

VOL. 5 ISSUE 4

PARAM

SCIENCE MAGAZINE



Content

*On the strangeness
of beginnings*

1-4

*ParSEC Whitefield
sneakpeak*

5-6

*Why robots copy
nature*

7-12

*Revival of ancient
trade route*

13-20

Rituals of renewal

20-24

Crosswords

27-28

Masthead

Editor in chief

Ganesh P

Executive editor

Anupama H

Visual designers

Vinod Gowda

Leha C

Heeteshi K

Rudra D

Himanshu T

Sahiti T

Ashwath MM

Researchers and writers

Inavamsi E

Udaya R

Sahiti T

Pramod S

Crossword

Aparna A

Even though we can all agree that beginnings are mostly continuations and reinventions, we as humans thrive on everything that's new. Newness gives us a high that motivates us more than the philosophical reality ever could. To plan for new things, material or otherwise gives us an impetus to do and be more.

The joy we experience when we see the tender shoots on trees during our new year-Ugadi is incomparable . The tree has to shed all its leaves fully and stand bare before it makes way for the shiny new leaves that makes us sigh in content that all is well with the world.

*This issue is symbolically dedicated to new beginnings, reinventions and continuations..
Read on*

Anupama H
Executive editor

**Editor's
Note**

On the
**Strange
Habit of
Beginnings**

“
A beginning is simply a
place where we decided
to start paying attention.
”

By Inavamsi Enaganti

Here is a
strange question...

If today were the first
day of your life, how
would you know?

You would have no
memories to compare it
with. No yesterday to feel
nostalgic about. No
mistakes to regret. No
achievements to feel
proud of. Just a moment.
Raw. Unlabelled.

Which is funny, because
that is actually what every
day is. Yet humans are
obsessed with the idea of
beginnings. New Year
resolutions. New
semesters. New projects.
New notebooks that we
hesitate to write in
because the first page
must be perfect.

We celebrate beginnings
as if they are rare cosmic
events.

But look closely and
something ironic
appears.

A beginning is simply a
place where we decided
to start paying attention.



The universe does not mark beginnings. The sun did not wake up on 1st January and say, "Ah yes, fresh start."

Rivers do not restart after a bend. Trees do not celebrate when a new leaf grows.

For them, life is one continuous process of *becoming*.

Only *humans* draw lines on the flow of time and call them "Day One."

Which brings me to an uncomfortable thought.


Most beginnings are actually disguised continuations.

The *first* day at a new job is built on years of learning. A new idea is stitched together from hundreds of forgotten conversations. Even a newborn carries billions of years of evolutionary memory inside every cell. Nothing truly starts from *zero*.

And yet, paradoxically, beginnings matter deeply.

Because while the world may not reset itself, our attention can.

A beginning is the moment when curiosity wakes up again.



It is when we allow ourselves to say, "Maybe I do not fully understand this yet."

It is when the mind becomes a beginner. In science, breakthroughs often come from this exact moment. When someone asks a question so simple that experts had stopped noticing it.

