011. The title of that special was "Did God Create the Universe?"[4] This particular episode borrowed a lot from Hawking's book, "The Grand Design," in which he tries to prove that God is not needed to explain the creation of the universe and the laws of the nature that govern it. Searching for an archive of that episode, I found it free on Discovery's website. While watching this video, I began to think about how I might be able to use it for my science class students.

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1 "Stephen Hawking: Brief Biography," Stephen Hawking: The Official Website, http://www.hawking.org.uk/about-stephen.html (accessed August 3, 2018)

2 "*Cosmology is the scientific study of the large scale properties of the universe as a whole. It endeavors to use the scientific method to understand the origin, evolution and ultimate fate of the entire Universe.*"
WMAP Science Team, "Cosmology: The Study of the Universe," NASA, https://map.gsfc.nasa.gov/universe/ (accessed August 3, 2018)

3 Sarah Knapton, "Stephen Hawking Mission to Find Alien Civilization Detects Radio Signals Coming from Dwarf Galaxy," The Telegraph, September 1, 2017. www.LutheranScience.org/HawkingAlien (accessed August 3, 2018)

4 "Curiosity: Did God Create the Universe?" Discovery, Curiosity, season 1 episode 1, August 10, 2011 (accessed August 3, 2018)
https://www.discovery.com/tv-shows/curiosity/full-episodes/curiosity-did-god-create-the-universe

At St. John's school in Milwaukee, the upper grade teachers and I were able to do some switching so that among other things I would be able to teach 5th through 8th grade science. One of the many blessings of that arrangement is that if something comes up in current events that pertains to science, I can share and discuss it with all of those classes. After Hawking's death and finding that episode online, I found myself with a great teaching opportunity.

My upper-grade science class was about to practice some apologetics. The lesson was framed with these two objectives:

1) Identify assumptions that Stephen Hawking has about the universe and about God.

2) Find Bible verses that address those assumptions.

Let's go inside the mind of Stephen Hawking, where we'll look at some of his principal assumptions in explaining the nature of the universe, its natural laws, and how it was created.

Hawking's Assumption #1

We "can understand how the universe works."

This claim is made near the beginning of the episode.[5] You may question why I want to debate and discuss this assumption. Don't we already have a pretty good understanding of how the universe works? We can explain why it rains, how a cell grows into a mature organism, and why the sun shines. If you were to attend a modern-day science class from a middle school or high school you might start to think that we have most everything in the universe figured out. The thing that some or most of

5 "*Mere mortals like you and I can understand how the universe works.*" Curiosity video, (4:54).

those classes won't tell you is that in reality scientists are far from having a complete picture of everything.

Imagine yourself sitting in on a science class from 100 years ago. Some of the theories and models being taught then would be different from what is being taught today. You may recognize some or most of the vocabulary and concepts being used but some words would be foreign and some concepts would seem almost comical. Over those past 100 years science has changed due to new evidence, new equations, and technology that has allowed us to peer deeper and further than previous generations. For example, picture in your mind what you think an atom looks like. Many of you probably imagine a nucleus at the center with electrons whizzing around in orbits like planets orbiting the sun. For a time, scientists thought that this is what the atom looked like but now this model is considered incorrect. Electrons, as small as they are, actually don't behave like planets. They follow these strange rules of probability which allow them to be in multiple places at once until you try to observe them.[6] The model that describes the weird behavior of electrons is known as quantum mechanics.

This is just one example out of many that shows how science has changed over time. Within each model, theory, or explanation is the hope that it will be correct over time and not need to be changed. However, time and again science books have needed to be rewritten because a model or theory has been refined by new evidence or completely replaced by something new. Another example of this took place in 1916 when Einstein's theory of gravity, known as general relativity,[7] took over as the dominant theory of gravity. This supplanted the theory of gravity that had been

6 "*It is more accurate to say that the electrons occupy an area of probability around the nucleus known as an electron cloud. According to quantum mechanics you cannot know with complete accuracy both the momentum (the product of mass and velocity) and the location of an electron or other small particles. This is known as Heisenberg's uncertainty principle.*"
Amretashis Sengupta, ed. Amretashis Sengupta and Chandan Kumar Sarkar. *Introduction to Nano –Basics to Nanoscience and Nanotechnology* (Berlin: Springer, 2016), 9.

