

I was recently sent a video where Neil deGrasse Tyson discusses the power of evidence-based science over religious dogma and blind faith. The summary note on the video states: “Tyson discusses the power of science and evidence-based thinking, contrasting it with the limitations of religious dogma. He emphasizes that true progress comes from questioning, exploring, and solving difficult problems, rather than relying on blind faith.” <https://www.youtube.com/watch?v=lwVqZ9Hg260>

Staying in character, he’s comparing science with religion (a well-worn path he appears to enjoy – see <https://www.youtube.com/watch?v=Xxz0W4OgG9k&t=12s>); his implication is that science is evidence-based and religion is not, and that religion is limited within its own dogma. He goes on to say (in the introduction) that ‘questioning, exploring, and solving difficult problems’ is the sole domain of science, and that religion is blind belief in something without the desire or need (or ability) to question. *NONSENSE*, on both counts. Let me pick this apart:

Stop comparing Science vs. Religion – these two things aren’t even remotely comparable – Tyson knows most people won’t understand the distinction so he can then show all the great achievements of science and also show religion hasn’t accomplished any of them. That’s not a revelation, that’s intellectual dishonesty – he knows better but continues anyway as it pumps his celebrity status.

- Comparing science and religion leads to false equivalencies because they operate in fundamentally different domains:
  - Science is a method of inquiry focused on understanding the natural world through observation, experimentation, and evidence. Its scope is limited to questions that can be tested and falsified (e.g., how does gravity work?). It doesn’t address metaphysical or existential questions like purpose, meaning, morality or ultimate origins.
  - Religion deals with questions of ultimate purpose, moral values, and meaning that often lie outside the scope of empirical investigation. It involves faith, revelation, and spiritual insight, which are not testable or measurable by scientific methods.

Tyson’s Strawman Argument: Tyson et al. frame religion as if it were attempting to do what science does (i.e., offer testable explanations for natural phenomena). This is a strawman because:

- Most religious traditions don’t seek to function as science.
- Religion’s claims about ultimate reality (e.g., the existence of God) are metaphysical, not empirical.
- Framing science as an opponent of religion ignores the limits of science, which rarely answers ‘why’ questions, preferring to stick to ‘how’. How did the universe form vs. why it exists at all (ontology vs. phenomenology).
- The “science vs. religion” debate assumes they are in opposition, but many (myself included) see them as complementary. For example:

- Science can explain *how* the universe works, while religion can explore *why* it exists.
- Figures like [Francis Collins](#) (geneticist and Christian) argue convincingly that faith and science are compatible, each addressing different aspects of existence.
- Even Albert Einstein said, “Science without religion is lame, religion without science is blind.”

I could go on, but my point is that he knows what he’s doing but does it anyway because he doesn’t think people are sophisticated enough to see through his strawman. It’s an old trope – science v. religion, and it’s empty and always leads to hard feelings. My advice to Tyson – ‘do better’.

Like [Francis Collins](#) mentioned above (look at what he’s done professionally, then at the list of books he’s authored on the topic we’re discussing), and countless other people of faith who also study the sciences, or scientists who are also people of faith (see [Creation Keeps Good Company](#) at the end of this document), it’s possible to do both and not be in conflict. A modicum of intellectual humility and honesty can produce topics which lead to fierce but fruitful debate. For instance, comparing science and religion is not comparing apples to apples – more like a Tesla and a tomato. What about atheism v. theism? We’re getting closer, and this is at least comparing fruit with other fruit, but still not possible due to the significant number of assumptions represented on both sides; we’ll just end up agreeing to disagree because many of the assumptions can’t be proven or disproven.



We need something to compare where all the criteria reside, and can be measured, on the same scale – literally, think of a scale; does anything Tyson preaches (pun intended) strike this kind of balance? No, but it could, and he’s been invited/challenged to debate Christian and other theistic apologetics and has declined; don’t think he would fare well. He likes his trope and his celebrity and doesn’t want to look biased and narrow-minded. I’d pay money to hear him debate Frank Turek or William Lane Craig. Or better, John Lennox, who would make him look foolish.

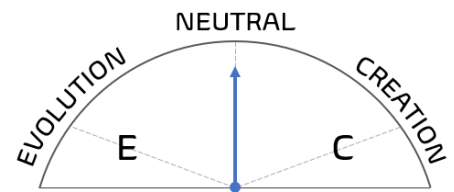
## Let’s Compare Apples w/ Apples

Early in the video I become very irritated being called ignorant and unwilling to “question, explore, and solve difficult problems”. *NONSENSE*. At 0:49 in the video Tyson states, “hard work dissipates ignorance” implying that scientists do the hard work and easily move past the head-in-the-sand blind faith religious people who ask that you believe something but never question its veracity. *NONSENSE*. He then goes on to say to Richard Dawkins (seated on stage beside him) that (0:59), “I will never require you to believe anything” which is more *NONSENSE* – all he’s doing is trying to get us to believe what he’s saying - that he’s right because he’s done the hard work to generate the evidence. He goes on to say (to Dawkins), “it will only ever be about how compelling is the evidence to you [sic]” (1:11). *GREAT – LET’S START THERE* – watch out for falling apples below!