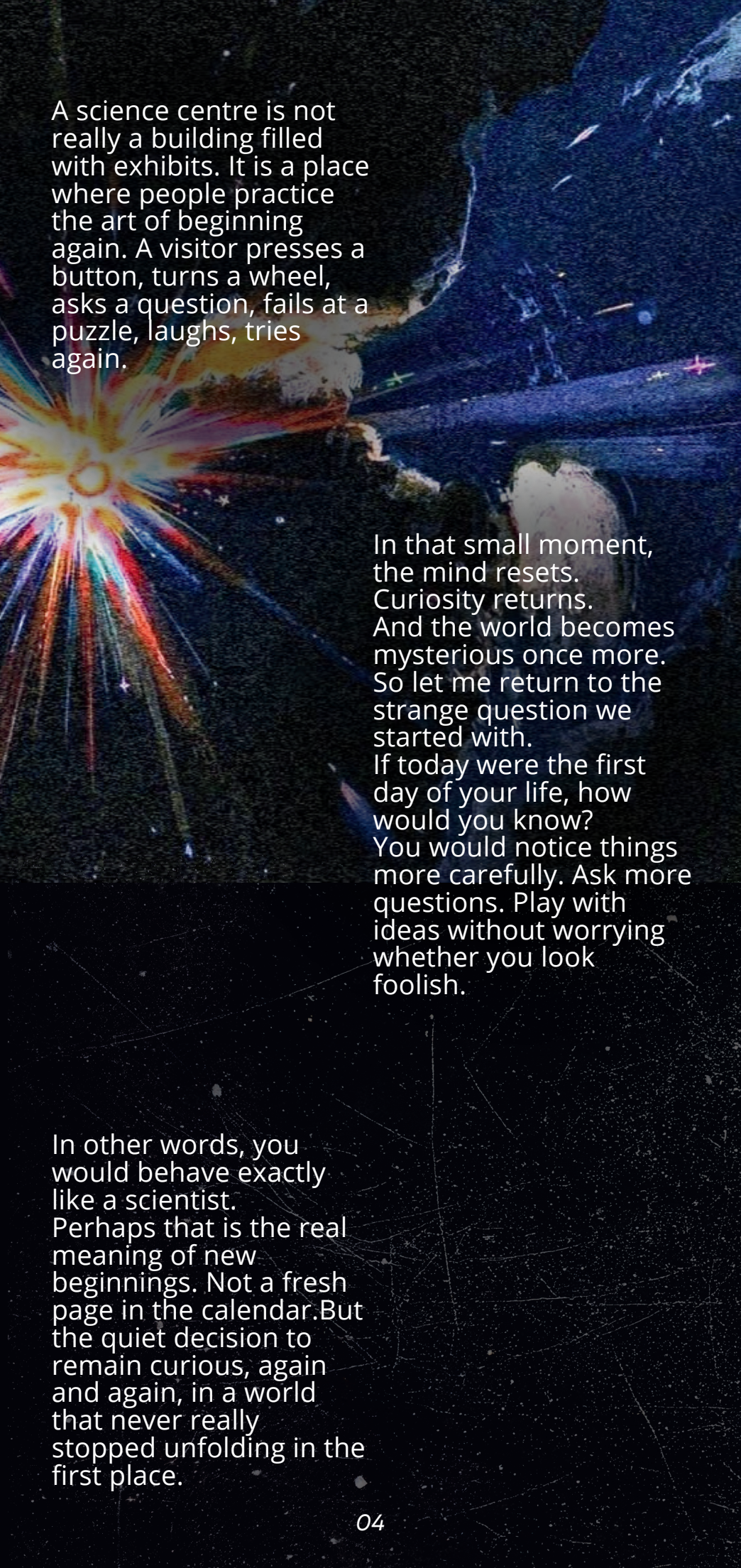
Why does an apple fall?

Why does light behave like both a wave and a particle?

Why do humans dance to music?

Beginnings are not about starting something new. They are about seeing something old with new eyes.

Which is why places like Param exist.



A science centre is not really a building filled with exhibits. It is a place where people practice the art of beginning again. A visitor presses a button, turns a wheel, asks a question, fails at a puzzle, laughs, tries again.

In that small moment, the mind resets. Curiosity returns. And the world becomes mysterious once more. So let me return to the strange question we started with. If today were the first day of your life, how would you know? You would notice things more carefully. Ask more questions. Play with ideas without worrying whether you look foolish.

In other words, you would behave exactly like a scientist. Perhaps that is the real meaning of new beginnings. Not a fresh page in the calendar. But the quiet decision to remain curious, again and again, in a world that never really stopped unfolding in the first place.

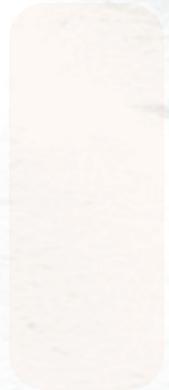
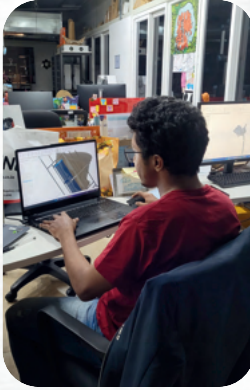
A NEW CHAPTER BEGINS

One more exhilarating new beginning for Param!

**ParSec
Whitefield**
is almost ready
to be launched

Paraminions are giving it their all to make this space one of a kind in Bengaluru!! Watch this space for more details on this grand launch!





Watch this space for
more details on this
Grand Launch!!

