

# SCIENTIFIC KNOWLEDGE

*from the*

# SCRIPTURES *of* SANATAN-DHARMA



KAMLESH C. PATEL

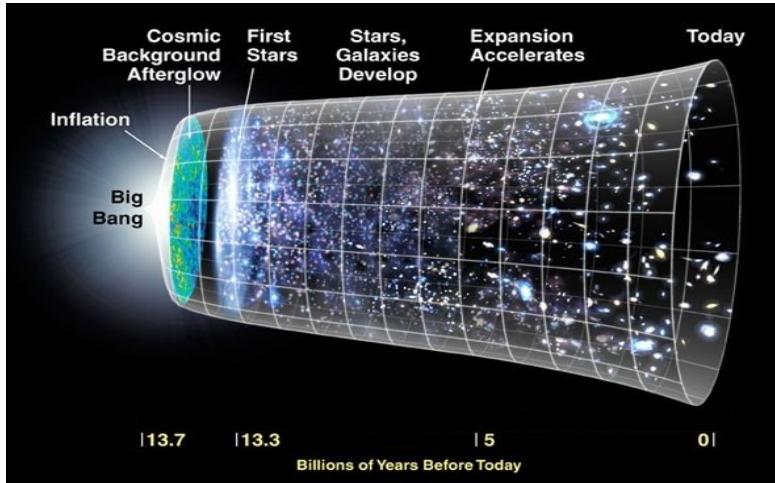
**There are more than a million verses in the scriptures of Sanatan-Dharma. Which were compiled by God into written format, more than 5,000 years ago. What follows is a small fraction of the vast scientific knowledge that is contained in the Vedic scriptures.**

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EternalReligion.org

The Bhagavad-Gita As It Is and Shrimad Bhagavatam verses are courtesy of BBTI, [www.krishna.com](http://www.krishna.com)

# Theory of Creation

## Knowledge from the Scientists



## Creation by Big Bang

The big bang theory is that a small, dense object exploded, and our universe was created.

The scientists cannot explain the origin of the dense object nor the bang.

The scientists view the whole creation as one observable universe which has been expanding since the big bang. They put the age of the universe at 13.7 billion years.

## Knowledge from the Vedic Scriptures



## Creation by God

The Vedic scriptures do not support the theory of a big bang creating the universe.

The universes are created by Maha-Vishnu, an expansion of Lord Krishna. The age of this universe is 155.522 trillion years.

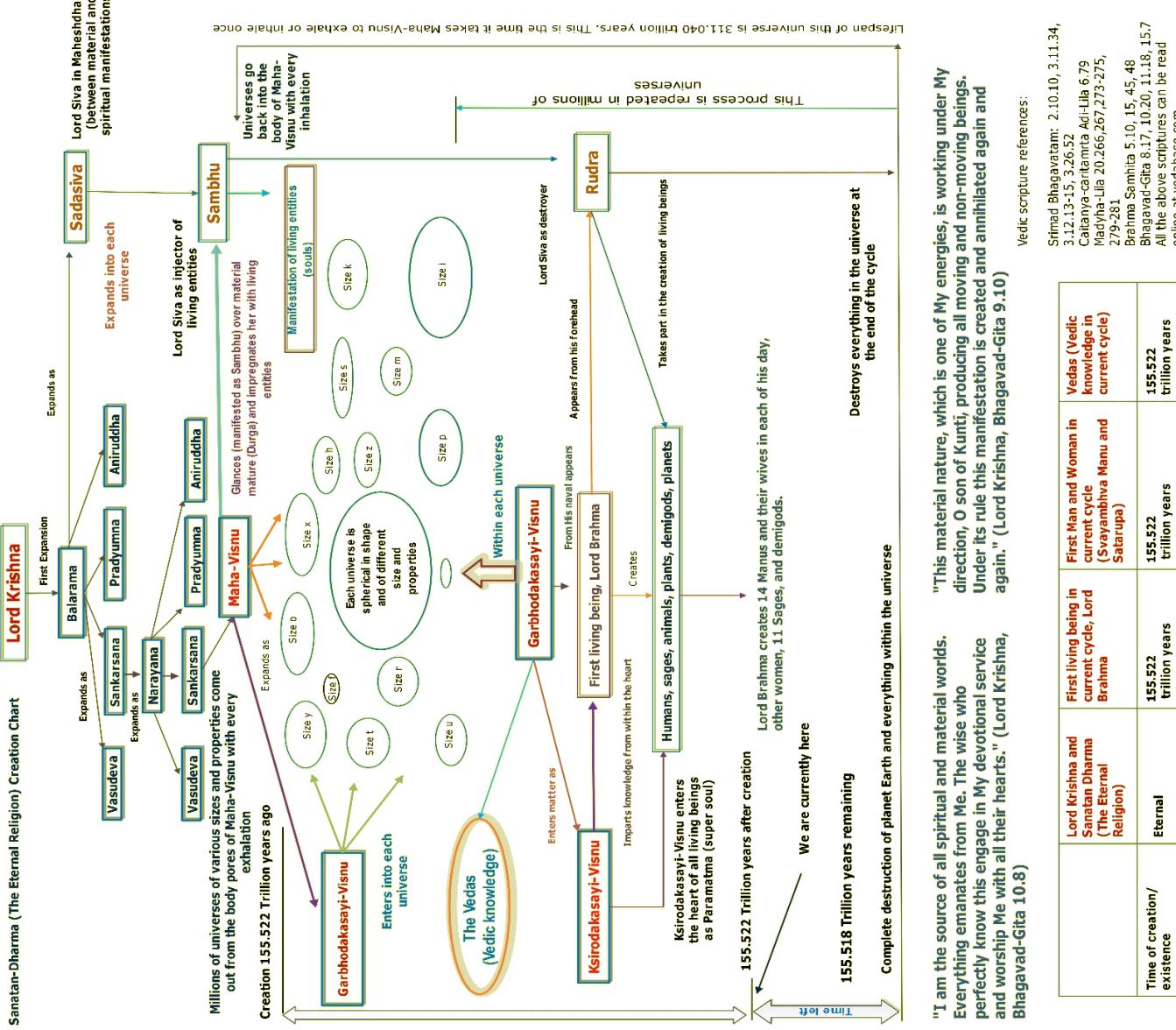
### ***The Creation is Vast***

***"anda-koti-kotibhih" – millions of such universes (Shrimad Bhagavatam 6.16.37)***

The origin of the material creation is Maha-Vishnu. Millions of universes come out from the pores on His body as He exhales. With inhalation, they all go back into His body. The lifespan of our universe is just one breath of Maha-Vishnu, 311.040 trillion years.

