Sunday September 18, 2022
Faith and Science
Part 3: Origins of the Cosmos

Cosmology simply means the study of the universe and its origins.

ANCIENT IDEAS

Ancient philosophers including the Greek philosophers Plato (423 B.C.-347 B.C.) and Aristotle (384 B.C.-322 B.C.), believed that the universe had always existed. This remained the dominant thought for centuries.

Until the twentieth century, the idea of a beginning of time seemed to make no scientific sense, and there seemed to be definite evidence that matter, energy, space and time had always existed and always would. For example, physicists discovered the law of conservation of energy, which says that "energy can neither be created nor destroyed." In chemistry it was found by that the quantity of matter does not change in chemical reactions. In Newtonian physics, the time coordinate, like the space coordinates, extends from infinity to infinity. Hence, up until the beginning of the twentieth century, many scientists looked upon the idea of a beginning of the universe as a relic of outmoded religious or mythological conceptions of the world.

A CHANGE IN IDEA

With the introduction of Einstein's theory of General Relativity, science did begin to see how time and space could have a beginning, and astronomical observations began to suggest that this might be true. Soon the idea that the universe had a beginning, came to be accepted.

WAS THERE A BEGINNING

The Big Bang theory came out of the work of the Russian mathematician Alexander Friedmann and the Belgian physicist (and Catholic priest) George Lemaître in the 1920s. In 1927, an astronomer named Georges Lemaître proposed that a very long time ago, the universe started as just a single point. He said the universe stretched and expanded to get as big as it is now, and that it could keep on stretching. Just two years later, in 1929 astronomer Edwin Hubble noticed that other galaxies were moving away from us and the farthest galaxies were moving faster than the ones close to us. This seemed to provide evidence that galaxies are flying apart as from some vast primordial explosion. Yet even as late as 1959 a survey showed that most American astronomers and

physicists still believed the universe to be of infinite age. Nevertheless, evidence in favor of the Big Bang theory accumulated, and became so strong by the 1980's that it was accepted by virtually all scientists. The Big Bang theory provided very strong theoretical grounds for saying that that the universe had a temporal beginning.