7 *Einstein's equations said that space and time are woven together and that objects of great mass distort this fabric of space-time like a heavy ball placed on a rubber sheet. These equations also explained some phenomena that Newtonian physics could not.*

derived by Isaac Newton in 1687[8]. We must realize that the models and theories of science today are not guaranteed to be 100% correct.

This is what one author said in *Scientific American* about the changing nature of science,

> Every generation tends to believe that its views on the nature of reality are either true or quite close to the truth. We are no exception to this: although we know that the ideas of earlier generations were each time supplanted by those of a later one, we still believe that this time we got it right.[9]

From God's word we get another perspective. The Bible is not a science textbook but it does offer great insight into how we should view human knowledge and wisdom compared to that of our almighty Creator.

> Do you not know? Have you not heard? Yahweh is the everlasting God, the Creator of the whole earth. He never grows faint or weary; there is no limit to His understanding. *Isaiah 40:28 (HCSB)*

> See to it that no one takes you captive through philosophy and empty deceit, which are in accord with human tradition, namely, the basic principles of the world, but not in accord with Christ. *Colossians 2:8 (EHV)*

> Instead we speak God's wisdom that has been hidden in mystery—before the ages, God foreordained that this wisdom would result in our glory. *1 Corinthians 2:7 (EHV)*

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8 O'Connor, J. J. and Robertson, E. F., "General Relativity," School of Mathematics and Statistics, University of St Andrews, Scotland. http://www-history.mcs.st-and.ac.uk/HistTopics/General_relativity.html (accessed August 3, 2018)

9 Kastrup, Bernardo. "Should Quantum Anomalies Make Us Rethink Reality?" Scientific American Blog Network, April 19, 2018. www.LutheranScience.org/SAanomalies (accessed August 3, 2018)

From these passages we see that any amount of knowledge we can accumulate pales in comparison with that of our all-powerful and all-knowing Creator. All human knowledge and wisdom is tainted by sin. It is imperfect and it is incomplete. Therefore, we should view all the knowledge, models, and theories of science with some skepticism. From our vantage point we will never be able to see the whole picture as God can. Science will continue to refine its theories and models about the universe but we will never have a perfect understanding of it. This is a limitation that was set by sin when humankind fell in the garden of Eden.

Juxtaposed to human attempts at describing the universe is God's Word, which provides everything we need to know about our wrongdoings and our need for a Savior. It lays out God's plan of salvation for us and is a comfort to us, because of all the promises that He made, kept, and will keep. Our God does not change (Numbers 23:19 and Hebrews 13:8). His Word does not change. We also see in his Word how God created the world (the universe) to display His wonders so that we may marvel at His power and knowledge. The mind needed to understand the universe perfectly can only be perfect.

Hawking's Assumption #2

The Universe is a Machine with Laws

This assumption is closely tied to the first. If we can fully understand something it must be because there is a set of rules or laws that govern it. Again, we may say to ourselves that we agree with this assumption. Certainly, we know about many laws of nature which we attempt to describe with scientific laws and theories (scientific models) such as gravity, thermodynamics,[10] and motion. I teach many of these lessons to my students in science class. Where Hawking differs is that he believes that laws of nature cannot be broken in any circumstance. If a scientific law or theory (a model) is broken (such as when God performs a miracle),

10 *Laws pertaining to the transfer of heat and other forms of energy.*

then that means that scientific model was not correct in the first place and must be refined or discarded and replaced with a model that does fit the evidence or findings. This is one of the cornerstones of science when it comes to experimentation. There must be an equation, a mathematical constant, or a postulate that satisfies all of the findings of an experiment.