***"The duration of the two parts of Brahma's life, as above mentioned, is calculated to be equal to one nimesa [less than a second] for the Supreme Personality of Godhead, who is unchanging and unlimited and is the cause of all causes of the universe." (Shrimad Bhagavatam 3.11.38)***

The universes and their engineers (Brahmas), appear from the pores of Maha-Vishnu and remain alive during His exhalation. (Reference: Sri Brahma-Samhita 5.48)



*"Combining all the different elements, the Supreme Lord created all the universes. Those universes are unlimited in number; there is no possibility of counting them. The first form of Lord Viṣṇu is called Maha-Viṣṇu. He is the original creator of the total material energy. The innumerable universes emanate from the pores of His body. These universes are understood to be floating in the air that Maha-Viṣṇu exhales. They are like atomic particles that float in sunshine and pass through the holes of a screen. All these universes are thus created by the exhalation of Maha-Viṣṇu, and when Maha-Viṣṇu inhales, they re-enter His body. The unlimited opulences of Maha-Viṣṇu are completely beyond material conception." (Sri Caitanya-caritamrta Madhya-Lila 20.277-280)*

### **The Universes Are Expanding**

*"At that time Arjuna could see in the universal form of the Lord the unlimited expansions of the universe situated in one place although divided into many, many thousands." (Bhagavad-Gita 11.13)*

*"Just as from within himself the spider expands thread through his mouth, plays with it for some time and eventually swallows it, similarly, the Supreme Personality of Godhead expands His personal potency from within Himself. Thus, the Lord displays the network of cosmic manifestation, utilizes it according to His purpose and eventually withdraws it completely within Himself." (Shrimad Bhagavatam 11.9.21)*

### **The Lifespan of our Universe**

The lifespan of the universe is 311.040 trillion years.

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**Calculation Based on the Vedic Scriptures (See 13 on the Time Structure of Universe Chart):**

*"By human calculation, a thousand ages taken together form the duration of Brahma's one day. And such also is the duration of his night." (Lord Krishna, Bhagavad-Gita 8.17)*

The ages (four yugas together make one age) are stated in the Sri Caitanya-caritamrta:

*"We know that there are four ages [yugas], namely Satya, Treta, Dvapara and Kali. These four together constitute one divya-yuga." (Sri Caitanya-caritamrta Adi-Lia 3.7)*

The time periods of the ages (four yugas) are as follows:

Satya yuga	1,728,000 years
Treta yuga	1,296,000 years
Dvapara yuga	864,000 years
Kali yuga	432,000 years

Total of 4 yugas 4,320,000 years (4.32 million)

A thousand of 4 yugas is  $4.32 \times 1000 = 4.32$  billion years

Thus, one daytime (12 hours) of Brahma is 4.32 billion years

*"O son of Kuntī, at the end of the millennium all material manifestations enter into My nature, and at the beginning of another millennium, by My potency, I create them again." (Lord Krishna, Bhagavad-Gita 9.7)*

From the purport of this verse it defines "At the end of the millennium" means at the death of Brahma. Brahma lives for 100 of his years which is calculated as follows:

$4.32 \text{ (12 hours)} \times 2 \text{ (24 hours)} \times 30 \text{ (days in month)} \times 12 \text{ (months in year)} \times 100 \text{ (100 years)} = 311.040$   
trillion (311 trillion, 40 billion years)

The Millennium in this verse refers to the lifespan of the universe, 311.040 trillion years.

(Reference: Bhagavad-Gita 8.17, purport)

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## **The Current Age of Our Universe**

**The current age of our universe is 155.52197 trillion years.**

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### **Calculation Based on the Vedic Scriptures (See 14 on the Time Structure of Universe Chart):**

**Each day of Brahma is divided into fourteen parts called manvantaras. Each manvantara has a different Manu and the current Manu is the seventh, called Vaivasvata. Each manvantara is divided into 71 parts called divya-yugas (also called chaturyugas).**

**We are now in the twenty-eight divya-yuga of the seventh manvantara. Before the first and after each manvantara, there is a juncture (sandhya) period of duration 1,728,000 years.**

**"Seventy-one divya-yugas constitute one manv-antara. There are fourteen manv-antaras in one day of Brahma. The present Manu, who is the seventh, is called Vaivasvata [the son of Vivasvan]. Twenty-seven divya-yugas of his age have now passed." (Sri Caitanya-caritamrta Adi-Lila 3.8-9)**

**"The one hundred years of Brahma's life are divided into two parts, the first half and the second half. The first half of the duration of Brahma's life is already over, and the second half is now current." (Shrimad-Bhagavatam 3.11.34)**

**Brahma is in his 1st day of his 51st year. In his current day, he has passed 1972.949 million Earth years, which is 5 hours, 28 mins, and 49 seconds for Brahma. When 100,000 years pass on planet Earth, only 1 second passes for Brahma.**

**The current age of Brahma and the universe is 155.52197 trillion years.**

### **Calculation of time passed in the current day of Brahma**

**Time passed in current day 1972.949 million years (based on our clock)**

**1 day for Brahma = 4.32 billion = 4320 million**

**1 hour for Brahma = 4320/12 = 360 million**

**1 minute for Brahma = 360/60 = 6 million**

**1 second for Brahma = 6/60 = 0.1 million = 100,000 years**

**1972.949/360 = 5.4804138 hours**

**5 hours**

**0.4804138 hours = 0.4804138 x 60 minutes = 28.824828 minutes**

**28 minutes**

**0.824828 minutes = 0.824828 x 60 seconds = 49.489 seconds**

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**Time passed in current day of Brahma is 5 hours, 28 minutes, and 49 seconds (based on Brahma's clock)**

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## **Age of current Earth and Sun**

**At the beginning of each day of Brahma, he creates the sun, earth and other planets. At the end of each day of Brahma, the sun, earth, and some other planets are completely destroyed. Then again, the next day, he creates and so on. Thus, the age of the current earth and sun is the age of Brahma in his current day, which is 1.972949 billion years**

**(See 10 on the Time Structure of Universe Chart)**

## **Time to End of Universe**

**311.040 (lifespan of universe) - 155.52197 (current age of universe) =155.51803 trillion years.**

**The lifespan of the universe is directly related to the age of Brahma.**

**Currently the universe is 155.522 trillion years old, and after another 155.518 trillion years, the universe will be destroyed and then after 311.040 trillion years, another creation will begin.**

**(See 15 on the Time Structure of Universe Chart)**

### **The Creation and Annihilation are Cyclic**

**"The whole cosmic order is under Me. Under My will it is automatically manifested again and again, and under My will it is annihilated at the end." (Lord Krishna, Bhagavad-Gita 9.8)**

**(More detailed information in the Shrimad-Bhagavatam 3.11.34-38, 9.4.56, and other Vedic scriptures)**

### **Summary Explanation of the 'Time Structure of Universe Chart'**

**The top line represents the lifespan of the universe, which is directly related to the life of a person called Brahma. Brahma is the first living being created in the universe by Lord Vishnu. When Brahma dies, the universe also dies. The whole lifespan of Brahma and the universe is called a Maha Kalpa, which is of duration 311 trillion, 40 billion years. This is also the time that passes for us when Maha-Visnu exhales or inhales just once. This means that when Maha-Visnu exhales just once, 311 trillion, 40 billion years pass for us. This is how great Lord Krishna (God) is.**