He then goes on to further insult people of faith by claiming (1:23), *“whatever anyone says about the world wouldn't matter to you...; there could be data out there that would conflict with your religious philosophy then you'd have to go along with it...; then they filter it, reinterpret it, ignore parts of it slice and dice it so that it all fits in to the religious philosophy so it requires blinders in order to make that happen.”*

This is my challenge back to him – that he’s guilty of the very thing he accuses people of faith – close-minded unwillingness to look at data, and ‘filter it, reinterpret it, ignore parts of it slice and dice it so that it all fits in to his religious philosophy’ – his science is his religion and he’s no less adamant about his beliefs than people of faith are about theirs. Is he willing to look hard at the evidence and follow where it leads? He’s very much a ‘science of the gaps’ person, saying ‘science will fill in what we don’t yet know or understand as discovery continues’; yet he accuses people of faith of using, ‘God of the gaps’ arguments for anything science hasn’t yet resolved (i.e., how did life begin? and what caused the Big Bang? – you don’t need to invoke the [Flying Spaghetti Monster](#) – science will eventually answer those questions). Making excuses works both ways, and claiming one excuse is evidence-based while the other is religious ignorance doesn’t work for me.

Getting back to Apples... So, what *can* we look at and compare which can be empirically questioned (albeit not proved) that allows intelligent people to weigh all the evidence and make a personal determination without blind faith? **How about Evolution v. Creation** – *given everything we know and have learned scientifically, what makes more sense – that everything popped into existence of its own unguided volition and is evolving naturally towards no particular or necessary end, or that everything we can observe, measure and understand was created – designed intelligently by a thoughtful something or someone, with precision and order that defies belief (i.e., ‘there’s no way that could have happened by accident’), and is leading towards some deliberate end?* This allows us to balance and weigh the same data on the same scale (see E vs. C meter above) and make a reasonably objective determination.



To be clear, I’m not arguing for or against God – I’m arguing for intelligent creation. If I hand you a Rolex and ask where it came from, you’d say it was designed and manufactured, saying nothing about who or what did that.

Let’s look at some examples, but through the lens of evidence-based scientific discovery and understanding; in Tyson’s own words, I’m not going to require you believe anything, only, “how compelling is the evidence to you?”. Multiple evidence-based scientific fields can be examined to compare the plausibility of Evolution versus Creation, and I’ve spent time exploring the following eight:

1. **Big Bang:** Examines the origin and expansion of the universe, including the Big Bang versus an infinite/eternal universe, and a static versus expanding universe.

2. **Biology:** Examines the mechanisms of natural selection and genetic variation versus the argument for design in life's complexity.
3. **Microbiology and Genetics:** Explores the complexity of DNA and its information-coding properties, which some argue points to an intelligent designer.
4. **Irreducible Complexity:** Explores the idea there are complex systems in nature which could not possibly have evolved independently, and for which there are no naturalistic explanations.
5. **Semiotics:** Investigates the origins of information and symbolic systems [1] that may reflect intelligent communication.
6. **Cosmology and Physics:** Explores the fine-tuning of the universe, which some interpret as evidence of design versus naturalistic explanations.
7. **Origins of Life:** A central question—can life emerge spontaneously from non-life without guidance, or does this require intentional intelligent intervention?
8. **Consciousness:** Delves into whether the subjective experience of consciousness can arise naturally or requires a non-material explanation.

Here's what I've found, summarized for easy consumption. There's a universe of detail (pun intended) behind each topic and I'm happy to provide more information if interested.

### 1. Big Bang and the Kalam Cosmological Argument (Supported by SURGE)

The **Kalam Cosmological Argument** asserts that everything that begins to exist must have a cause. Specifically it states, Everything that *begins to exist* has a cause. The universe *began to exist*. Therefore, *the universe has a cause*. This argument relies on the **law of causality**, which is foundational to science and logic—something cannot come from nothing without a cause. The universe's beginning is supported by the Big Bang theory and evidence like SURGE (below). Since time, space, and matter began at the universe's origin (Einstein proved space, time and matter all came into existence at the same time and are inextricably linked), the cause must be timeless, spaceless, immaterial, and immensely powerful—attributes consistent with a Creator. The scientific law of causality ensures that the universe could not simply “pop” into existence uncaused.

- **S:** Second Law of Thermodynamics shows the universe is running out of usable energy, indicating it had a finite beginning. If it were infinite it would have run out by now.
- **U:** The Expanding Universe (Hubble's observations) confirms it is moving outward, implying an origin point.
- **R:** Radiation Afterglow (Cosmic Microwave Background) provides evidence of the Big Bang as a moment of creation.
- **G:** Galaxy Seeds in the radiation afterglow reflect precise fine-tuning for the formation of galaxies; without these Big Bang artifacts, galaxies could not form.

- **E:** Einstein's Theory of General Relativity points to a universe with a finite past, where space, time and matter came into existence at the same time. These findings align with the biblical concept of a Creator initiating the universe.