Why Robots Copy Nature:

Humanity's Most Beautiful Obsession

By Udaya Rakshith

In today's world of advanced tech humanoids delivering packages, drones flying like birds, soft robots gripping like octopuses, there's a quiet pattern we often overlook: **Modern machines are increasingly looking life like.** And that's not a coincidence. The world's most futuristic engineering still leans heavily on the oldest engineer we know: **Nature.**



Nature as Blueprint

Some of the most expensive, ambitious robotics projects began as simple observations of animals:

- **MIT's Cheetah Robot**
10+ years, dozens of researchers copied a cheetah's flexible spine to achieve incredible speed and balance.
- **Boston Dynamics' Spot**
Over \$150M+ in R&D, 300+ engineers across years learned how to climb, jump, and recover by studying dogs and quadrupeds.
- **Harvard's Soft Robotics**
A decade of bio-inspired research replicated octopus tentacles to build grippers that handle fragile objects.

Billions of dollars and countless labor hours have gone into perfecting movements that nature solved through millions of years of evolution. Not because engineers can't imagine new things but because nature's designs consistently outperform our own.

Movement = Intelligence and Nature Already Wrote the Algorithms

When you watch a cat land on its feet or a bird perch on a thin branch, you're seeing the result of invisible algorithms: balance control, energy optimization, reflex loops, trajectory prediction.

Robots that copy these behaviors aren't copying the "look" they're copying the math behind survival. A robot that walks like a human or grasps like an octopus is demonstrating:

- real-time computation
- adaptive control
- distributed sensing
- learned stability

Movement is intelligence in its rawest form, and nature encoded these algorithms long before we knew how to describe them.



If Humans Are So Smart, Why Copy Nature?

Because being smart doesn't mean reinventing what already works.

Nature has:

- perfected efficient locomotion
- mastered stability under chaos
- balanced power with elegance
- optimized energy use to the limit

These are problems human engineers still struggle to solve at scale. Copying nature isn't weakness, it's humility. It's our way of saying: We're happy to learn from billions of years of evolution

Tech Inspired by Biology, Physics, Chemistry—and Even Math

Nature's influence goes far beyond animal-like robots:

- **Neural Networks:** Inspired by the structure of human neurons.
- **Swarm Drones & Warehouse Bots:** Modeled after ants and bees.
- **Self-healing materials:** Borrowed from biological regeneration.
- **Chemical sensors:** Inspired by how insects detect pheromones.
- **Evolutionary algorithms:** Code that "mutates" and "survives."
- **Biomimetic materials:** Sharkskin-patterned surfaces, lotus-leaf hydrophobic coatings, gecko-inspired adhesives.

Every scientific discipline biophysics, biomechanics, biochemistry, and math has contributed to these breakthroughs.

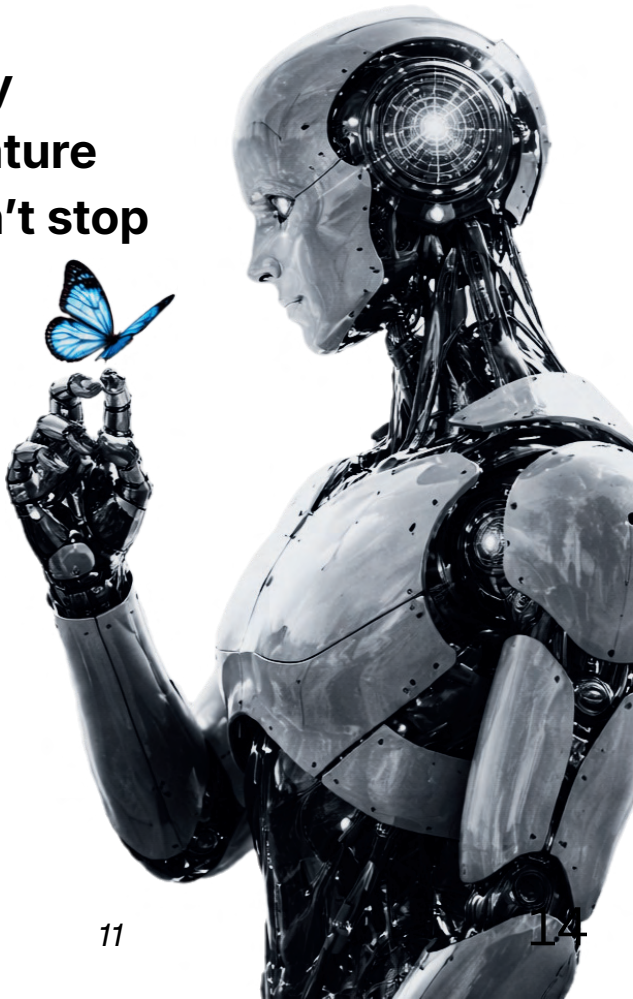
Nature isn't just a reference. It's a masterclass.