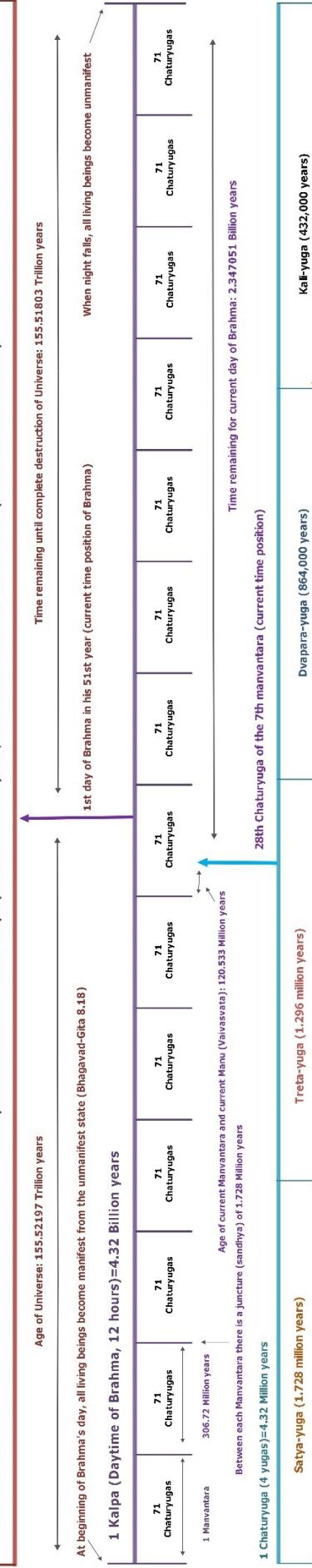
**The arrow pointing up below the first horizontal line represents the current time position of Brahma and the universe. Brahma has passed 50 years and he is now 5 hours, 28 minutes, and 49 seconds into his 1st day of his 51st year. The current age of Brahma and the universe is 155 trillion, 521 billion, and 970 million years (155.52197 trillion). The time left before end of universe and end of the life of Brahma is 311.040 trillion – 155.52197 trillion = 155.51803 trillion years (155 trillion, 518 billion, and 30 million years).**

**Each day of Brahma is called a Kalpa, with duration of 4.32 billion years and is divided into 14 parts called Manvantaras. Each Manvantara is of duration 306 million, and 720 thousand years, and divided into 71 parts called Chatuyugas. Each Chaturyuga is of duration 4 million, and 320 thousand years. In the current day of Brahma, we have passed 6 Manvantaras and are now in the 7th Manvantara. Within the 7th Manvantara, we have passed 27 Chaturyugas and are now in the 28th Chaturyuga.**

**Each Chaturyuga is divided into 4 parts called yugas. We are currently 5000 years into the Kali-yuga, and we have another 427,000 years before the end of kali-yuga. Then we move into the 29th Chaturyuga, and through the remaining Chaturyugas in the 7th Manvantara and then into the 8th Manvantara and so on and after the 14th Manvantara, we move into the next day of Brahma and the whole cycle is repeated.**

## Time Structure of Universe Chart

Lifespan of Universe - 1 Maha Kalpa (311.040 Trillion years, One Breath of Maha-Vishnu - An Expansion of Lord Krishna)



"By human calculation, a thousand ages taken together form the duration of Brahma's one day [4.32 billion years]. And such also is the duration of his night."  
(Lord Krishna, Bhagavad-Gita 8.17)

01. Satya-yuga (includes junctures)	1.728 million	1.728 million
02. Treta-yuga (includes junctures)	1.296 million	1.296 million
03. Dvapara-yuga (includes junctures)	0.864 million	0.864 million
04. Kali-yuga (includes junctures)	0.432 million	0.432 million
05. 1 Chaturyuga / Dvaya-yuga (4 yugas)	4.32 million	4.32 million
06. 1 Manvantara (71 Chaturyugas [71x4.32])	306.72 million	306.72 million
07. 1 Manvantara Juncture / Sandhya - Interval between Manvantaras	1.728 million	1.728 million
08. 1 Daytime of Brahma (14 Manvantaras [14x306.72]+15 Junctions [15x1.728]) - Lifespan of earth and sun	4.32 billion	4.32 billion
09. Time passed in current Chaturyuga	3.893 million	3.893 million
(Satya-yuga [1.728]+Treta-yuga [1.296]+Dvapara-yuga [0.864]+5000 years of Kali-yuga [0.005])		
10. Time passed in current day of Brahma - Age of earth and sun	1972.949 million	1972.949 million
(6 Manvantaras [1840.32]+27 Chaturyugas [116.64]+7 Manvantara Junctions [12.096]+Time passed in current Chaturyuga [3.893])		
11. Time remaining in current day of Brahma (1 daytime of Brahma - Time passed in current day)	2347.051 million	2347.051 million
12. Age of current Manu (Vaivasvata) / Time passed in current Manvantara	120.533 million	120.533 million
(27 Chaturyugas [116.64]+Time passed in current Chaturyuga [3.893])		
13. 1 Maha Kalpa - Lifespan of universe	311.04 trillion	311.04 trillion
(1 daytime of Brahma [4.32]x 2 (day+night) x 30 (days in month) x 12 (months in year) x 100 (100 years))		
14. Current age of Brahma - Age of universe	155.52197 trillion	155.52197 trillion
(50 years of Brahma [4.32x2x30x12x50=155520 billion]+ Time passed in current day of Brahma [1.972949 billion])		
15. Time remaining until end of universe and current Brahma (1 Maha Kalpa - Current age of Brahma)	155.51803 trillion	155.51803 trillion

"O son of Kunti, at the end of the millennium [after 311.040 trillion years], all material manifestations enter into **My** nature, and at the beginning of another millennium, by **My** potency, I create them again." (Lord Krishna, Bhagavad-Gita 9.7)

"The one hundred years of Brahma's life are divided into two parts, the first half and the second half. The first half of the duration of Brahma's life is already over, and the second half is now current." (Srimad Bhagavatam 3.11.34)

"The present Manu, who is the seventh, is called Vaivasvata [son of Vivasvan]. Twenty-seven divya-yugas [27x4.32=116.64 million years] of his age have now passed." (Caitanya-caritamrita Adi-Lila 3.9)

Complete destruction of Universe →

"The whole cosmic order is under Me. Under My will it is automatically manifested again and again, and under My will it is annihilated at the end." (Lord Krishna, Bhagavad-Gita 9.8)

"With a single fragment of Myself I pervade and support this entire universe..."  
(Lord Krishna, Bhagavad-Gita 10.42)

This detailed structural timings knowledge of the universe of the past and future can only come from God and proves that Sanatan-Dharma (the Eternal Religion) is the true religion from the timeless eternal God, Lord Krishna.

## **The Earth and Other Planets are Egg Shaped**



In the Vedic scriptures, the Sanskrit words 'bhugola' or 'bhu-gola' is used to denote the round earth. Also 'anda' is used to refer to planets and universes, because the planets and universes are egg shaped.

In Sanskrit:

'bhu' means earth  
'gola' means round  
'anda' means egg or egg shaped  
'jagat' means world or universe

## **The Universes are Egg Shaped**



**'anda-kosah – egg shaped'**  
*(Shrimad Bhagavatam 6.16.37)*

**"This universal egg, or the universe in the shape of an egg, is called the manifestation of material energy."** *(Shrimad-Bhagavatam 3.26.52)*

**'jagat-anada'** *(Brahma-Samhita 5.35) – This refers to the egg-shaped planets or universes.*

**'brahma-anada'** *(Caitanya-caritamrta 2.43) – This refers to the egg-shaped universe of a Brahma. Each universe is administered by a different Brahma. There are brahmandas, which means there are many universes.*

## **What is the Origin of the Energy in the Universe?**

This most important and mind-boggling question is answered by Lord Krishna in the Bhagavad-Gita.