Scientists hate this as it's some of the most damaging evidence their theories of a self-creating or eternal universe are wrong. They go to all kinds of nonsensical extremes to get around this – the accordion model, manifold space, even, "A Universe from Nothing" written by Lawrence Krauss at ASU, which says the universe can and did create itself from nothing because, well, it can – it's here so it must have, because there's no God. Huh. Ok. Krauss simply redefines nothing as something to make this magical argument. He defines 'nothing' as a quantum vacuum, but this assumes space already existed, created itself inside itself, and is expanding into itself. Very creative. He denies any other possible explanation out of arrogance and belligerence.

Aristotle is thought to have said, "nothing is what rocks dream about"; regardless the attribution, that makes more sense than nothing is really something that created itself. So, which way does the meter swing on this point? **There is zero evidence the universe could or did create itself, so CREATED makes more sense.**

## 2. Biology and Natural Selection

Creationists argue that natural selection acting on random mutation is insufficient to explain the complexity and diversity of life. Natural selection can only "select" traits that already exist; it does not create new, functional genetic information. Random mutations, while often harmful or neutral, rarely result in beneficial changes and, even then, these changes are typically minor and do not account for the vast diversity and complexity observed in biological systems.

Additionally, the timescales involved present a challenge: life's diversity would require far more than the 4.5 billions of years available on Earth. The intricate interdependence of biological structures (e.g., proteins, enzymes, acids) and the precise coordination of systems imply purposeful design, not chance processes, as the source of life's complexity. Consider if you wrote an operating system with traditional local apps and storage; could random minor changes to the OS result in new capabilities that enabled cloud computing and cloud storage?

More, some calculations suggest trillions, not billions, of years would be needed for such complexity to emerge naturally. This points to intentional design rather than chance processes. Here's a short video from Stephen Meyer talking about the severe math problem innate to the natural selection processes: <https://www.youtube.com/watch?v=BNfrKAQiax4>.

Finally, nothing in the evolutionary or naturalist narrative says anything about how life began; how do you get life from non-life? How did simple life begin? Even if you believe the Stanley Miller experiments (1953) could produce organic compounds, that's not life and there's *NO PATH* from that 'proof' to actual life. Darwin's models don't provide a reliable theory to account for how life began and evolved into what we observe today. Don't believe me? How about >1,000 PhD scientists and academics who have signed on to: [Dissent from Darwin](#). **In my humble opinion, CREATED.**

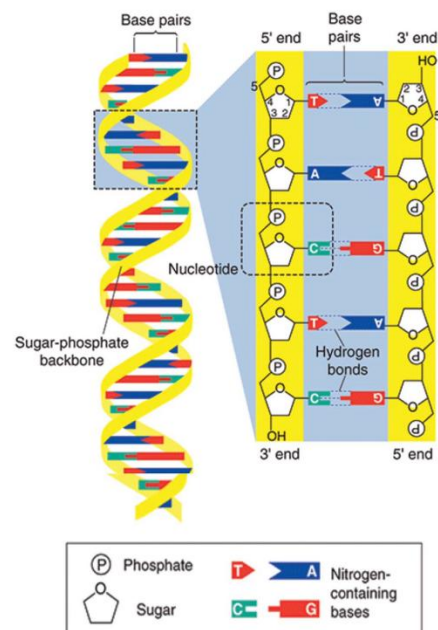
### 3. Microbiology and Genetics (DNA and Information Coding)

The complexity of **DNA** is one of the strongest arguments for intelligent design. **Intelligent Design (ID)** is the idea that certain features of the universe and living organisms are best explained by an intelligent cause rather than unguided, natural processes. *ID does not attempt to identify a designer* but argues that complex systems in nature exhibit characteristics of purposeful design, much like human-engineered systems. If I handed you a Rolex would you say, "oh, nature did that, selecting from tiny morphological random changes over a long period of time"? *Voilà – it's a Rolex!* Um, no.

In microbiology and genetics, the ID concept is especially critical to the creation proposal because of the remarkable complexity and precision of DNA. DNA functions as a sophisticated information-coding system - akin to a computer program - where specific sequences of nucleotide "letters" encode instructions for building and operating living organisms. Information, by its nature, always arises from an intelligent source, not random chance. Oh, and DNA is a single word some 3.2 billion letters long. Nature must have created that out of boredom, right? Where did the design for the double helix with sugar-phosphate backbone coiled helically, arise? By chance?

The presence of digital-like coding, error-checking mechanisms, and the ability to replicate information within DNA suggests foresight, intentionality, and purpose. These traits cannot be explained by natural selection acting on random mutations, as randomness does not produce meaningful, functional information. Thus, DNA serves as powerful evidence in support of creation, as it points to an intelligence (a mind?) capable of designing the intricate blueprint of life - a cornerstone of the creation argument.

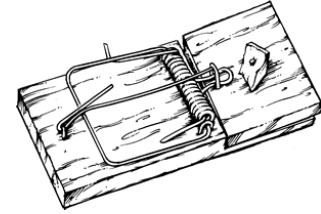
- DNA contains vast amounts of *information coded in a precise, language-like structure*. Complex, meaningful information always originates from an intelligent mind, not random processes.
- The origin of DNA's digital code (adenine, thymine, cytosine, and guanine) and the machinery that reads and replicates it defy naturalistic explanations (there are *LITERALLY* none – why doesn't Tyson address that in his videos?).
- This sophisticated "blueprint of life" implies a purposeful designer who encoded the instructions for all living organisms – it's a Rolex, only billions of times more complex.