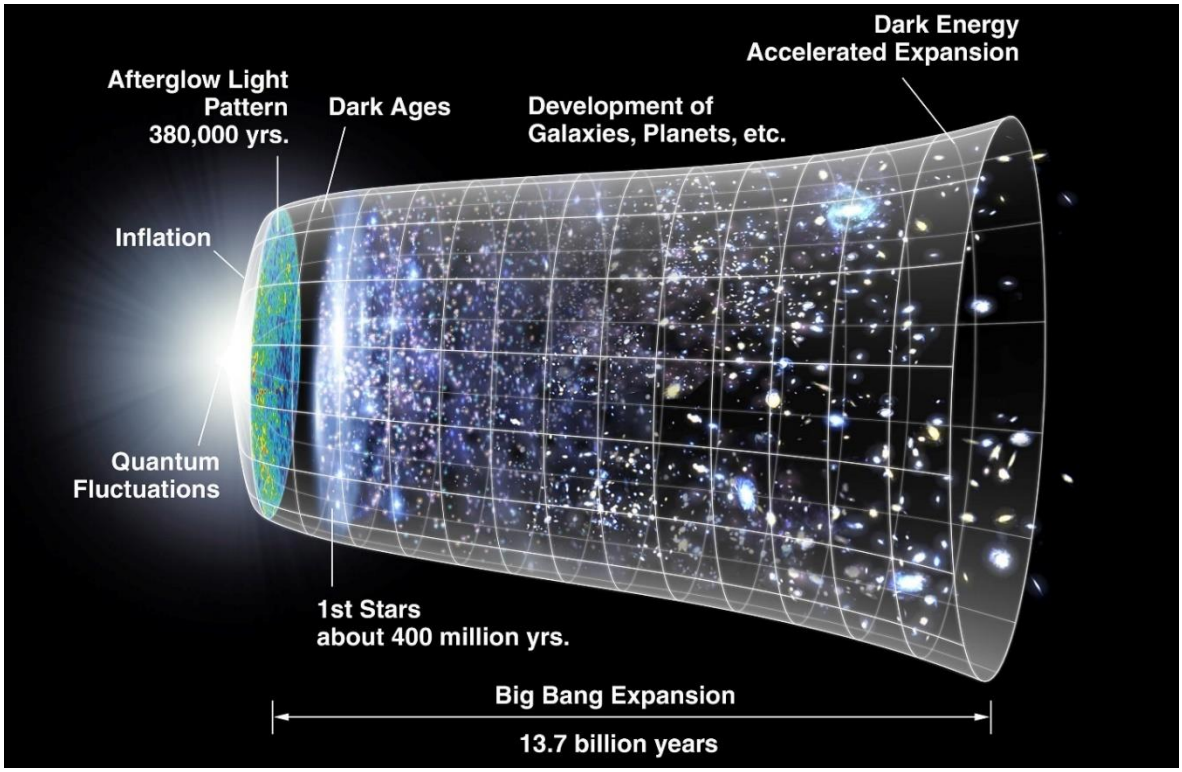
THE BIG BANG THEORY

The big bang is a hypothesis about how the universe came to be and not an observable, scientific event that can be reproduced in the lab.

The big bang is theory about the origin and development of the universe (e.g. a cosmology), beginning with a "singularity" about 13.8 billion years ago, when all mass, energy, and space was contained in a very dense hot state, much smaller volume than the universe today. Our universe emerged from a singularity — a point of infinite density and gravity — and that before this event, space and time did not exist (which means the Big Bang took place at no place and no time).

The universe experienced an early period of rapid expansion, faster than the speed of light — in a trillionth of a trillionth of a trillionth of a second, the universe is thought to have expanded by a factor of 10^78 in volume.

This cosmic **inflation** came to a sudden and still-mysterious end. This all happened **within just the first second** after the universe began, when the temperature of everything was still intensely hot, at about 10 billion degrees Fahrenheit (5.5 billion Celsius). The term cosmic inflation (proposed by astrophysicist Alan Guth in 1980) refers to the explosively rapid expansion of space-time that occurred a tiny fraction of a second after the Big Bang. In another tiny fraction of a second, inflation slowed to a more leisurely expansion that continues to this day and is accelerating.