The Bible on the other hand shows that laws of nature *can* be broken by the power of God. We call this a miracle. The Scriptures report many miracles. Spectacular miracles include when God made the sun and moon stand still for nearly an entire extra day (Joshua 10:12-15), and when God made the sun's shadow go backwards (2 Kings 20:8-11; Isaiah 38:7-8;).

God is not constrained by the laws of nature which He set up to allow our universe to work. In fact, God continually holds our universe together (Colossians 1:16-17, Acts 17:28). If God would remove himself from the universe, it would fall apart. In our everyday lives we often take this extraordinary fact for granted.

God usually holds the universe together by upholding His laws of nature. An exception is when He performs a miracle. When He does, He is simply changing the way He holds the universe together for a short time.

God takes an active role in making sure the universe operates as it should even down to the concept of time. God created a universe for us where time always goes forward. We cannot comprehend experiencing time any other way. The construct of time is so concrete to us (unless you are waiting in line at the grocery store)[11]. God though, is independent of time, as time is part of His creation. "In the beginning," when time itself began because God just created time, "God created the heavens and the earth" (Genesis 1:1, HCSB). "For a thousand years in your sight are like a day, like yesterday that has gone by, or like a watch in the night" (Psalm 90:4, EHV).

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11 *Einstein did show, however, that the passage of time can be slowed when speeds close to the speed of light are obtained or when extreme amounts of gravity are involved. This is part of his theory of special relativity.*
Paul G. Hewitt, *Conceptual Physics: the High School Physics Program - Teacher's Edition* (Upper Saddle River: Prentice Hall, 2002) 218-222.

To say that the universe is a machine that we can one day have a full blueprint for is folly. Just like the builders of the tower of Babel wanted to make a name for themselves reaching for the heavens, so scientists today have built a tower of scientific laws and theories that, for a time, may seem to get us closer to the full picture but we will never have a complete or perfect picture.

Hawking's Assumption #3

The Big Bang Created the Universe from Nothing

Our fifth-grade science textbook claims "The Big Bang theory states that the universe started with a big bang at a single point and has been expanding ever since. Evidence suggests that the Big Bang happened 13.7 billion years ago."[12] As evidence for the Big Bang, evolutionists cite the observation that galaxies and other objects very far away from us seem to be moving farther away from us.[13] Scientists believe that since the universe seems to be expanding it would be logical to think that at some point in the past the universe was very small. So small in fact that some believe it would have started out smaller than an atom.

Let us, for a moment, indulge in this theory. We must then ask, "Where did this single point[14] come from?" Hawking has an answer ready for such a conundrum. Back in assumption #1, I mentioned a field of science known as quantum mechanics. This model allows for some pretty unintuitive and downright weird things to happen. One weird thing that is

12 Jay K. Hacket et al., *Science, a Closer Look, Grade 5 Ecosystems - Unit B*. (Columbus: Macmillan/McGraw-Hill School Div., 2013), 466.

13 *The specific evidence is called redshift where the light from distant objects is shifted toward the red end of the visible light spectrum. Something similar happens when you hear the pitch of a train horn go down as it travels away from you.*

14 *This single point is often called a singularity, a point of infinite density and spacetime.*
Hossenfelder, Sabine. "Are Singularities Real?" PBS. Public Broadcasting Service, December 9, 2015. (accessed August 3, 2018)
http://www.pbs.org/wgbh/nova/blogs/physics/2015/12/are-singularities-real/

allowed in quantum mechanics is for small particles to pop into existence at random.[15]

Hawking and other scientists apply this idea to the singularity that they think started the universe. They say that the laws of quantum mechanics allow for such a singularity to come into existence without the need for God. Hawking further explains that at the time when the singularity came into existence which consists of entirely positive matter and energy (stuff that we can interact with and see) an equal amount of negative energy was created. He would say that if you took the sum total of all the positive and negative energy and matter in the universe it would equal zero[16]. My inkling is that this may make more sense if you had a PhD in cosmology and could look at and understand the equations that Hawking worked with.