Once again I fall on the side of 'this was intelligently designed and purposefully created – this didn't all just appear magically out of nothing'. **CREATED, not evolved.**

#### 4. Irreducible Complexity

Certain biological systems exhibit **irreducible complexity (IC)**, meaning they could not function unless all parts are in place simultaneously. IC, a concept popularized by biochemist Michael Behe in his book *Darwin's Black Box*, refers to biological systems that consist of multiple, interdependent parts, all of which are necessary for the system to function. Think of a simple mouse trap, comprised of a platform, spring, hammer, trigger bar, bar catch, and attachments for all pieces, sized and shaped perfectly to operate together to perform a specific function. If even one part is removed (or randomly altered), the system ceases to operate. Behe argues that such systems could not have evolved gradually through natural selection, as incomplete systems offer no survival advantage.



- Examples like the bacterial flagellum (a microscopic motor), blood clotting mechanisms, and the eye involve interdependent parts that must fit and work together *FOR A SPECIFIC PURPOSE* - remind me where natural selection determines purpose?
- Evolution cannot explain how these systems could develop step-by-step because incomplete systems would serve no survival advantage.
- Such systems appear to be designed fully formed, pointing to an intelligent designer rather than gradual evolution (known as gradualism, which is one of Darwin's dilemmas).

If you couple IC with ID from #3 above, you have a severe problem using Darwin's theory. Darwin recognized this and wrote in his book *The Origin of Species*, "If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down. But I can find no such case." That was in 1859 when they still thought a cell was a blob of protoplasm. Now that we know there are molecular machines at work within each of our trillion or so cells, and have sequenced the genome, we have a valid test for his challenge – one that his theory fails. Badly.

This one is easy for me because I've studied IC and ID fairly deeply. **CREATED, not magically evolved.**

#### 5. Semiotics and Information in Nature

Semiotics studies **information and communication systems**, which are abundant in nature (e.g., DNA, RNA, cellular signaling, etc.).

- Information-bearing systems require both **syntax** (rules of organization) and **semantics** (meaning), which cannot arise from randomness.
- In nature, intricate communication occurs at microscopic levels, such as protein synthesis or neuron signaling, demonstrating intentionality and purpose.
- The existence of such systems implies a source of intelligence capable of embedding meaningful information (and meaning) within living organisms.

A kid wakes up and goes to the kitchen for breakfast and finds, “please clean your room, mom” in alphabet cereal laying on the kitchen table. Did nature do that? Or did mom, a thinking, intelligent communicator, using semiotics to convey meaning? Did the concept of complex language, organized from specialized characters and symbols, magically appear from random unguided processes?

Is math invented or discovered? Do we have the capacity to describe complexity in the universe using the language of mathematics because it randomly occurs, or is there absolute precision and fine-tuning in our use of semiotics to describe and convey information and meaning? Discovering some truth about our universe is not the same as inventing it – that’s hubris. An interesting discussion leaning towards discovery over invention can be found at: [Evolution News](#).

Another easy one for me – CREATED.

## 6. Cosmology and Physics: Fine-Tuning of the Universe

The fine-tuning of the universe refers to the precise values of physical constants and conditions that make life possible. Even slight deviations in these values would render the universe uninhabitable. For instance, the fine-tuning of the universe’s expansion rate is like hitting a bullseye the size of an atom across the entire observable universe. Other key examples include:

- Gravitational Force Constant: If gravity were slightly stronger or weaker, stars and planets couldn’t form, making life impossible.
- Cosmological Constant: Governing the rate of the universe's expansion, it’s fine-tuned to 1 part in  $10^{120}$ . A slightly faster or slower expansion rate would prevent galaxies from forming.
- Ratio of Electrons to Protons: This ratio determines the universe’s electrical balance. A deviation as small as 1 in  $10^{37}$  would disrupt matter’s stability.
- Strong Nuclear Force: Slight changes would prevent atoms from holding together or forming.
- Distance of Earth from the Sun: The "habitable zone" is perfectly suited to support liquid water, essential for life. Slightly closer or farther away and life would not be possible.