**"My Self is the very source of creation..." (Lord Krishna, Bhagavad-Gita 9.5)**

The energies come from Lord Krishna (God). Time and matter are energies of Lord Krishna. That's why time and matter is eternal, because God is eternal. His energies are also eternal.

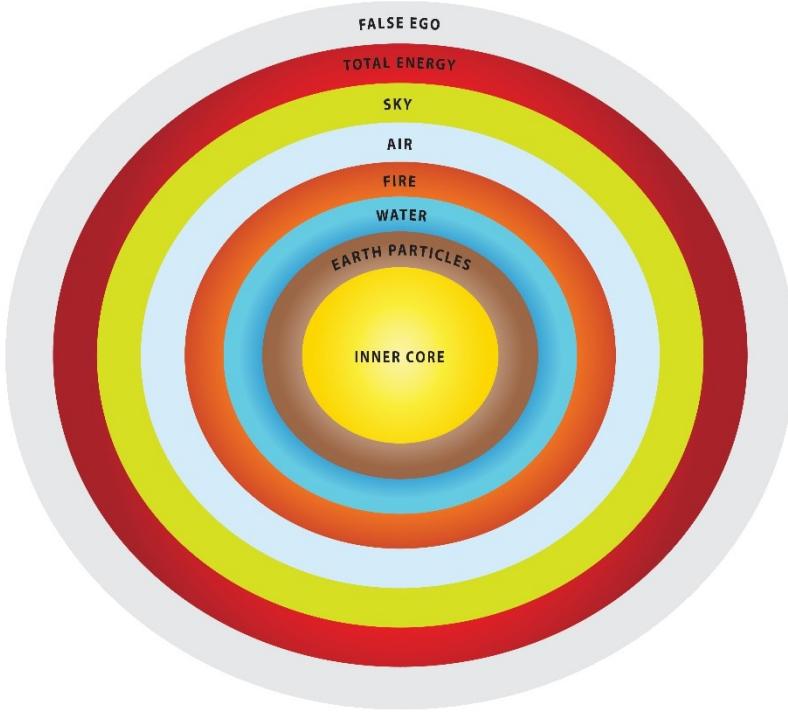
Before the creation, matter existed in another form as energy of Lord Krishna. At creation, the matter changed from one form to another, basically what we see today, solid stones, planets, metal, and so on. This is also accepted by the scientists as the Law of Conservation. Energy cannot be created nor destroyed but it can change forms.

### **Before creation, God and His energies existed**

Something cannot come from nothing. Everything comes from Lord Krishna (God).

**"Brahma, it is I, the Personality of Godhead, who was existing before the creation, when there was nothing but Myself."** *(Lord Krishna, Shrimad-Bhagavatam 2.9.33)*

# The Size of Our Universe



"Sukadeva Goswame said: My dear King, I have thus far described the diameter of the universe [fifty crores of yojanas, or four billion miles] and its general characteristics, according to the estimations of learned scholars." (Shrimad-Bhagavatam 5.21.1)

"The layers or elements covering the universes are each ten times thicker than the one before, and all the universes clustered together appear like atoms in a huge combination." (Shrimad-Bhagavatam 3.11.41)

"Every universe is covered by seven layers — earth, water, fire, air, sky, the total energy and false ego — each ten times greater than the previous one. There are innumerable universes besides this one, and although they are unlimitedly large, they move about like atoms in You. Therefore, You are called unlimited [ananta]." (Shrimad-Bhagavatam 6.16.37)

0. The inner core of the universe is called the Bhu-Mandala. This is 2 billion miles in radius.
1. The Bhu-Mandala is covered with 7 layers. The first layer is particles of earth. This is 40 billion miles from the end of the core to the next layer.
2. The second layer is water particles or water vapors. This is 400 billion miles from the end of the first layer to the end of the second layer.
3. The third layer is heat or fire and this is 4000 billion miles from the end of the second layer to the end of the third layer.
4. The fourth layer is air, and this is 40,000 billion miles.
5. The fifth layer is ether or sky, and this is 400,000 billion miles.
6. The sixth layer is total energy, and this is 4000,000 billion miles.
7. The seventh layer is false ego, and this is 40,000,000 billion miles.

Total distance from the center of the universe to the end of the universe:

$$\begin{aligned} &= 2 \text{ billion} + 40 \text{ billion} + 400 \text{ billion} + 4000 \text{ billion} + 40,000 \text{ billion} + 400,000 \text{ billion} + \\ &40,000,000 \text{ billion} \\ &= 44444442 \times 10^9 \text{ miles} \end{aligned}$$

Speed of light = 186,282 miles per second  
1 light year = 5.88 trillion miles ( $5.88 \times 10^{12}$ )

The time it would take light to travel from the center of the universe to the end of the universe:

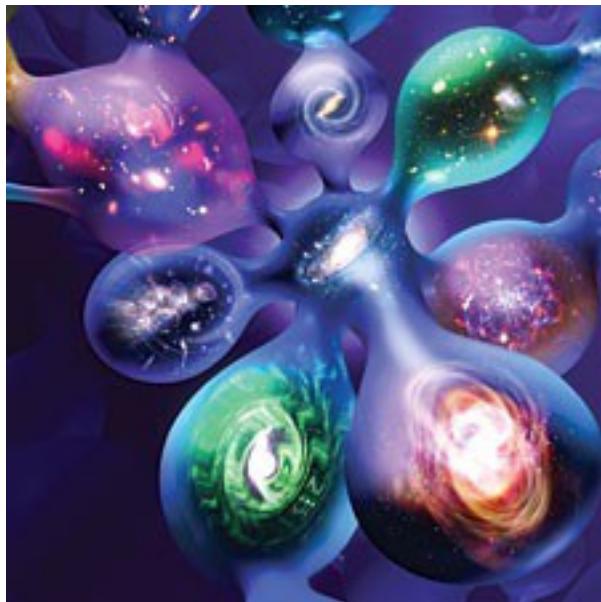
$$\begin{aligned} &= 44444442 \times 10^9 / 5876025120000 \\ &= 7563.69 \text{ years} \end{aligned}$$

The diameter of the universe is  $7563.69 \times 2 = 15,127.38$  light years (= 88,949 trillion miles)

# Parallel Universes and Multiverse

**There are millions of Universes**

*'jagad-anda-kotih' - millions of egg-shaped universes (Sri Brahma-Samhita 5.40)*



Multiverse picture – Credit: Florida State University

**The Vedic knowledge is that there are bubbles of universes in the material creation. This theory is now supported by the scientists and is known as Multiverse.**

*"These universes are understood to be floating in the air that Mahā-Viṣṇu exhales. They are like atomic particles that float in sunshine and pass through the holes of a screen. All these universes are thus created by the exhalation of Mahā-Viṣṇu, and when Mahā-Viṣṇu inhales, they re-enter His body. The unlimited opulences of Mahā-Viṣṇu are completely beyond material conception." (Sri Caitanya-caritamrta Madhya-Lila 20.279-280)*