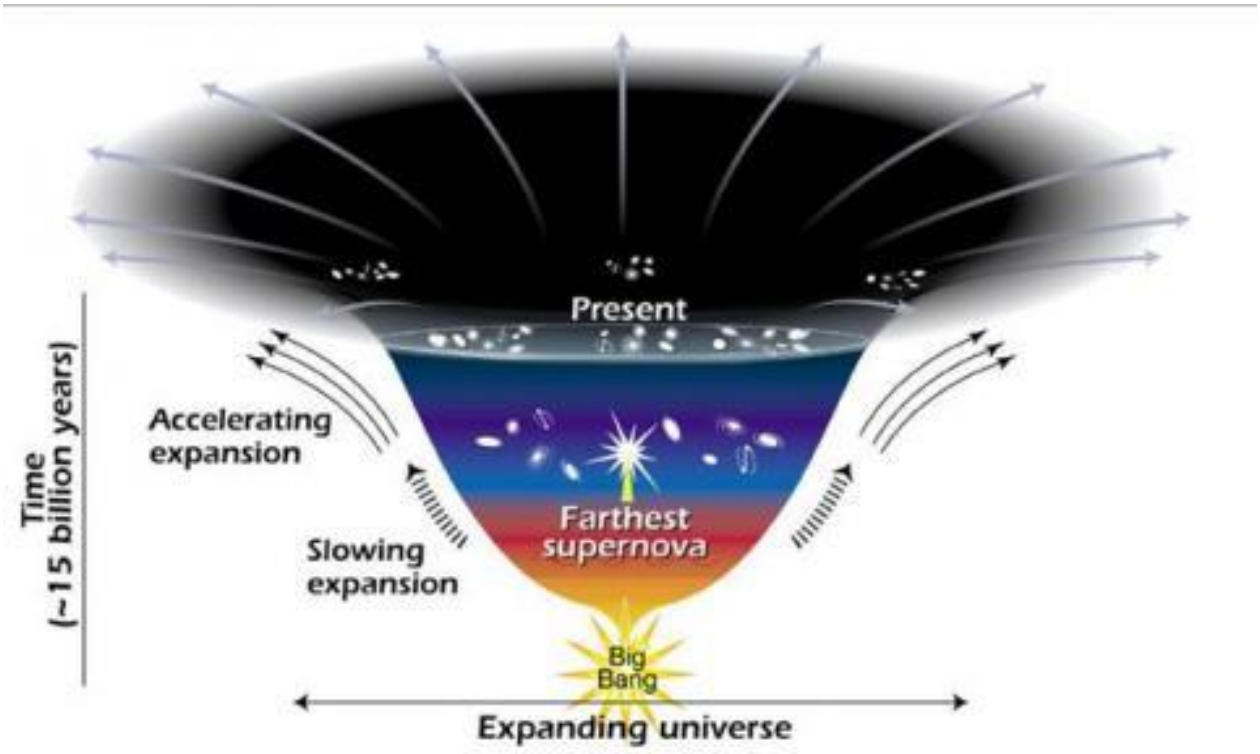


[Source: NASA/WMAP
https://www.jpl.nasa.gov/infographics/the-big-bang-and-expansion-of-the-universe]

After its initial expansion, an event that is by itself often called "the Big Bang", the universe cooled sufficiently to allow the formation of subatomic particles, and later atoms. A flood of matter and radiation, known as “reheating,” began populating our universe with a vast array of fundamental particles such as neutrons, electrons, and protons — the raw materials that would become the building blocks for everything that exists today.

When the universe began, it was just hot, tiny particles mixed with light and energy. As everything expanded and took up more space, it cooled down. The tiny particles grouped together. They formed atoms. Then those atoms grouped together. Over lots of time, atoms came together to form stars and galaxies. Giant clouds of these primordial elements—mostly hydrogen, with some helium and lithium—later coalesced through gravity, forming early stars and galaxies. The first stars created bigger atoms and groups of atoms. That led to more stars being born. At the same time, galaxies were crashing and grouping together. As new stars were being born and dying, then things like asteroids, comets, planets, and black holes formed!

DARK ENERGY, DARK MATTER



[Source: NASA
https://science.nasa.gov/astrophysics/focus-areas/what-is-dark-energy]

Then came 1998 and the Hubble Space Telescope (HST) observations of very distant supernovae that showed that the universe is expanding at an accelerating pace. Theorists still don't know what is causing this, and so they have just called it dark energy.

And then there is dark matter. Once again we do not know what dark matter is. One thought is that it is exotic particles like axions or WIMPS (Weakly Interacting Massive Particles). Astrophysicists estimate that roughly 68% of the universe is dark energy. Dark matter makes up about 27%. That is 95% of the universe is still unknown to us.

PROBLEMS WITH THE BIG BANG THEORY

#1, SINGULARITY CANNOT BE EXPLAINED BY PHYSICS

Much of what we understand about the Big Bang comes from mathematical formulas and models.

Neither general relativity nor quantum mechanics can currently describe the earliest moments of the Big Bang. During the earliest moments of cosmic time, the energies and conditions were so extreme that current knowledge can only suggest possibilities, which may turn out to be incorrect.

The main sign that we have terrain yet to be explored is the presence of a "singularity," or a point of infinite density, at the beginning of the Big Bang. Taken at face value, this tells us that at one point, the universe was crammed into an infinitely tiny, infinitely dense point. This is obviously absurd, and what it really tells us is that we need new physics (if any such thing exists) to solve this problem.

#2, STARTING POINT PROBLEM

Where did the matter come from to create the universe? If there was nothing (no space, time, or matter) there is no energy.

#3, DESIGN PROBLEM

How could a chaotic, random explosion result in such design and precision?