There are several dozen known and VERY specific examples, which suggest an extraordinary calibration unlikely to occur by chance, pointing to a designer who purposefully fine-tuned the universe for life. Here’s a thought experiment to make the point:

Imagine you’re walking through the desert and happen upon the Biosphere. There are 100 dials on the outside wall, each with 100 settings. There’s only one setting on each dial that provides the conditions to sustain life – even one dial being off by one setting, and life is not possible. How likely is it that the biosphere created itself, along with the 100 dials with 100 settings each, then randomly selected the correct settings on each to sustain complex life. Forget where complex life came from as a precursor, just focus on the 100 dials each with 100 settings. That’s  $100^{100}=10^{200}=1$  with 200 zeros. Nature did this randomly and unguided? **No, intelligent CREATION, not evolution or materialism, makes more sense.**



**7. Origins of Life and the Cambrian Explosion**

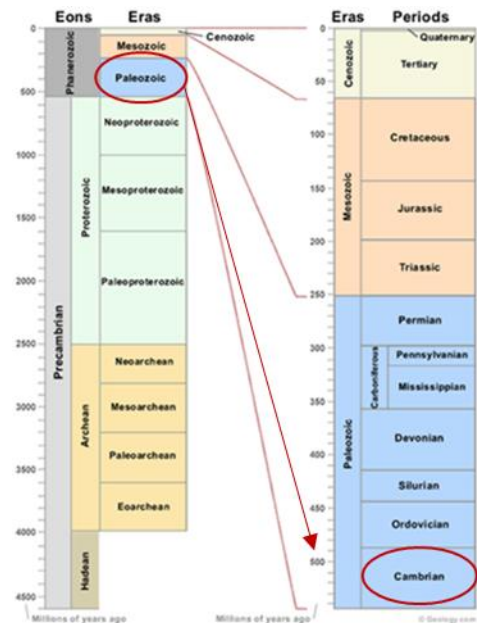
The origin of life remains one of the most profound challenges to evolutionary theory, materialism and naturalism. Yet, atheists remain dug-in to really absurd levels. The world famous atheist, Richard Dawkins has stated, “It is absolutely safe to say that if you meet somebody who claims not to believe in evolution, that person is ignorant, stupid or insane (or wicked, but I'd rather not consider that).”, and, “If all the evidence in the universe turned in favor of creationism, I would be the first to admit it, and I would immediately change my mind. As things stand, however, all available evidence (and there is a vast amount of it) favors evolution.” -- Richard Dawkins, *The God Delusion*.

Well, your fellow scientists and academics are increasingly disagreeing with you regarding ‘all available evidence’ and to what it points. Thousands of world-class scientists and academics, including Nobel Prize winners, disagree. Look at: “Dissent from Darwin – There is a scientific dissent from Darwinism and it deserves to be heard.” <https://dissentfromdarwin.org/>

More points to consider:

- **Abiogenesis** (life arising from non-life) has no experimental support. Even the simplest living cell requires complex molecular machinery, which defies chance formation.
- The **Cambrian Explosion** (~530 million years ago) presents a sudden appearance of fully-formed, diverse life forms with no clear evolutionary precursors in the fossil record. This is very damning, and it’s almost funny to watch opponents make up all kinds of theories to get around this.
- The lack of transitional fossils and insufficient time for natural selection to account for this explosion of life supports the idea of a Creator intervening to bring life into existence.

This is important; the universe is ~13.72 billion years old, and the earth is thought to be ~4.5 billion. The fossil record shows no fossils until only very recently – ~550M years ago (see diagram), when all life forms appear together, fully formed, in a very staccato way (top-left of the graphic). No ancestors, no predecessors, no evolutionary tree structure – more like a field of grass than a branching tree. Darwin knew this and wrote about it in his book, but believed the fossil record would develop over time and the gaps closed. It hasn’t – in fact it’s worse today than in 1859 when he mentioned, an “inexplicable” absence that could be “truly urged as a valid argument”. More evidence has developed **for** the Cambrian Explosion (see [Burgess Shale, located in Yoho National Park, British Columbia](#)) and even **less** for an evolutionary tree-like development.



This is another topic I’ve researched closely and see no way to reconcile an evolutionary path to life, not even a simple, single-celled organism. **CREATED, not evolved.**

## 8. Consciousness and Non-Material Explanations

Creation provides a compelling explanation for consciousness, the subjective experience of self-awareness, reasoning, morality, creativity, and emotions. These traits transcend the physical processes of the brain and point to a non-material origin, such as a mind, spirit or soul, endowed by a Creator. In the creation framework, consciousness reflects the image of God, imbuing humans with unique value, purpose, and the capacity for moral reasoning, love, and spiritual connection.

Does Evolution explain consciousness? Evolution struggles to account for the emergence of consciousness. It views the mind as a byproduct of natural selection, no more than just ‘molecules in motion’ – we’re nothing more than meat suits with bio-chemical properties, where some cognitive traits evolved because they conferred survival advantages. For instance, problem-solving, memory, and social cooperation may have evolved to enhance fitness. However, evolution cannot explain why humans experience abstract concepts like justice, beauty, morality, empathy, or meaning, which often have no survival advantage. Where else in the animal kingdom do these arise? Do lions feel remorse and regret when they take a calf from its mother?