Hawking bases all of this on the current model of quantum mechanics. As we have seen, no model of science can give us a perfect summation of all of nature. There are still many mysteries that general relativity and quantum mechanics cannot explain.

Black holes present a number of issues that still remain a mystery. One issue they present is the need for a model that combines quantum mechanics and general relativity. One generally accepted model is that black holes are created when the material of a star is compressed into a tiny area creating a singularity. This singularity is both very small and very massive therefore the laws of both quantum mechanics and general relativity need to be applied. The current difficulty is that the equations of these two models don't play well together in the extremes inside of a black hole. There have been some attempts, such as string theory, to reconcile these two models, but at the time being it is impossible to test[17]. As time

15 Gordon Kane, "Are Virtual Particles Really Constantly Popping in and out of Existence? Or Are They Merely a Mathematical Bookkeeping Device for Quantum Mechanics?" *Scientific American*, Oct 9, 2006. (accessed August 3, 2018) https://www.scientificamerican.com/article/are-virtual-particles-rea/

16 Stephen Hawking and Leonard Mlodinow, *The Grand Design*, (New York: Transworld Digital, 2010), 109.

17 "Black Hole Information Paradox: An Introduction." Of Particular Significance, February 4, 2014. www.LutheranScience.org/opsBlackHole (accessed August 3, 2018)

progresses we will certainly see science continue to change and new models will replace the old and obsolete.

You can see here how far scientists have to stretch to explain the universe when they refuse to allow for miracles. You should know as well that the Big Bang theory is not the only theory evolutionists use to explain how the universe came about. There are many competing theories and therefore evolutionists are far from consensus on the origin of the universe.

On the other hand, we have the Biblical account of creation. God reveals in Hebrews 11:3 (EHV), "By faith we know that the universe was created by God's word, so that what is seen did not come from visible things." I find it awe-inspiring and comforting to know that the true God was able to make all of this and more in just six days. God not only made all the things that we can see and observe today but also all the intangible things such as the laws of nature that help govern the universe. He made them with such exactness and precision. We see this today in the wonderful balance of his creation: the balance of the distance of the Earth from the Sun; the balance of the different forces like electricity, magnetism, and gravity; and not to mention the balance of all the living things here on Earth.

Hawking's Assumption #4

To Those Who Believe, God Simply Set the Universe in Motion and Let It Go on Its Own

This assumption is not directly stated in the video or in Hawking's book. However, I think it is implicitly stated in the title of his video and throughout his book.

Hawking is challenging the belief that God only created the universe and all of its natural laws. In doing so he has belittled God to no more than a watchmaker that puts the pieces together and sets the watch

in motion. We know that the Bible has one central teaching and theme: God's plan of salvation for the crown jewel of his creation, humankind. Hawking's mistake is one made by so many people today. People have taken God and constrained Him to what only the human mind is comfortable with. In that mistake many people have rejected the need for a Savior and it is my fear that all evidence points to Hawking passing away without saving faith.

Conclusion

It is my prayer that by learning about Hawking's assumptions you will be better prepared to engage, on level ground, the many others who also make such assumptions. When we better understand where people are coming from (understand their assumptions) we demonstrate that we desire to better understand others. It allows us to enter into conversations and build relationships that allow a sharing of the gospel. We don't want to sound ignorant when proclaiming the most important message anyone can ever hear.

We Pray:

Holy Spirit, work in the hearts of people like Stephen Hawking. People who work so hard to shut you out, to ignore the gospel. Use us to reach such people who, like us all, need a Savior. Lead them to faith in their Redeemer, Jesus Christ. Amen.

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