*"After creating the total number of universes, which are unlimited, Maha-Viṣṇu expanded Himself into unlimited forms and entered into each of them." (Sri Caitanya-caritamrta Madhya-Lila 20.284)*

**What some scientists have recently discovered and accepted, has been stated in the scriptures of Sanatan-Dharma for more than 5,000 years. In the cosmos, there are millions of universes and they are spiritually linked with each other (parallel universes) to form a multiverse.**

**Lord Krishna's pastimes are eternally ongoing in the material creation. This means all His transcendental activities that He performed 5000 years ago here on earth are continuously performed in other universes. For example, He spoke the Bhagavad-Gita to Arjuna 5000 years ago here on earth. He is speaking the Bhagavad-Gita to Arjuna right now in another universe, and once He is finished, He will start to speak it to the same Arjuna in another universe and so on... All His activities are continuously repeated in different universes, one after the other.**

*"The consecutive pastimes of Krsna are being manifested in one of the innumerable universes moment after moment. There is no possibility of counting the universes, but in any case, some pastime of the Lord is being manifested at every moment in one universe or another." (Sri Caitanya-caritamrta Madhya-Lila 20.382)*

*"Since all Krsna's pastimes are taking place continuously, at every moment some pastime is existing in one universe or another. Consequently, these pastimes are called eternal by the Vedas and Puranas." (Sri Caitanya-caritamrta Madhya-Lila 20.395)*

**Arjuna is with Lord Krishna in multiple universes at the same time, to hear the Bhagavad-Gita and take part in other pastimes with Him. In a similar way, it is possible that some of us can also be present in other universes right now and/or we could repeat our life again on earth or in other universes.**

## Is Time Travel Possible?

**Time is eternal, we (the soul) are eternal with marginal energy (the potency to be in the material and spiritual manifestations), and the universes are unlimited. Thus, the rules of probability imply that events or history will be repeated. We cannot go back in time, but we can meet our past in the future, because history does repeat itself. This is not the first time you are reading this writing. You read it before, zillions of years ago.**

# The Science of Travelling Faster than the Speed of Light

One can travel faster than the speed of light, but only by using a spiritual method. With mystic yoga perfections, one can travel light years in a moment simply by thinking of the destination.

*"The ten secondary mystic perfections arising from the modes of nature are the powers of freeing oneself from hunger and thirst and other bodily disturbances, hearing and seeing things far away, moving the body at the speed of the mind, assuming any form one desires, entering the bodies of others, dying when one desires, witnessing the pastimes between the demigods and the celestial girls called Apsaras, completely executing one's determination and giving orders whose fulfillment is unimpeded." (Lord Krishna, Shrimad-Bhagavatam 11.15.6-7)*

Lord Krishna is everywhere in every atom in every universe and we are His particles. By meditating on Him, one can achieve the eighteen mystic yoga perfections, which includes the ability to travel at the speed of the mind, appear at multiple locations at the same time, and inter universal travel. These perfections have been achieved and practiced by millions of yogis, including Narade Muni, who spends his life travelling from one universe to another.

*"If one thinks of the Supreme Personality of Godhead and quits his body, he will certainly reach the spiritual planets..." (Lord Krishna, Bhagavad-Gita 8.13)*

If one thinks of Krishna at the time of death, he (the soul) will instantly be transferred many light years away to the spiritual manifestation.

*"Engage your mind always in thinking of Me, become My devotee, offer obeisances to Me and worship Me. Being completely absorbed in Me, surely you will come to Me." (Lord Krishna, Bhagavad-Gita 9.34)*

If a pure devotee wishes, then he (the soul) can instantly be transferred to be with Lord Krishna in another universe where He is currently performing His transcendental pastimes.

(References: Shrimad-Bhagavatam canto 11, chapter 15: Lord Krsna's Description of Mystic Yoga Perfections)

## The Elements of Material Manifestation

There are eight principal energies of material manifestation.

*"Earth, water, fire, air, ether, mind, intelligence and false ego—altogether these eight comprise My separated material energies. (Lord Krishna, Bhagavad-Gita 7.4)*

Five of these are gross energies (Earth, water, fire, air, and ether), and three are subtle (mind, intelligence, and false ego).

### Matter and Living Entities (souls) are Eternal

*"Material nature and the living entities should be understood to be beginning less. Their transformations and the modes of matter are products of material nature." (Lord Krishna, Bhagavad-Gita 13.20)*

The above verse states that matter (material nature) and the souls (living entities) are eternal. This is because material nature is the energy of God and the souls are His parts. God is eternal and so are His energies and parts.

*"This material nature, which is one of My energies, is working under My direction, O son of Kunti, producing all moving and nonmoving beings. Under its rule this manifestation is created and annihilated again and again." (Lord Krishna, Bhagavad-Gita 9.10)*

Lord Krishna is in full control of the creation and annihilation of millions of universes.

## We (the soul) are the God particle

"The living entities in this conditioned world are My eternal fragmental parts. Due to conditioned life, they are struggling very hard with the six senses, which include the mind." (Lord Krishna, Bhagavad-Gita 15.7)

All living entities (souls) are God particles or sparks of God.

## What is Time and why it is Eternal?



"The Supreme Personality of Godhead said: Time I am..." (Lord Krishna, Bhagavad-Gita 11.32)

"I am also inexhaustible time..." (Lord Krishna, Bhagavad-Gita 10.33)

Time is one of the energies of Lord Krishna. Since Lord Krishna is eternal, His energies like time are also eternal.

When atoms move to cover space, this is called time, and time is measured according to the amount of space covered by atoms [Shrimad Bhagavatam 3.11.3-4]. It is generally accepted that when time stands still (although impossible), there is no movement of anything. This also confirms that the movement of atoms is time. Time is one of the great energies of Lord Krishna (God). Anyone who accepts the existence of time is accepting the existence of Lord Krishna, because He is time.

The Shrimad Bhagavatam Canto 3, chapter 11, text 5 to 12, gives the details on how time can be calculated based on the movement of atoms. In summary, when 30,375 atoms move, 1 second has passed. This very high level of scientific knowledge is another proof that the Vedic knowledge comes from God. Lord Krishna is the true God, because He is the compiler of the Vedic knowledge. All the Vedic knowledge was given by Lord Krishna to the first living being in the universe, Brahma, at creation. This was 155.522 trillion years ago.