- The ‘hard problem of consciousness’ remains unsolved: how subjective experiences (qualia) arise from purely material processes.
- In contrast, creation posits that consciousness was intentionally designed, aligning with the profound depth and uniqueness of human mental and emotional experiences. This explanation better accounts for the moral, spiritual, and existential dimensions of consciousness that evolution leaves unanswered.
- Consciousness is not material; it involves abstract qualities like thoughts, intentions, and moral reasoning that transcend physical explanations.
- Morality, like truth, is objective, not subjective - evolution has no answer to objective moral law, while creation includes morality as part of God’s plan – we intuitively know right from wrong:
  - Romans 1:18-20 make it clear moral behavior and judgement are innate qualities in God’s design; Romans 2:14-15 make clear God’s moral law is written on our hearts so we have no excuse; James 1:21 says God’s moral word is planted in our hearts; Hebrews 8:10 says God placed his moral law in our minds and in our hearts, and Jeremiah 31:33 mirrors this as part of the New Covenant written into both Hebrews 8 and Jeremiah 31.
- If humans are merely the product of chance, material processes, then concepts like love, justice, and purpose are reduced to chemical reactions. But this is what separates us from the other animals – we feel compassion, empathy, and even regret, and the need to make amends.
- Evolutionists (materialists, naturalists) argue there’s no objective truth or morality, but that breaks down quickly when people begin to gather into communities.

Conscious intelligence, in the image of an intelligent, caring creator makes way more sense than random, nebulous, accidental processes conveying no survival benefits. **CREATED, not evolved.**

## And finally...

Each of these eight topics - from the big bang and fine-tuning of the universe, to the complexity of life and consciousness - highlights evidence that points (me) towards intentional and intelligent design rather than random, unguided processes. I can't make any level of rational argument for how nature and evolution did any of this. [I was 8/8 for Creation - what was your E vs. C score?](#)

## Bonus Information – Creation Keeps Good Company

Many historical figures who made significant contributions to science were also people of faith, without whom you could argue Tyson wouldn't be where he is. Here are some notable examples:

1. **Isaac Newton (1643-1727)**: A devout Christian who spent more time on Bible study than on science. He profoundly changed our understanding of nature with his laws of motion and universal gravitation.
2. **Gregor Mendel (1822-1884)**: An Augustinian monk who founded the science of genetics. His work on heredity laid the foundation for modern genetics.
3. **Michael Faraday (1791-1867)**: A devout member of the Sandemanian Church. He discovered electromagnetic induction and made significant contributions to the study of electromagnetism.
4. **Johannes Kepler (1571-1630)**: A devout Lutheran who believed that God created a perfect universe. He is best known for his laws of planetary motion.
5. **Blaise Pascal (1623-1662)**: A French mathematician, physicist, and inventor who was also a devout Catholic. He made significant contributions to the fields of probability and fluid mechanics.
6. **Robert Boyle (1627-1691)**: Often considered the father of modern chemistry, Boyle was a devout Christian who believed that studying science was a way to glorify God.
7. **James Clerk Maxwell (1831-1879)**: An evangelical Protestant who transformed our understanding of electromagnetism with his famous equations.
8. **Louis Pasteur (1822-1895)**: A devout Catholic who made groundbreaking discoveries in microbiology and developed the principles of vaccination.
9. **Arthur Compton (1892-1962)**: A Nobel Prize-winning physicist and a deacon in the Baptist Church. He discovered the Compton effect, which demonstrated the particle nature of light.
10. **Georges Lemaître (1894-1966)**: A Roman Catholic priest who proposed the Big Bang theory, suggesting that the universe is expanding from a single point.

Quite a list, right? I get more out of studying Lemaître than listening to Tyson. How about a list of more contemporary figures? Here are some contemporary figures who have made significant contributions to science and are also known for their faith:

1. **John Lennox:** A mathematician and philosopher of science at the University of Oxford, Lennox is known for his work in group theory and his defense of the Christian faith. I watch/listen-to/read more Lennox than any other single scientist.
2. **Francis Collins:** A geneticist who led the Human Genome Project and is the director of the National Institutes of Health. He is a devout Christian and author of "The Language of God."
3. **Michael Behe:** A biochemist known for his work on the concept of irreducible complexity and his book "Darwin's Black Box." He is a proponent of intelligent design.
4. **Jennifer Wiseman:** An astrophysicist who has worked with the Hubble Space Telescope and is a senior project scientist at NASA. She is also a Christian and speaks on the relationship between science and faith.
5. **Alister McGrath:** A theologian, biochemist, and professor at the University of Oxford. He has written extensively on the relationship between science and religion.
6. **William D. Phillips:** A physicist who won the Nobel Prize in Physics in 1997 for his work on laser cooling and trapping of atoms. He is a practicing Christian.
7. **Ian Hutchinson:** A professor of nuclear science and engineering at MIT, Hutchinson is known for his work in plasma physics and fusion energy. He is also a Christian and has written on the compatibility of science and faith.
8. **Katherine Hayhoe:** A climate scientist and professor at Texas Tech University. She is an evangelical Christian and an advocate for climate action.
9. **Guy Consolmagno:** An astronomer and director of the Vatican Observatory. He is a Jesuit brother and has written on the intersection of science and faith.
10. **Rosalind Picard:** A professor at MIT and a pioneer in the field of affective computing. She is also a Christian and has spoken about her faith and its influence on her work.