Where Humanity Surpassed Nature

While nature is our greatest teacher, humans have gone beyond imitation in areas where natural constraints never allowed innovation:

- **Microchips** are faster than any biological brain signal.
- **Spacecrafts** that survive radiation no organism could withstand.
- **Quantum computers** performing calculations no biological system has evolved to solve.
- **Synthetic materials** that outperform bone or muscle in strength-to-weight ratio.

We start by copying nature but we don't stop there.



Evolution Is the Greatest Technology Ever Invented

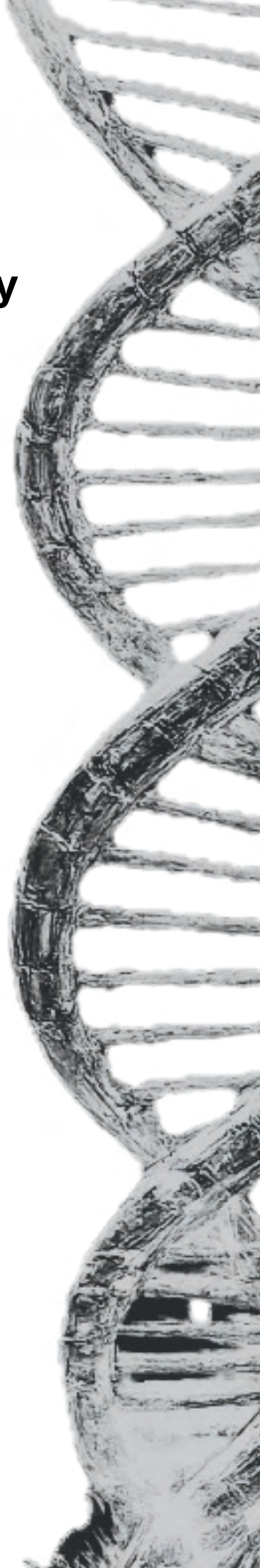
Robots copy nature because evolution is the longest-running, most rigorous engineering program in history.

It tested every possibility, discarded failures, and left behind designs that don't work.

When we imitate nature:

- we learn
- we innovate
- we push beyond biology
- and eventually build things nature never imagined

Human intelligence doesn't replace evolution. It builds on it. In the end, our machines don't just mimic life. They celebrate it and remind us that the greatest technology on Earth has been here all along.





Revival of the Ancient Trade Route

At the centre of ancient trade and modern ambition, India is once again positioning itself as a key link between the Middle East, Europe, and beyond.



Map of Ancient India Trade Route, 1596

A forgotten trade route returns, reshaping the future of global trade.

By Pramodh R

At the G20 Summit in 2023, global leaders proposed a plan to build a network of sea and rail routes that would connect India and Europe via the Gulf region. The IMEC (India-Middle East-Europe Economic Corridor) is the future of trade but it also marks the revival of an ancient trade route.

For centuries, Indian merchants sailed across these waters



In exchange for cotton and spices, these voyages brought back Arabian horses, rich perfumes, and fine wines, adding to the wealth of the land.

carrying some of the most prized goods of the ancient world. Their ships were filled with spices like pepper, cardamom, and cinnamon, along with fine cotton textiles, ivory, and precious stones.

Expert sailors in their own right, these merchants harnessed the monsoon winds,

The Bazaar at Constantinople: Watercolour by J.F. Lewis



sailing west from ports like Muziris on the Malabar Coast toward Arabian ports where traders from around the world gathered.

From Arabian ports, these goods continued their journey toward the Mediterranean, eventually reaching markets in Egypt, Greece, and Rome. In return, India welcomed prized imports such as Arabian horses, fragrant perfumes, and fine wines.

This helped shape India's reputation as a land of wealth and abundance.



**These once
contested
waters will
soon carry the
world's trade
again**

Then, in 1453, Constantinople fell. Many of the old land routes between Europe and Asia came under control of the Ottoman Empire. Although trade continued to thrive, the journey became tougher and more expensive. European explorers soon began searching for direct sea routes to India.

With that, the Arabian Sea entered a new and turbulent chapter.