Vedic Time Term	Movement of Number of Atoms	Human Time Measurement
One trasarenu=3 double atoms	6	8/40,500 second
One truti=3 trasarenu	18	8/13,500 second
One vedha=100 trutis	1800	8/135 second
One lava=3 vedhas	5400	8/45 second
One nimesa=3 lavas	16,200	8/15 second
One ksana=3 nimesas	48,600	8/5 second
One kastha=5 ksanas	243,000	8 seconds
One laghu=15 kasthas	$3645 \times 10^3$	2 minutes
One danda=15 laghus	$54675 \times 10^3$	30 minutes
One praharas=6 dandas	$328050 \times 10^3$	3 hours
One day=4 praharas	$1312200 \times 10^3$	12 hours
One night=4 praharas	$1312200 \times 10^3$	12 hours

## **Shrimad Bhagavatam, Canto 3, Chapter 11, Verses 3 to 12:**

*One can estimate time by measuring the movement of the atomic combination of bodies. Time is the potency of the almighty Personality of Godhead, Hari, who controls all physical movement although He is not visible in the physical world.*

*Atomic time is measured according to it covering a particular atomic space. That time which covers the unmanifest aggregate of atoms is called the great time.*

*The division of gross time is calculated as follows: two atoms make one double atom, and three double atoms make one hexatom. This hexatom is visible in the sunshine which enters through the holes of a window screen. One can clearly see that the hexatom goes up towards the sky.*

*The time duration needed for the integration of three *trasareṇus* is called a *truti*, and one hundred *trutis* make one *vedha*. Three *vedhas* make one *lava*.*

*The duration of time of three *lavas* is equal to one *nimeṣa*, the combination of three *nimeṣas* makes one *kṣaṇa*, five *kṣaṇas* combined together make one *kāṣṭhā*, and fifteen *kāṣṭhās* make one *laghu*.*

*Fifteen *laghus* make one *nāḍikā*, which is also called a *daṇḍa*. Two *daṇḍas* make one *muhūrta*, and six or seven *daṇḍas* make one fourth of a day or night, according to human calculation.*

*The measuring pot for one *nāḍikā*, or *daṇḍa*, can be prepared with a six-pala-weight [fourteen ounces] pot of copper, in which a hole is bored with a gold probe weighing four *māṣa* and measuring four fingers long. When the pot is placed on water, the time before the water overflows in the pot is called one *daṇḍa*.*

*It is calculated that there are four *praharas*, which are also called *yāmas*, in the day and four in the night of the human being. Similarly, fifteen days and nights are a fortnight, and there are two fortnights, white and black, in a month.*

*The aggregate of two fortnights is one month, and that period is one complete day and night for the Pīṭa planets. Two of such months comprise one season, and six months comprise one complete movement of the sun from south to north.*

*Two solar movements make one day and night of the demigods, and that combination of day and night is one complete calendar year for the human being. The human being has a duration of life of one hundred years.*

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## **The Science of Creation of Living Beings**

**Based on the Sanatan-Dharma knowledge, there is no evolution of species. All the species of living beings in the universe exist from the moment of creation. (Reference: Bhagavad-Gita 9.8 purport)**

**The population of humans in the world originates from thousands of couples and not just one as taught by some religious beliefs. Also, humans have existed for 155.522 trillion years in this universe in the current cycle and not just a few thousand years.**

*"By human calculation, a thousand ages taken together form the duration of Brahma's one day. And such also is the duration of his night. At the beginning of Brahma's day, all living entities become manifest from the unmanifest state, and thereafter, when the night falls, they are merged into the unmanifest again. Again, and again, when Brahma's day arrives, all living entities come into being, and with the arrival of Brahma's night they are helplessly annihilated." (Lord Krishna, Bhagavad-Gita 8.17-19)*

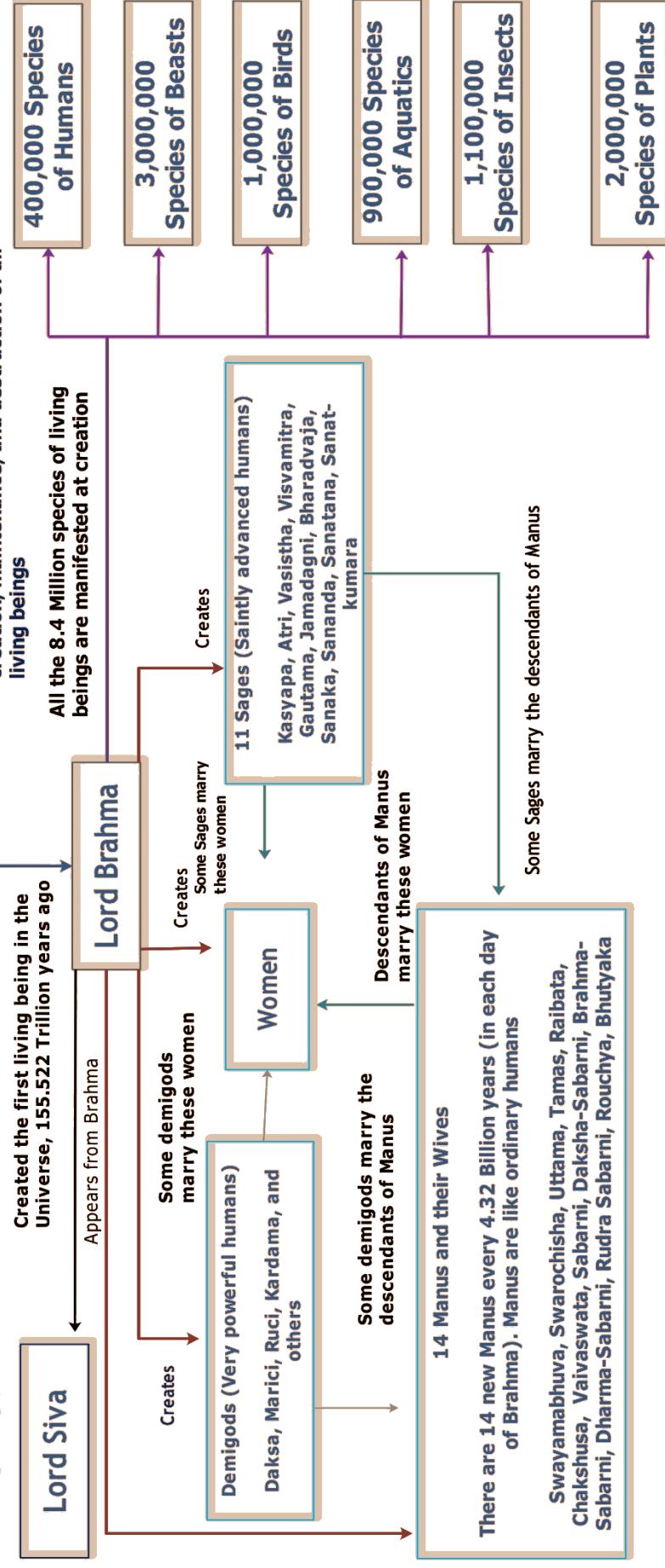
**One daytime of Brahma is 4.32 billion years. During this time, thousands of human couples are created, and we originate from them.**

### Vedic Theory of Universe Population Creation

Lord Siva takes part in injecting the living entities (souls) into material nature, creation of living beings, and destruction of Universe

Created the first living being in the Universe, 155.522 Trillion years ago

Appears from Brahma



The living entities (souls) are impregnated into material nature and based on their past deeds, they take different positions. The activities of the different species of living beings (bodies) are begun from the very moment of creation and the 8.4 million species of living beings are manifested immediately along with the universe. It is not that the activities or the variety of species are evolved. Humans, animals, birds, aquatics, insects, and plants, everything is simultaneously created based on the desires and deeds of the living entities at the last annihilation (last cycle of creation and annihilation). By the will and the inconceivable potency of Lord Krishna, everything is created, maintained, and destroyed. The creation takes place to accommodate the inclinations of the various living entities.