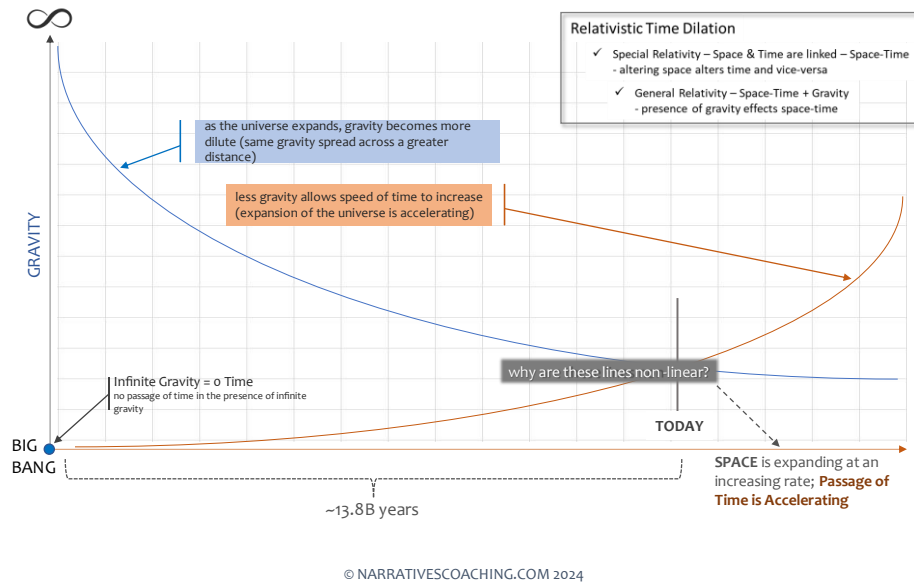
Two that I've read extensively are:

1. **Hugh Ross:** An astrophysicist and founder of Reasons to Believe, an organization dedicated to demonstrating the compatibility of science and the Christian faith. Ross has written extensively on topics such as the Big Bang, fine-tuning of the universe, and the integration of scientific discoveries with biblical teachings.
2. **Gerald Schroeder:** An Orthodox Jewish physicist with a background in nuclear physics and earth sciences. Schroeder has written several books attempting to reconcile scientific understanding with biblical accounts, particularly focusing on the age of the universe and the concept of time dilation. His works often cite Talmudic and medieval commentaries to bridge the gap between science and spirituality.

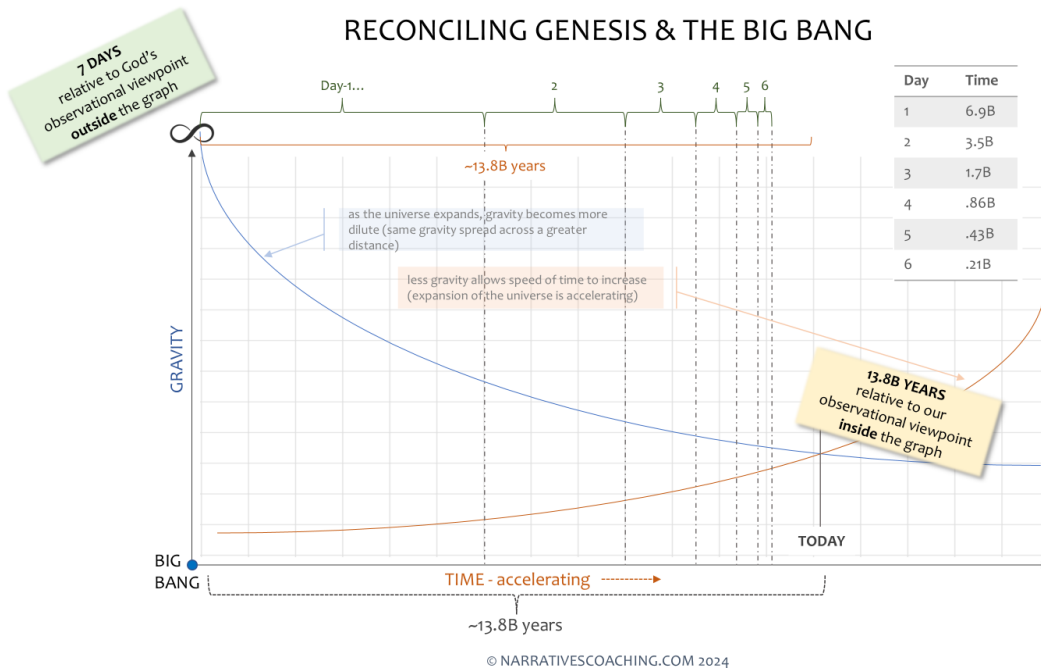
I've also done quite a lot of work reconciling what science knows about the origins of the universe (big bang, inflationary period, expansion, relativistic time dilation, etc.) and what the bible says about the seven days of creation. I think they're the same explanation, told from two different perspectives – one from inside the expanding universe, and one from outside. See images below.

Here are a couple slides from one of my models (The Gravity of Creation) which show how seven days rationalizes across 13.72B years.

### RECONCILING GENESIS & THE BIG BANG



### RECONCILING GENESIS & THE BIG BANG



And here’s an interesting slide that compares what science and the bible say about what happened and when, given the idea of relativistic time dilation. If you’re standing on a street corner and a car traveling 100 mph passes by, and there’s a passenger in the car holding an apple, from your point of reference, how fast is the apple traveling? Now, from the point of reference (perspective) of the passenger in the car, how fast is the apple traveling? Let’s say the windows are blacked out so the passenger can’t see out, and the suspension is soft so there’s not real sense of speeding along; the passenger is just sitting in the seat holding the apple, and it appears stationary.