#4, SCIENTIFIC PROBLEMS

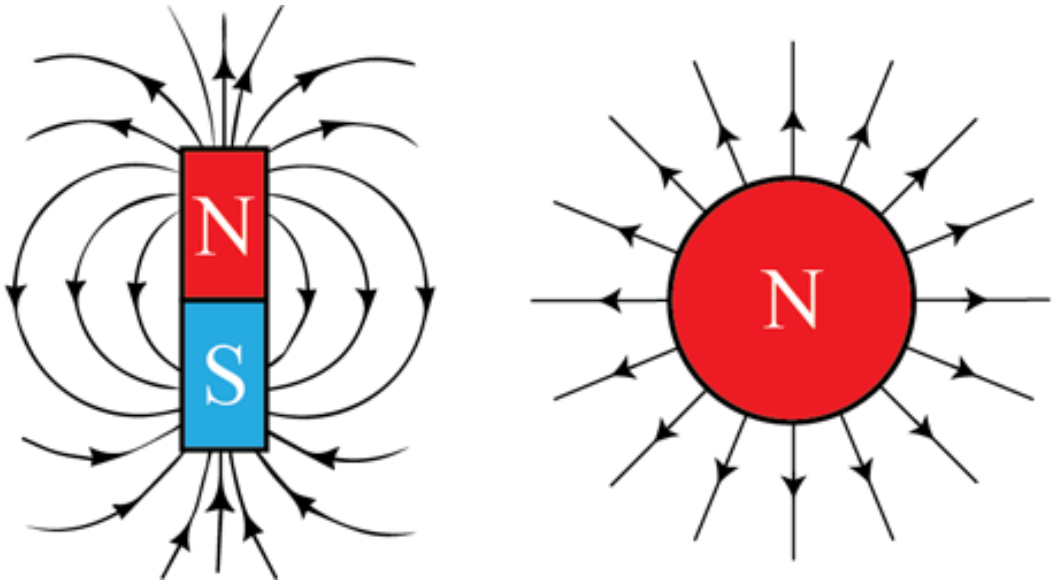
The big bang theory is riddled with problems, supported by numerous unobserved assumptions.

Here are just four scientific Problems with Big Bang theory (there are more):

1, Missing Monopoles

A “monopole” is a hypothetical massive particle that is just like a magnet but with only one pole. So a monopole would have either a “north” pole or a “south” pole, but not both. Particle physicists claim that the high temperature conditions of the big bang should have created magnetic monopoles.

Since monopoles are predicted to be stable, they should have lasted to this day. Yet, despite considerable searching, monopoles have not been found. The fact that we don't find any monopoles strongly suggests that the universe never was that hot. This indicates that there never was a big bang.

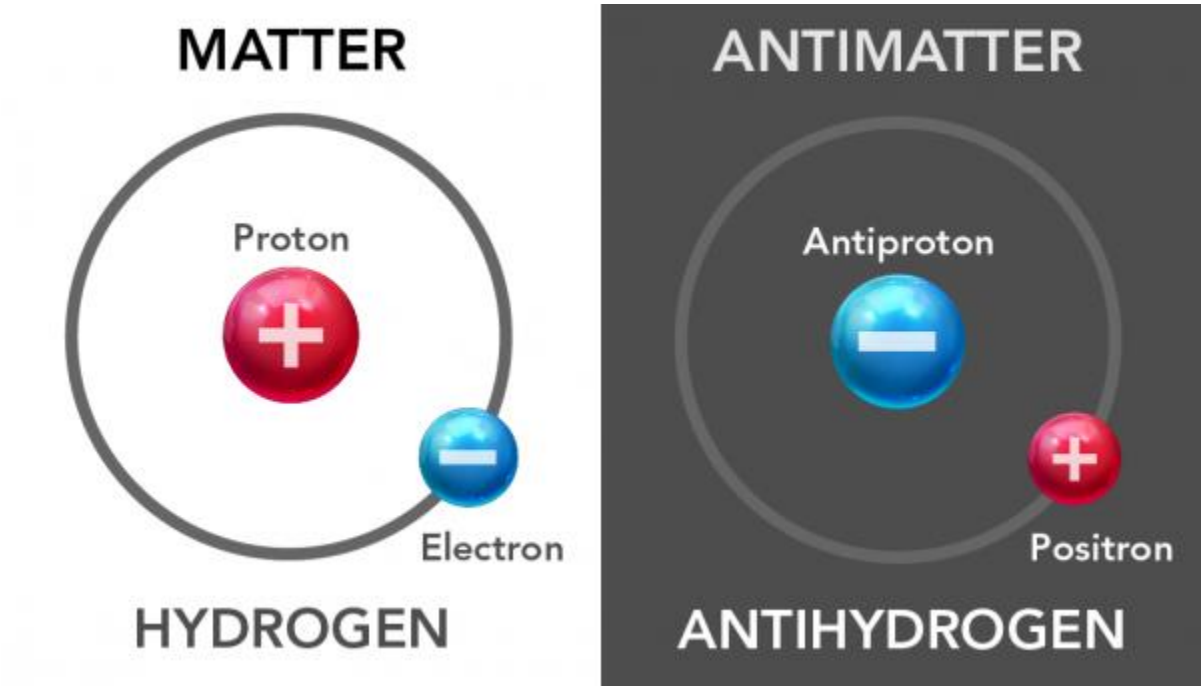


[Source: https://physics.aps.org/articles/v10/s137]

