PARAM

SCIENCE MAGAZINE

param

Editors note

Time and its rigours have fascinated humans since ages. The one thing we have absolutely no control of is its passage and what it does to us.

Time is perceived as slow or fast depending on many variables, even though we know that it is the one thing that is ever so constant during the entire span of our existence.

Most of us seem to take time for granted when we have it and regret the loss of it when it's gone. As we grapple with this eternal dilemma, We may have ever so slightly slowed down our passage through time on this planet by brilliant advancements in various fields but we are still completely at its mercy.

We bring you an issue dedicated to this amazing constant by reworking on the Time issue we brought out exactly a year ago.

Masthead

Editor in Chief - **Ganesh P.**

Executive Editor - **Anupama H.**

Visual Designers - **Arpit C.**

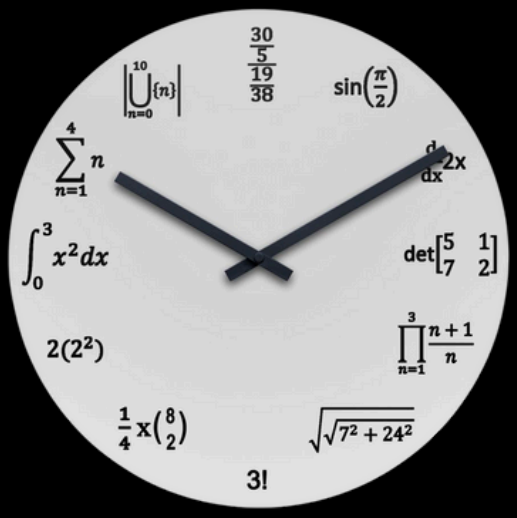
Copy Editor - **Bhavana U.**

Researchers and Writers - **Anupama H.**
Bhavana U.
Aparna A.

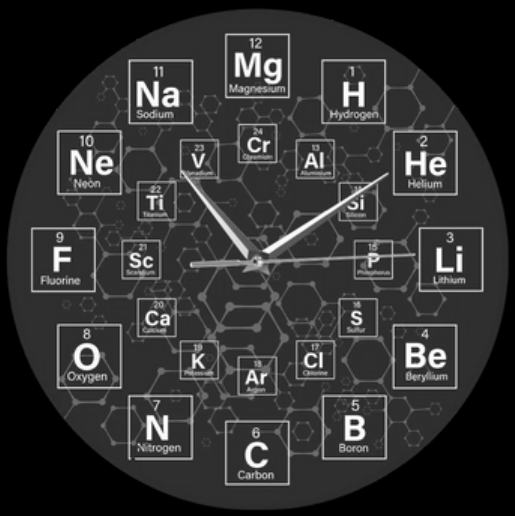
CRAZY CLOCKS

Math & Science in Clock labelling

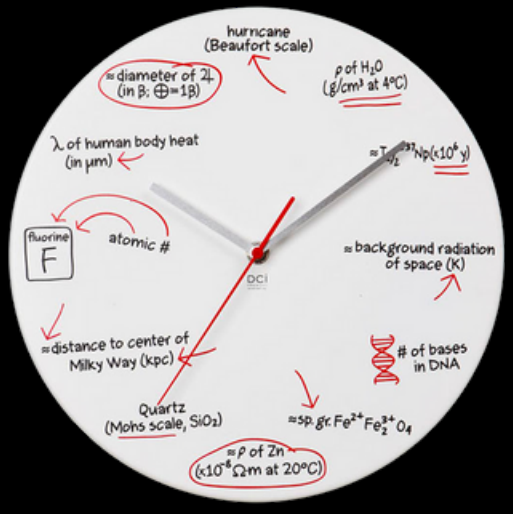
Can you read the time on the 3's clock in less than 3 seconds?