To the passenger sitting still holding an apple, it’s not moving. To the person standing on the corner, it’s going 100 mph. Same reality from two different relative viewpoints. God’s experience of what happens from outside our universe with no constraints, is different from our experience of what happens from inside the universe with its dimensional constraints.

## RECONCILING GENESIS & THE BIG BANG

*Scientific Account Mirrors the Biblical Account*

Day	Time (B)	Genesis	Science
1	6.9B	the creation of the universe – light separates from dark	Big Bang – quark confinement - light literally breaks free as electrons bond to atomic nuclei
2	3.5B	the heavenly firmament forms	galaxies start to form - disk of Milky Way forms (along with all other galaxies) – our sun, a main sequence star, forms
3	1.7B	oceans and dry land appear – the first life, plants, appear	the earth cools and liquid water appears – first life, bacteria and photosynthetic algae, appears almost immediately after the first appearance of water
4	.86B (860M)	sun, moon and stars become visible in the heavens	Earth’s atmosphere becomes transparent – photosynthesis produces oxygen-rich atmosphere
5	.43B (430M)	first animal life swarms in the waters – reptiles and winged animals appear	first multi-cellular animals – waters swarm with animal life having the basic body plans of all future animals – winged insects appear
6	.21B (210M)	land animals and mammals appear – humans appear	mass extinction destroys 90% of all life – land is repopulated with hominids then humans

## Footnotes:

[1] Examples of symbolic systems commonly found in nature or biology which convey organized information or communications; these organized patterns convey specific meaning, enabling complex interactions and processes, strongly implying intelligence, and for which naturalism and materialism has no reasonable explanation.

### 1. Genetic Code

- **DNA and RNA:** The genetic code is a prime example of a symbolic system in biology. It uses sequences of nucleotides (adenine, thymine/uracil, cytosine, and guanine) to encode the information needed for protein synthesis.
- **Codons:** Sets of three nucleotides (codons) represent specific amino acids, forming a "language" for constructing proteins.

### 2. Animal Communication

- **Bee Waggle Dance:** Honeybees use a symbolic dance to communicate the location of food sources. The direction and duration of the dance convey precise information about distance and direction relative to the sun.
- **Bird Songs:** Many birds use complex vocalizations that can encode information about territory, mating readiness, or species identification.

### 3. Neural Codes

- **Brain Signals:** The patterns of neural firing in the brain represent information processing and decision-making. For example, the brain uses frequency coding and population coding to symbolize sensory information.
- **Spinal Reflexes:** Organized patterns of electrical signals in the nervous system encode responses to stimuli.

### 4. Chemical Signaling

- **Pheromones:** Chemical signals released by animals to communicate with conspecifics about mating, danger, or social hierarchy.
- **Quorum Sensing:** In bacterial colonies, chemical signaling molecules regulate collective behavior like biofilm formation or virulence, symbolizing population density.

### 5. Cellular Communication

- **Ligand-Receptor Interactions:** Cells communicate using molecules (ligands) that bind to specific receptors, triggering intracellular signaling pathways. This is a symbolic system where molecules represent messages.

- **Signal Transduction Pathways:** Organized cascades of molecular interactions convey information within and between cells.

## 6. Immune System

- **Antigen Recognition:** The immune system uses highly specific molecular "keys" (antigens and receptors) to recognize and respond to pathogens. This system symbolically distinguishes "self" from "non-self."
- **MHC Molecules:** Major Histocompatibility Complex molecules display protein fragments on cell surfaces, symbolizing cellular health status.

## 7. Symbiosis and Mutualism

- **Plant-Mycorrhizae Communication:** Plants communicate with fungal networks using chemical exudates that convey specific needs, such as nutrients or water.
- **Coral-Algae Symbiosis:** Coral polyps and algae exchange nutrients through chemical signaling, symbolizing a mutualistic partnership.

## 8. Animal Patterns and Displays

- **Camouflage and Warning Signals:** Color patterns on animals convey messages to predators (e.g., "I am poisonous" or "I am harmless but mimic the poisonous").
- **Courtship Displays:** Ritualized movements or colors symbolize mating readiness and genetic fitness.

## 9. Ecosystem Feedback Loops

- **Carbon and Nitrogen Cycles:** These involve organized chemical exchanges between organisms and the environment, symbolizing ecological balance.
- **Keystone Species Effects:** The presence or absence of certain species symbolizes changes in ecosystem dynamics.

## 10. Semiotic Structures in Microbiology

- **Bacterial Flagellar Motor:** The structural organization of the flagellar motor has been interpreted as a functional symbol of engineering principles in biology.
- **Ribosome Functioning:** Ribosomes use mRNA as a symbolic template for translating genetic instructions into proteins.

## 11. Bioluminescence

- **Fireflies and Marine Organisms:** Light patterns are used as symbols for communication, such as attracting mates or warding off predators.