Lord Vishnu, an expansion of Lord Krishna creates the first living being in the Universe, Lord Brahma. Who then creates the Manus, Sages, demigods, and women. From a combination of these, the human population of the Universe is increased. The animal and plant species also originate from Lord Brahma. Not all the species are present on planet Earth, and some species are not manifested during certain time periods. This process of creation is repeated in millions of Universes by the inconceivable power of Lord Krishna.

# The Science of The Embryo Development

This gives unique information on the development of the embryo, which was written down in the Vedic scripture called Shrimad Bhagavatam, more than 5,000 years ago.

The scientists have only recently discovered how the embryo develops using advanced equipment. Still the scientists do not fully understand the details which have been available in the Vedic scriptures for more than 5,000 years.

## Who Arranges for the Soul to Enter the Womb of a Particular Mother?

*SB 3.31.1 – The Personality of Godhead said: Under the supervision of the Supreme Lord and according to the result of his work, the living entity, the soul, is made to enter into the womb of a woman through the particle of male semen to assume a particular type of body.*

Based on the actions taken by Souls in their previous lives (Karma), Lord Krishna arranges for each soul to enter the womb of a mother in a particular universe, on a particular planet, in a particular country, in a particular City, in a particular Street, in a particular house, to a particular mother. Exactly based on what the soul deserves.

## Day 1 to 30

*SB 3.31.2 – On the first night, the sperm and ovum mix, and on the fifth night the mixture ferments into a bubble. On the tenth night it develops into a form like a plum, and after that, it gradually turns into a lump of flesh or an egg, as the case may be.*

## Month 1 to 3

*SB 3.31.3 – In the course of a month, a head is formed, and at the end of two months the hands, feet and other limbs take shape. By the end of three months, the nails, fingers, toes, body hair, bones and skin appear, as do the organ of generation and the other apertures in the body, namely the eyes, nostrils, ears, mouth and anus.*

## Month 4 to 6

*SB 3.31.4 – Within four months from the date of conception, the seven essential ingredients of the body, namely chyle, blood, flesh, fat, bone, marrow and semen, come into existence. At the end of five months, hunger and thirst make themselves felt, and at the end of six months, the fetus, enclosed by the amnion, begins to move on the right side of the abdomen.*

## Month 6 and Onwards

*SB 3.31.5 – Deriving its nutrition from the food and drink taken by the mother, the fetus grows and remains in that abominable residence of stools and urine, which is the breeding place of all kinds of worms.*

*SB 3.31.6 – Bitten again and again all over the body by the hungry worms in the abdomen itself, the child suffers terrible agony because of his tenderness. He thus becomes unconscious moment after moment because of the terrible condition.*

## The Food the Mother Eats Affects the Fetus

The food eaten by the mother makes a big difference to the sufferings of the fetus. She should not eat salty, bitter (citric), and pungent (meat) foods. Nor drink alcohol, smoke, and need to be very careful with any medicines.

**SB 3.31.7 – Owing to the mother's eating bitter, pungent foodstuffs, or food which is too salty or too sour, the body of the child incessantly suffers pains which are almost intolerable.**

**SB 3.31.8 – Placed within the amnion and covered outside by the intestines, the child remains lying on one side of the abdomen, his head turned towards his belly and his back and neck arched like a bow.**

**SB 3.31.9 – The child thus remains just like a bird in a cage, without freedom of movement. At that time, if the child is fortunate, he can remember all the troubles of his past one hundred births, and he grieves wretchedly. What is the possibility of peace of mind in that condition?**

**SB 3.31.10 – Thus endowed with the development of consciousness from the seventh month after his conception, the child is tossed downward by the airs that press the embryo during the weeks preceding delivery. Like the worms born of the same filthy abdominal cavity, he cannot remain in one place.**

**SB 3.31.11 – The living entity in this frightful condition of life, bound by seven layers of material ingredients, prays with folded hands, appealing to the Lord, who has put him in that condition.**

## The Soul Prays

It's due to contact with the material body that the soul forgets his original constitutional position of being eternal, full of bliss, full of knowledge, and part of the Supreme Lord, Lord Krishna. The knowledgeable soul prays while in the womb.

**SB 3.31.12 – The human soul says: I take shelter of the lotus feet of the Supreme Personality of Godhead, who appears in His various eternal forms and walks on the surface of the world. I take shelter of Him only, because He can give me relief from all fear and from Him, I have received this condition of life, which is just befitting my impious activities.**

**SB 3.31.13 – I, the pure soul, appearing now bound by my activities, am lying in the womb of my mother by the arrangement of maya. I offer my respectful obeisances unto Him who is also here with me but who is unaffected and changeless. He is unlimited, but He is perceived in the repentant heart. To Him I offer my respectful obeisances.**

**SB 3.31.14 – I am separated from the Supreme Lord because of my being in this material body, which is made of five elements, and therefore my qualities and senses are being misused, although I am essentially spiritual. Because the Supreme Personality of Godhead is transcendental to material nature and the living entities, because He is devoid of such a material body, and because He is always glorious in His spiritual qualities, I offer my obeisances unto Him.**

**SB 3.31.15 – The human soul further prays: The living entity is put under the influence of material nature and continues a hard struggle for existence on the path of repeated birth and death. This conditional life is due to his forgetfulness of his relationship with the Supreme Personality of Godhead. Therefore, without the Lord's mercy, how can he again engage in the transcendental loving service of the Lord?**

**SB 3.31.16 – No one other than the Supreme Personality of Godhead, as the localized Paramatma, the partial representation of the Lord, is directing all inanimate and animate objects. He is present in the three phases of time-past, present and future. Therefore, the conditioned soul is engaged in different activities by His direction, and in order to get free from the threefold miseries of this conditional life, we have to surrender unto Him only.**

**SB 3.31.17 – Fallen into a pool of blood, stool and urine within the abdomen of his mother, his own body scorched by the mother's gastric fire, the embodied soul, anxious to get out, counts his months and prays, "O my Lord, when shall I, a wretched soul, be released from this confinement?"**

**SB 3.31.18 – My dear Lord, by Your causeless mercy I am awakened to consciousness, although I am only ten months old. For this causeless mercy of the Supreme Personality of Godhead, the friend of all fallen souls, there is no way to express my gratitude but to pray with folded hands.**

**SB 3.31.19 – The living entity in another type of body sees only by instinct; he knows only the agreeable and disagreeable sense perceptions of that particular body. But I have a body in which I can control my senses and can understand my destination; therefore, I offer my respectful obeisances to the Supreme Personality of Godhead, by whom I have been blessed with this body and by whose grace I can see Him within and without.**

**SB 3.31.20 – Therefore, my Lord, although I am living in a terrible condition, I do not wish to depart from my mother's abdomen to fall again into the blind well of materialistic life. Your external energy, called deva-maya, at once captures the newly born child, and immediately false identification, which is the beginning of the cycle of continual birth and death, begins.**

**SB 3.31.21 – Therefore, without being agitated any more, I shall deliver myself from the darkness of nescience with the help of my friend, clear consciousness. Simply by keeping the lotus feet of Lord Visnu in my mind, I shall be saved from entering into the wombs of many mothers for repeated birth and death.**

## Month 9 and Onwards

**SB 3.31.22 – Lord Kapila continued: The ten-month-old living entity has these desires even while in the womb. But while he thus extols the Lord, the wind that helps parturition propels him forth with his face turned downward so that he may be born.**

**SB 3.31.23 – Pushed downward all of a sudden by the wind, the child comes out with great trouble, head downward, breathless and deprived of memory due to severe agony.**

**SB 3.31.24 – The child thus falls on the ground, smeared with stool and blood, and plays just like a worm germinated from the stool. He loses his superior knowledge and cries under the spell of maya.**

## Why we Forget Our Past Lives?

Once the body comes out from the womb, the superior knowledge, the soul has, is covered by the illusionary energy of Lord Krishna, called maya.