This is why you learnt all that math in college



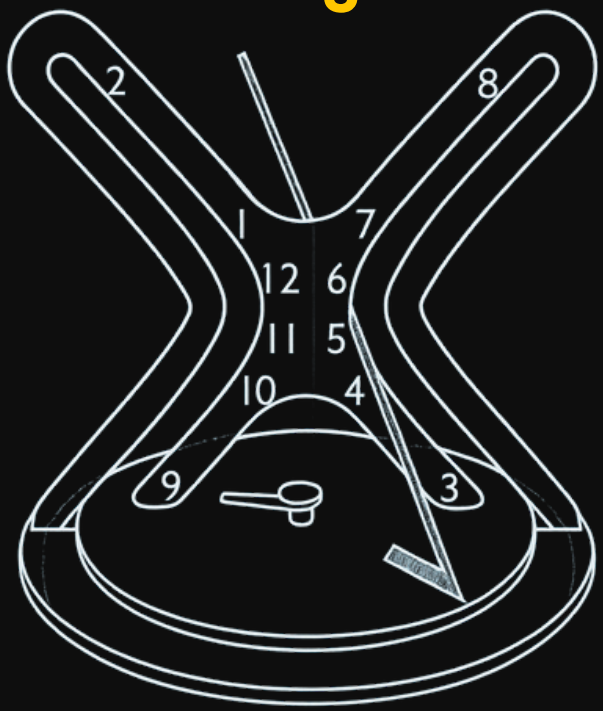
Get the pun? Periodic clocks!



I should have had this in my exam hall

CRAZIER CLOCKS

Math and Science in Clock Design



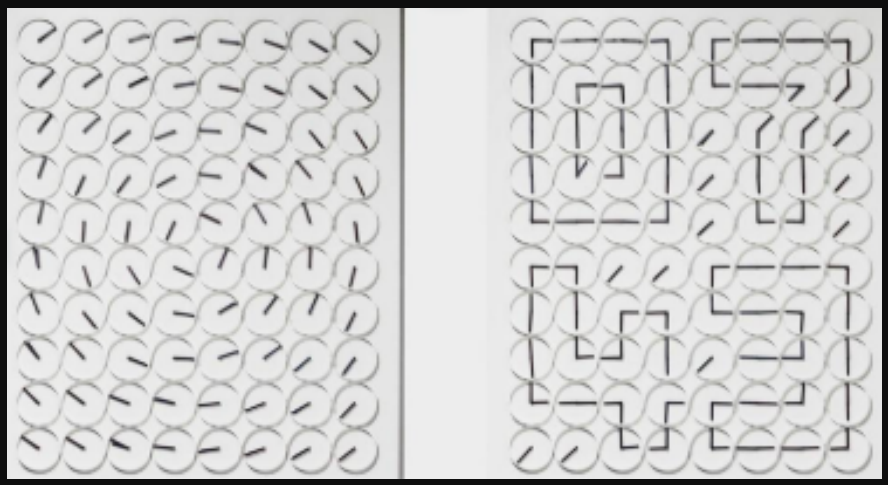
Hyperbola Clock : This beautiful clock takes advantage of the fact that if you place a diagonal line on a rotating base, it will trace out a shape of a hyperbola in 3D.

The hours are marked on the clock, and whichever one the hand is pointing to will show you the nearest hour.

Clocks made out of Nixie Tubes. This age old technology is truly a beauty.

A Nixie tube, or cold cathode display, is an electronic device used for displaying numerals or other information using glow discharge.

Making digital time out of analog clocks! It may seem crazy but it is a simple illusion of making the hands move to the right place at the right time.



Source : https://mathsgear.co.uk/products/hyperbola-clock
https://crystal.uta.edu/~burns/project_nixieclock.html
https://www.theverge.com/2015/6/23/8830093/a-million-times-digital-analog-clock-art

RARE CLOCKS

Clocks, you would have seen or heard off

SUNDIAL

The oldest known sundial is a stone slab from ancient Egypt, dating to around 1500 BCE, discovered in the Valley of the Kings, marking early human attempts to track time through solar movement.