The Portuguese were among the first Europeans to arrive by sea in the late fifteenth century, determined to control the spice trade and dominate the Indian Ocean. But these waters were never easy to command. Local rulers rose to defend their ports and trade. Among them was Rani Abbakka of Ullal, a fearless queen who fought repeated



A Maratha Navy gallivat (centre) attacking Aurora in 1816

naval battles against the Portuguese.

By the seventeenth and eighteenth centuries, the Marathas too had built a formidable naval presence along India's western coast. Under Kanhoji Angre, they safeguarded trade and asserted control over the Konkan waters.

And after independence, trade across these waters didn't disappear;



It simply evolved.

Spices and textiles still made their way out of Indian ports, just as they had for centuries. But they were soon joined by new cargo: oil tankers arriving from the Gulf, and ships carrying machinery, medicines, and later electronics from India to markets abroad.

Today, ships navigating the Arabian Sea rely on satellites and the watchful presence of a strong coast guard. Yet the importance of these waters has never really faded. And with the economic corridor taking shape, this ancient sea route may be the start of placing India at the centre of global trade.



Rituals of Renewal

Beginnings in Indian Culture

By Sahiti Tenneti



The term **Chiguru** refers to the delicate new sprout that signals fresh growth. This captures a rooted concept in Indian culture - **recognising and celebrating moments of new beginnings**. Indian traditions do not perceive these moments as abrupt but instead see beginnings and transitions as part of a larger rhythm of life.

Underlying many of these traditions is a cultural imagination of time often described through the metaphor of the **Kāla chakra**, the wheel of time. Rather than viewing life as a straight path with a single beginning and end, this image suggests a rhythm in which renewal continually gives rise to new phases.

This cyclical understanding of time is reflected in concepts such as the Yuga, Mahayuga, and Pralaya in Indian thought. Time unfolds through four **Yugas—Satya, Treta, Dvapara, and Kali—which** together form a **Mahayuga**. A thousand such Mahayugas constitute a **Kalpa**, culminating in Pralaya, the cosmic dissolution. In this way, even cosmic time reflects the idea that endings give rise to new beginnings, reinforcing the rhythm of renewal embedded in Indian cultural imagination.

From the perception of time to the arrival of spring festivals, rituals marking the stages of life, and even the transmission of artistic traditions through the guru–shishya parampara, the idea of new beginnings becomes a thread that weaves together nature, society, and culture.

One of the most visible ways Indian culture celebrates beginnings is through seasonal festivals that mark nature’s renewal. **Ugadi** represents the beginning of the new year as per the lunisolar Hindu calendar.

To celebrate this, homes are cleaned, entrances are decorated with mango leaves, and families prepare **Ugadi pachadi**. This preparation is symbolic, containing a mixture of six tastes representing the different emotions that life may bring in the coming year. They include:

1. **Sweet**
(Madhura)

2. **Sour**
(Amla)

3. **Salty**
(Lavaṇa)

4. **Spicy**
(Kaṭu)

5. **Bitter**
(Tikta)

6. **Astringent**
(Kaṣāya)



By tasting them together, people begin the year with an acceptance of life and its complexity.

Similarly, celebrations such as **Pongal** or **Makar Sankranti** bring communities together to mark the beginning of a new agricultural season as they offer freshly harvested grain, share meals reflecting gratitude and optimism. In these festivals, the idea of beginning becomes a collective cultural experience.

Just as nature begins anew at different stages, Indian culture recognizes that an individual life also unfolds through many beginnings. These are traditionally marked through Samskaras, rituals that guide a person through the stages of life. These are termed as the **Shodasha Samskaras** identifying the sixteen major samskaras. These begin even before birth and continue throughout a person's life, acknowledging each moment when an individual enters a new stage of existence.

1. **Garbhadhana** – Ritual for conception and the blessing of a virtuous child.
2. **Pumsavana** – well-being ceremony for the unborn child.
3. **Simantonayana** – Blessing of the expectant mother during pregnancy.
4. **Jatakarma** – Ritual welcoming the newborn child.
5. **Namakarana** – Naming ceremony of the child.
6. **Nishkramana** – First outing into the outside world.
7. **Annaprashana** – Child's first intake of solid food.
8. **Chudakarana** – First shaving of the child's hair.
9. **Vidyarambha** – Initiation into learning and education.
10. **Karnavedha** – Ear-piercing ceremony of the child.
11. **Upanayana** – Initiation into spiritual and formal education.
12. **Vedarambha** – Beginning the study of the Vedas and sacred knowledge.
13. **Keshanta** – First shaving marking maturity during student life.
14. **Samavartana** – Completion of education and return from the guru's home
15. **Vivaha** – Marriage, beginning of household life.
16. **Antyeshti** – Final rites performed after death.