2, Too Little Antimatter

A second scientific problem with the big bang is there is too little antimatter.
The big bang model proposes that matter (hydrogen and helium gas) was created from energy as the universe expanded. However, experimental physics tells us that whenever matter is created from energy, such a reaction also produces antimatter. Antimatter has similar properties to matter, except the charges of the particles are reversed.

The big bang should have produced equal amounts of matter and antimatter. Thus, if the big bang were true, there should be an equal amount of matter and antimatter in the universe today. But there is not. The visible universe is comprised almost entirely of matter—with only trace amounts of antimatter.



3, No Population III Stars (The First Stars in the Universe)

A third scientific problem with big bang cosmology is there are no 'population III' stars.

The big bang model by itself can account for the existence of only the three lightest elements (hydrogen, helium, and trace amounts of lithium). This leaves the other naturally occurring elements unexplained. Since the conditions in the big bang model are not right to form these heavier elements, secular astronomers believe that stars have produced the remaining elements by nuclear fusion in their cores, which then distribute the heavier elements into space when they exploded (went supernovae).

Second- and third-generation stars are thus "contaminated" with small amounts of these heavier elements. If this were true, then the first stars would be comprised of only the three lightest elements (since these would have been the only elements in existence initially). Some such stars should still be around today since their lifespans are supposed to exceed the 13.8 billion years that has elapsed since the big bang. Such stars would be called "population III" stars. Amazingly population III stars have not been found anywhere. All known stars have at least trace amounts of heavy elements in them.

4, No Evidence for Cosmic Inflation

A fourth scientific problem with the big bang is there is no evidence for cosmic inflation.

According to the big bang model, the universe suddenly appeared 13.8 billion years ago in a very dense, hot state that expanded into the universe that we see today. But cosmologists realized that there were problems with the **cosmic microwave background** (CMB) radiation. One of these was the horizon problem: the CMB observed from opposite parts of the sky had precisely the same temperature. But how could that be?

Those positions opposite one another had never had a chance to exchange heat, so how could they have come into thermal equilibrium. A theoretical physicist named Alan Guth suggested cosmic inflation to solve the horizon problem. According to the theory of cosmic inflation, 10^{-34} seconds after the big bang the universe briefly and rapidly expanded, or inflated, to a much larger size with a velocity far faster than the speed of light. This would allow the entire universe initially to be in thermal contact so that it could come into the thermal equilibrium before being pulled out of thermal equilibrium by inflation. The only problem with inflation? There's absolutely no evidence for it, and attempted "proofs" have been proposed and then bit the dust.

The above examples are just a few of the many problems with the big bang model.
The Big Bang remains as just a theory, an attempted explanation for the origins of the universe.
The Big Bang isn't testable, repeatable laboratory science.

WHAT THE BIBLE SAYS ABOUT THE HEAVENS

Genesis 1:1-2,14-15 (NASB)
1 In the beginning God created the heavens and the earth.
2 And the earth was a formless and desolate emptiness, and darkness was over the surface of the deep, and the Spirit of God was hovering over the surface of the waters.
14 Then God said, "Let there be lights in the expanse of the heavens to separate the day from the night, and they shall serve as signs and for seasons, and for days and years;
15 and they shall serve as lights in the expanse of the heavens to give light on the earth"; and it was so.

Deuteronomy 10:14 (NASB)
Behold, to the LORD your God belong heaven and the highest heavens, the earth and all that is in it.

2 Chronicles 2:6 (NASB)

But who is able to build a house for Him, since the heavens and the highest heavens cannot contain Him? And who am I, that I should build a house for Him, except to burn incense before Him?

Nehemiah 9:6 (NASB)
You alone are the LORD. You have made the heavens, The heaven of heavens with all their lights, The earth and everything that is on it, The seas and everything that is in them. You give life to all of them, And the heavenly lights bow down before You.