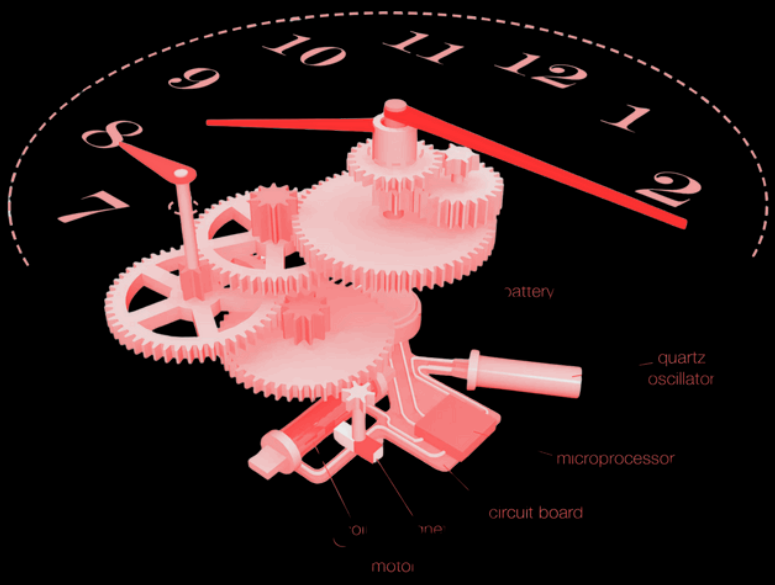
ATOMIC CLOCK

An atomic clock is the most accurate type of timepiece in the world, designed to measure time according to vibrations within atoms.

You'll find the most accurate clock at the National Institute of Standards and Technology in Boulder, Colorado. The clock keeps time by measuring the vibration of a single aluminum ion, and should remain accurate for 33 billion years.

CLOCK WORKING

From electric to digital to mechanical



An electric clock uses an electric motor and an electronic oscillator to drive the clock hands and other mechanisms.

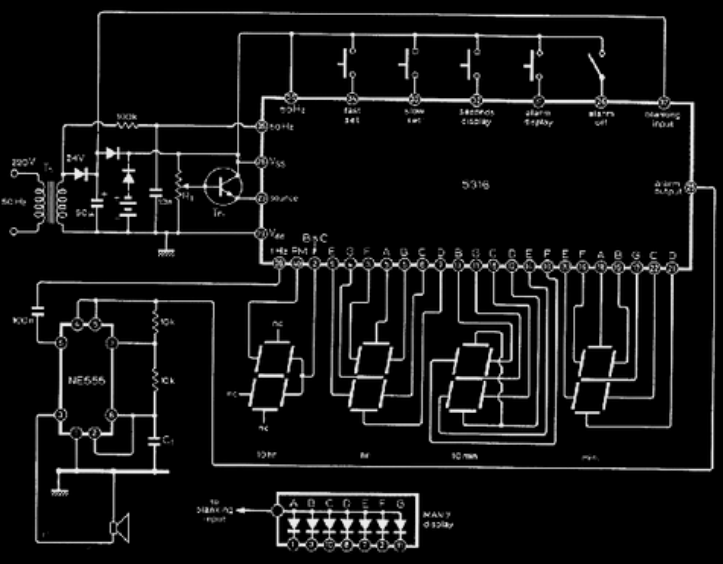
The oscillator generates a precise frequency that determines the motor's speed, which controls the movement of the clock hands.