These rituals emphasize that life does not simply progress automatically but instead, consciously celebrates the moments when a person begins a new chapter. **The samskaras emphasize that life is shaped through a series of conscious new beginnings**, where each transition becomes an opportunity to step into a new phase of existence.

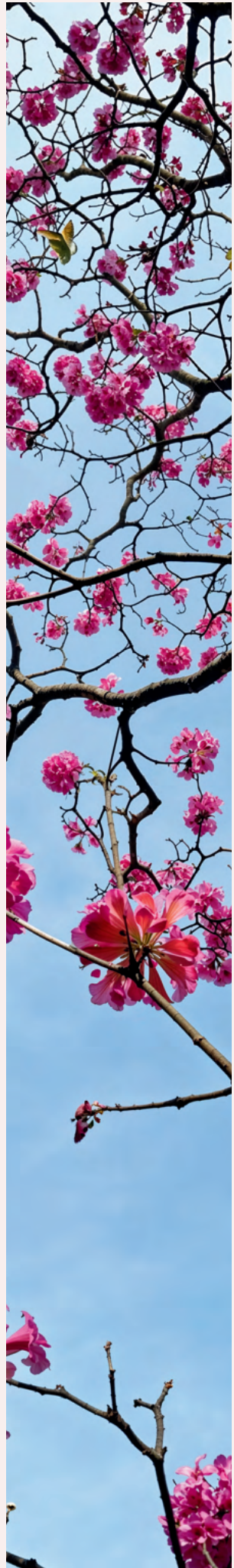
This idea also appears in the world of artistic traditions. In Indian classical arts, after years of training under a teacher guru, the student steps onto the stage and enters the artistic world as a practitioner.

The moment represents both: the completion of one phase of learning and the beginning of another journey. Within the **Guru–shishya parampara**, artistic knowledge flows from teacher to student across generations. Through this process, artistic traditions remain alive.

Each generation brings new interpretations while remaining rooted in what has been inherited.



Across festivals, life rituals, and artistic traditions, beginnings arise through renewal. Just as a tree produces fresh shoots after shedding its leaves, life continually regenerates itself through moments of transformation. The image of **Chiguru** captures this beautifully. A tender sprout may appear small, yet it carries within it the promise of future growth. Similarly, Indian culture reminds us that every new beginning—whether in nature, in personal life, or in cultural tradition—holds the potential of **Punarāmbha—the courage to begin again.**



Param SUMMER CAMP

STEM is the engine. Creativity is the steering wheel.

As technology races ahead – making life easier for some, uncertain for others—creativity remains the one irreplaceable skill that lets children thrive in both worlds. It sparks imagination, sharp questions, and creations that no machine can replicate. Yet it is still treated like a mere hobby, when it is exactly what they need most.

ParSEC's | Fables to Films | Summer Camps in collaboration with **NAM – The National Animation Museum, USA**

Junior Camp (Ages 6–10)

Stop-Motion Storytelling Adventure, 10 days of hands-on magic where children explore motion through toys, flipbooks, phenakistoscopes, story prompts, storyboarding, character design, and stop-motion filmmaking. Inspired by folk fables like Panchatantra, they imagine stories, build scenes, work in teams, and create their own animated short films.

Pure fun builds lasting skills - Imagination, critical thinking, teamwork, communication, and problem-solving.

Dates: 6 – 17 April 2026

Time: 10 AM – 5 PM (Monday–Friday)

Duration: 10 Days • 60 Hours

Venue: MakersAdda, ParSEC Jayanagar



SCAN TO REGISTER

Special Session:

Workshop by Mr. Robin Stapley (Creative Director, NAM, USA), the pioneer who brought Disney, Pixar & Avatar characters to life.

STOP MOTION ANIMATION



Senior Camp (Ages 11-16)

Advanced Stop-Motion Filmmaking

The same creative foundation as Junior Camp + Upgraded with deeper narrative complexity and professional-level mentorship.