Psalm 8:3-4 (NASB)
3 When I consider Your heavens, the work of Your fingers, The moon and the stars, which You have set in place;
4 What is man that You think of him, And a son of man that You are concerned about him?

Psalm 19:1-2 (NASB)
1 The heavens tell of the glory of God; And their expanse declares the work of His hands.
2 Day to day pours forth speech, And night to night reveals knowledge.

Psalm 33:6 (NASB)
By the word of the LORD the heavens were made, And by the breath of His mouth all their lights.

Psalm 97:6 (NASB)
The heavens declare His righteousness, And all the peoples have seen His glory.

Psalm 102:25–26 (NASB)
25 In time of old You founded the earth, And the heavens are the work of Your hands.
26 Even they will perish, but You endure; All of them will wear out like a garment; Like clothing You will change them and they will pass away.

Psalm 147:4-5 (NASB)
4 He counts the number of the stars; He gives names to all of them.
5 Great is our Lord and abundant in strength; His understanding is infinite.

Isaiah 40:12 (NASB)
Who has measured the waters in the hollow of His hand, And measured the heavens with a span, And calculated the dust of the earth with a measure, And weighed the mountains in a balance And the hills in a pair of scales?

Isaiah 40:22 (NASB)
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 live in.

Isaiah 45:12 (NASB)
It is I who made the earth, and created mankind upon it. I stretched out the heavens with My hands, And I ordained all their lights.

Jeremiah 32:17 (NASB)
'Oh, Lord GOD! Behold, You Yourself have made the heavens and the earth by Your great power and by Your outstretched arm! Nothing is too difficult for You,

2 Peter 3:10,12-13 (NASB)
10 But the day of the Lord will come like a thief, in which the heavens will pass away with a roar and the elements will be destroyed with intense heat, and the earth and its works will be discovered.
12 looking for and hastening the coming of the day of God, because of which the heavens will be destroyed by burning, and the elements will melt with intense heat!
13 But according to His promise we are looking for new heavens and a new earth, in which righteousness dwells.

The Universe speaks to us about the Living God, Creator God!

WHY DID GOD CREATE SUCH A BIG UNIVERSE, WITH SO MANY STARS, PLANETS, OTHER COSMIC BODIES?
We do not know exactly how big the Universe really is. Some guess the Universe to be around 46 billion light years away. That's a diameter of 540 sextillion (or 54 followed by 22 zeros) miles. But this is really just our best guess. Similarly, the age of the universe of being 14 billion years old is a best guess based on a theory.
Our only reason for God creating such a vast universe is to reveal a little bit of Himself – He is infinite. He is immeasurable. The universe in some way reflects this.

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SALVATION CALL (BY YOUR FREE CHOICE AND FREE WILL)

If you ask, does God love me? We can tell you what the Bible says: John 3:16, Romans 5:8
If you ask, how can I have my sins forgiven? We can tell you what the Bible says: Acts 10:43; 1 John 2:2,12
If you ask, what is the way to God? We can tell you what the Bible says: John 14:6
If you ask, how can I become a child of God? We can tell you what the Bible says: John 1:12
If you ask, where can I find salvation? We can tell you what the Bible says: Acts 4:12
If you ask, what must I do to experience salvation? We can tell you what the Bible says: Acts 16:30-31
As an act of your own free choice, we invite you to make this decision to follow Jesus.

SUPERNATURAL MINISTRY TIME

Minister as the Spirit leads

LIFE GROUP STUDY GUIDE

Sunday September 18, 2022
Faith and Science
Part 3: Origins of the Cosmos

The is a simple guide for use in Life Group discussions. Our objective is to focus on the application of the Sunday sermon - how each one is becoming a doer of the Word and building their life on God's Holy Word. The Life Group meeting would normally last for 2 hours. Each Life Group would have up to 12-15 people.

Preparation
To prepare for the Life Group meeting, you can listen to the Sermon Key Points (sermon summary in five minutes) or the full-length Sunday sermon. You can also review the Sunday Sermon notes. All these are available in the "All Peoples Church Bangalore" mobile App or online at our sermons page . Pray for the Life Group meeting and invite the work and ministry of the Holy Spirit.