## Childhood

**SB 3.31.25 – After coming out of the abdomen, the child is given to the care of persons who are unable to understand what he wants, and thus he is nursed by such persons. Unable to refuse whatever is given to him, he falls into undesirable circumstances.**

**SB 3.31.26 – Laid down on a foul bed infested with sweat and germs, the poor child is incapable of scratching his body to get relief from his itching sensation to say nothing of sitting up, standing or even moving.**

**SB 3.31.27 – In his helpless condition, gnats, mosquitoes, bugs and other germs bite the baby, whose skin is tender, just as smaller worms bite a big worm. The child, deprived of his wisdom, cries bitterly.**

## Why Babies Cry?

After being in the womb, the babies reveal the traumatic situation they experienced in the womb by crying out. In addition, adults are unable to understand the needs of babies, and the babies are unable to convey what they need; therefore, the babies cry out.

## Boyhood

*SB 3.31.28 – In this way, the child passes through his childhood, suffering different kinds of distress, and attains boyhood. In boyhood also he suffers pain over desires to get things he can never achieve. And thus, due to ignorance, he becomes angry and sorry.*

*SB 3.31.29 – With the growth of the body, the living entity, in order to vanquish his soul, increases his false prestige and anger and thereby creates enmity towards similarly lusty people.*

## Why Children are Innocent?

Children are called innocent, because they are not contaminated by greed, lust, anger, ego, hate, and pride. But as they grow up, due to their association with adults and other contaminated children, they become contaminated and greed, lust, anger, hate, ego, and pride develop.

*SB 3.31.30 – By such ignorance the living entity accepts the material body, which is made of five elements, as himself. With this misunderstanding, he accepts nonpermanent things as his own and increases his ignorance in the darkest region.*

## Adulthood

*SB 3.31.31 – For the sake of the body, which is a source of constant trouble to him and which follows him because he is bound by ties of ignorance and fruitive activities, he performs various actions which cause him to be subjected to repeated birth and death.*

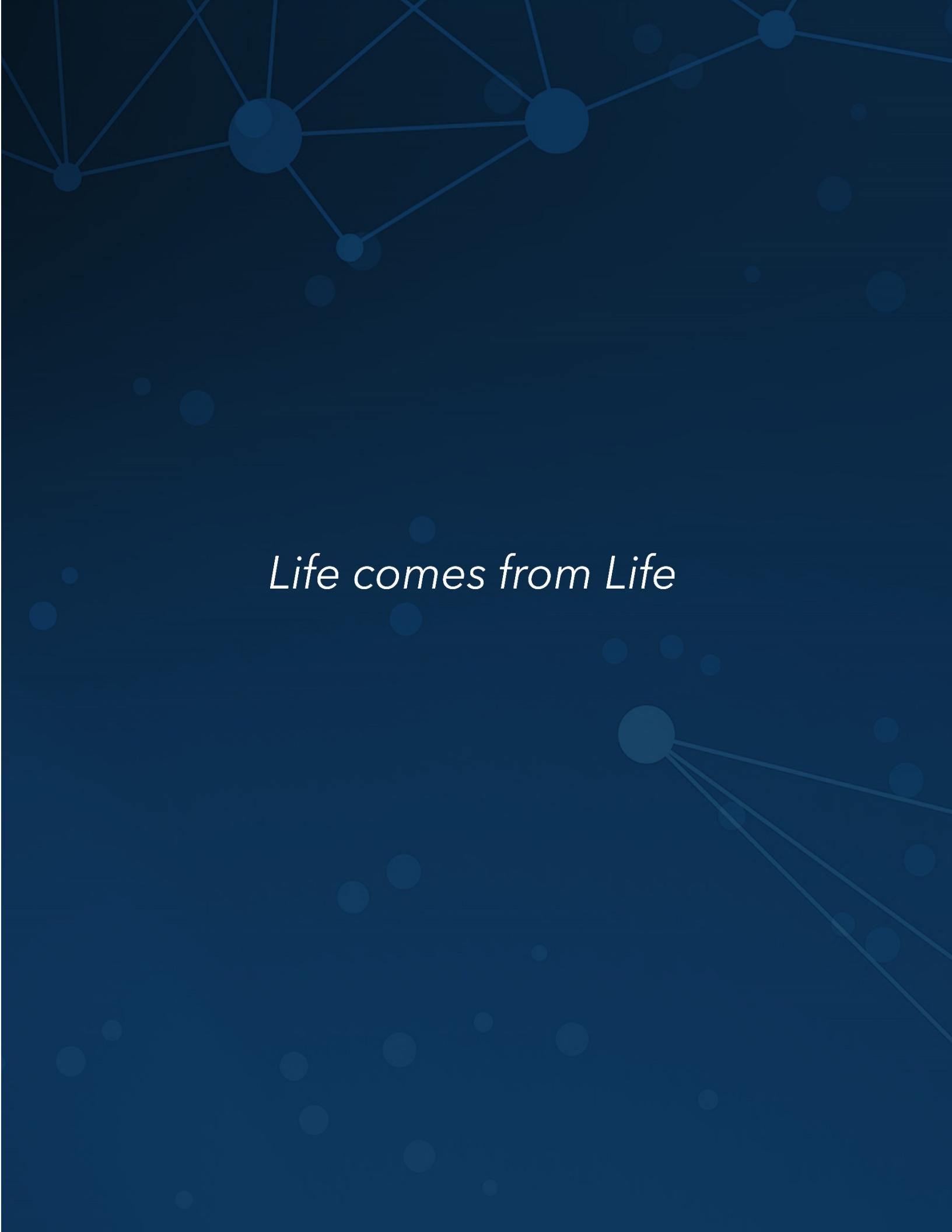
## What Causes Repeated Birth and Death?

Sinful activities like meat eating, alcohol, drugs, smoking, gambling, lying, hatred, ego, attachments, atheism, bad association, and so on ensures the soul will once again be placed in the hell known as the womb.

*SB 3.31.32 – If, therefore, the living entity again associates with the path of unrighteousness, influenced by sensually minded people engaged in the pursuit of sexual enjoyment and the gratification of the palate, he again goes to hell as before.*

*SB 3.31.33 – He becomes devoid of truthfulness, cleanliness, mercy, gravity, spiritual intelligence, shyness, austerity, fame, forgiveness, control of the mind, control of the senses, fortune and all such opportunities.*

*SB 3.31.34 – One should not associate with a coarse fool who is bereft of the knowledge of self-realization and who is no more than a dancing dog in the hands of a woman.*



*Life comes from Life*