Special Sessions with:

- Mr. Robin Stapley (NAM, USA) – Online Workshop
- Mr. Raghu Dixit – Singer, Composer & Producer
- Ms. M D Pallavi – Singer, Composer, Actor, Editor & Filmmaker
- Ms. Shwetha – Artist
- Mr. Karthik Saragur – Film Director, Screenwriter & Lyricist
- Mr. Siddarth Bharath – Educator, Ecologist & Entrepreneur

Dates: 20 April – 8 May 2026
Time: 10 AM – 5 PM (Monday-Friday)
Duration: 15 Days • 90 Hours
Venue: MakersAdda, ParSEC Jayanagar



SCAN TO REGISTER

Grand Showcase

All films will be screened for parents and the community on 9th May 2026, followed by certificate distribution.

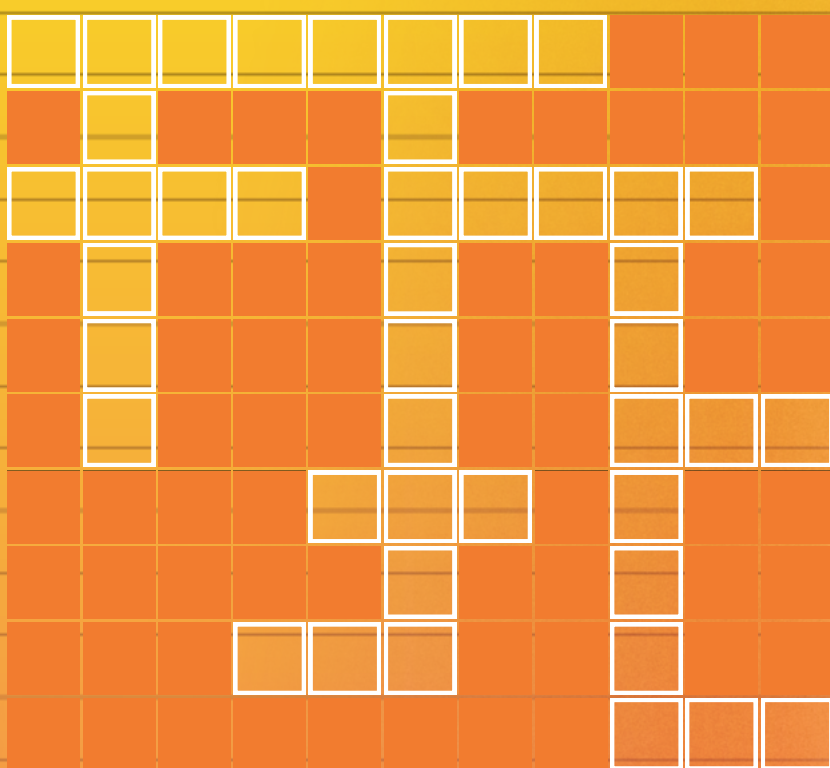
This summer, give them both - the engine and the steering wheel. Hand them the keys.

Colors answer key *March:*



| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|
| p | h | o | t | o | n | | | | | | | | | | | | | | |
| | | | | | e | | | | | | | | | | | | | | g |
| | | | | | w | | | | | | | | | | | | | | r |
| | | | | | t | | | t | | | | | | | | | | | e |
| | | c | o | l | o | r | i | m | e | t | r | y | | | | | | | |
| | | o | | | n | | n | a | | | | | | | | | | | |
| | | n | | | | | t | n | | | | | | | | | | | |
| g | r | e | e | n | | | | t | | | | | | | | | | | |
| | | s | e | e | | | | i | | | | | | | | | | | |
| | | | | | i | r | i | s | | | | | | | | | | | |

New Begining Crossword *APRIL*



- [1A] The astronomical reset button; it marks the turning point where days begin to lengthen or shorten. (8)
- [2A] The spark that got humanity's prehistoric party started.(4)
- [3A] The burst at a black hole's beginning. (5)
- [4A] Dont spoil your brand shoes (3)
- [5A] One of the metal that kicked of the beginning of a new age for humanity (3)
- [6A] The start of every great innovation (3)
- [7A] When in doubt, just ...(3)
- [1D] [0,0] of your life (5)
- [2D] NASA's high-flying Martian beginner (9)
- [3D] The big idea (8)



Are you ready for an immersive Science Experience in Jayanagar?

Scan / Tap the QR

Click here for our website or check out 

paramfoundation.org