Welcome
The Life Group meeting may commence with a time of prayer, worship, and a fun activity.

LISTEN to God's Word
Read the following Scripture references: Genesis 1:1-2,14-15; Deuteronomy 10:14; 2 Chronicles 2:6; Nehemiah 9:6; Psalm 8:3-4; Psalm 19:1-2; Psalm 33:6; Psalm 97:6; Psalm 147:4-5; Isaiah 40:12; Isaiah 40:22; Isaiah 45:12; Jeremiah 32:17; 2 Peter 3:10,12-13

INVESTIGATE God's Word Together
Please discuss a few of these together, giving time for people to share their insights. We encourage each one individually to make notes of their personal learning during the Group discussion.

1, Please read through the list of Scriptures and itemize what we can understand about God in relation to the heavens (vast universe with stars, galaxies, planets, celestial bodies) that He created.

If time permits, each one can take a few (3 minutes max) to share one or two key learning and how they see themselves applying it into their specific life situations. Encourage each one to participate and share.

FELLOWSHIP by sharing your life and spiritual journey
Each one takes a few (3 minutes max) to share anything from their walk with God, something God has been teaching them, a testimony of answered prayer or a specific challenge that they would like prayer for. Encourage each one to participate and share.

ENCOURAGE each other by praying and ministering to one another
Get into small groups of two or three and take turns to thank God and pray for each other in the light of what was learnt today. Listen to the Holy Spirit. Expect the gifts of the Holy Spirit to flow bringing healing, releasing miracles, prophecy, etc.

Regroup and pray together for:
1, families to be protected and strengthened
2, a mighty outpouring of God's Holy Spirit on us as a church and through us to bless many others in our city and nation. Nothing but a mighty work of God's Spirit can change our city and nation.
3, for the BUILD TO IMPACT project - for God's hand to guide us through the land search and acquisition process, and for finances to be more than enough to get this project done.

Close by thanking God together.

USEFUL RESOURCES

Watch our online Sunday Church service live stream every Sunday at 10:30am (Indian Time, GMT+5:30). Spirit filled, anointed worship, Word and ministry for healing, miracles, and deliverance.
YOUTUBE: https://youtube.com/allpeopleschurchbangalore
WEBSITE: https://apcwo.org/live

Our other websites and free resources:
CHURCH: https://apcwo.org
FREE SERMONS: https://apcwo.org/resources/sermons
FREE BOOKS: https://apcwo.org/books/english
DAILY DEVOTIONALS: https://apcwo.org/resources/daily-devotional
JESUS CHRIST: https://examiningjesus.com
BIBLE COLLEGE: https://apcbiblecollege.org
E-LEARNING: https://apcbiblecollege.org/elearn
WEEKEND SCHOOLS: https://apcwo.org/ministries/weekend-schools
COUNSELING: https://chrysalislife.org
MUSIC: https://apcmusic.org
MINISTERS FELLOWSHIP: https://pamfi.org
CHURCH APP: https://apcwo.org/app
CHURCHES: https://apcwo.org/ministries/churches
WORLD MISSIONS: https://apcworldmissions.org

SERMON OUTLINE

In this sermon series on faith and science, our intent is to address some of the common questions that arise in conversations around faith and science. Questions about the existence of God, origin of this universe, origin of life, the creation account as given in the book of Genesis in the Bible, and faith and science – is it possible to be a person of faith, while engaging in science, and so on? Our goal is to address these questions in as simple a manner as possible and share information that will be useful. This is a five-part sermon series. Part-1: Can Science explain it all? Part-2: The Six days of Genesis. Part-3: Origins of the Cosmos. Part-4: Creator God? Part-5: Origin of the Species.

In this sermon we take a close look at the origins of the cosmos. We consider the Big Bang theory of cosmology, and consider some of the gaps in this theory. We then point to the Scriptures on how the heavens - time, space, matter, energy, stars, planets and celestial bodies came into being.

KEYWORDS :

Faith and science, religion and reason, origin of the cosmos, cosmology, evolutionary biology, Genesis, sermon, sermons, sermon notes, sermon outline, free sermon notes, free sermon outlines, Bible study resources

REFERENCES/CITATIONS

Biblical definitions, Hebrew and Greek words and their meanings are drawn from the following resources:

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