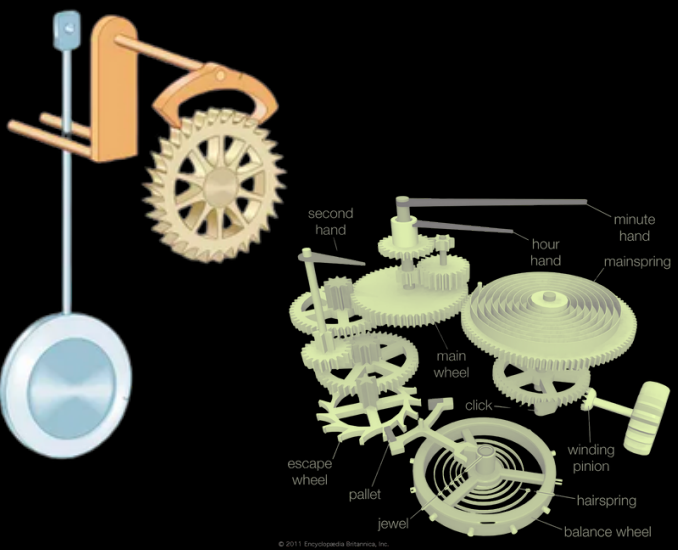
The oscillator is usually a crystal oscillator that uses a quartz crystal to generate a stable pulse. The clock also includes a power source and a control circuit.

Circuit diagram of a digital clock. It may look complex but it is super easy to build.

Stay tuned as we will soon be letting anyone and everyone build their own digital clock right at home.

PS : Honestly, you just have to solder a few components together.





The mechanical clock is a true classic.

The pendulum forms the core as its consistent swing gives the clock its periodic tick-tock.

This allows the clock to count out one second. The gears do the rest of the work and move the different hands at different speeds.

TIME TRAVEL

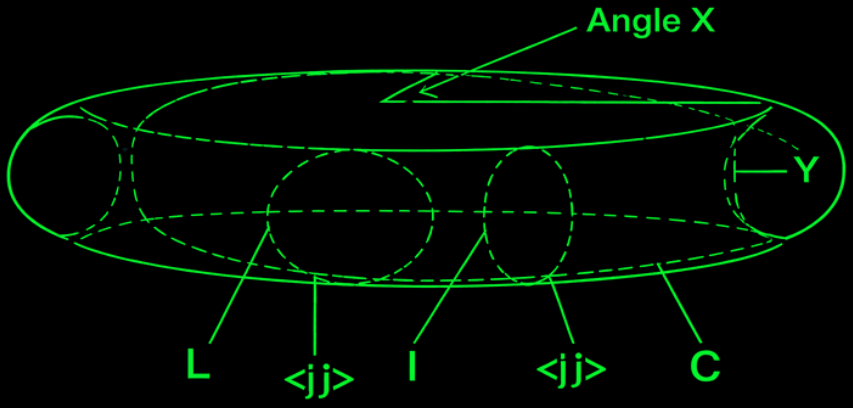
"Once confined to fantasy and science fiction, time travel is now simply an engineering problem."
-Michio Kaku

A time loop, also known as a temporal loop or a time loop paradox.

It is a hypothetical situation in which a person or event becomes trapped in a repeating sequence of events, reliving the same moments over and over again.

Hypothetical superluminal particles called tachyons have a spacelike trajectory.

Thus can appear to move backward in time, according to an observer in a conventional frame of reference.



TIME TRAVEL

PARADOXES

GRANDFATHER PARADOX

If you go back in time and kill your grandfather before your parents were born...

how did you *exist in the first place?*

POLCHINSKI'S PARADOX

Suppose you enter a wormhole and travel back to the moment,

When you were about to enter and prevent yourself from entering in the first place.

PREDESTINATION PARADOX

The predestination paradox is a situation in which a person traveling back in time with the intention to change the outcome becomes part of past events.

Also, he is more likely to have a chance to cause the initial events which inspired the person to travel back in time in the first place.

BOOTSTRAP PARADOX

If you travelled back in time before Newton discovered gravity and you taught him about gravity, then who discovered gravity – you or Newton?

TIMELINE OF REALITY

BEGINNINGS

If we compressed 13.7 billion years into a year

→ Then the dinosaurs would be wiped out on 29 December

→ Modern humans would appear at 11:54pm.

→ Christopher Columbus would sail across the Atlantic one second before midnight.

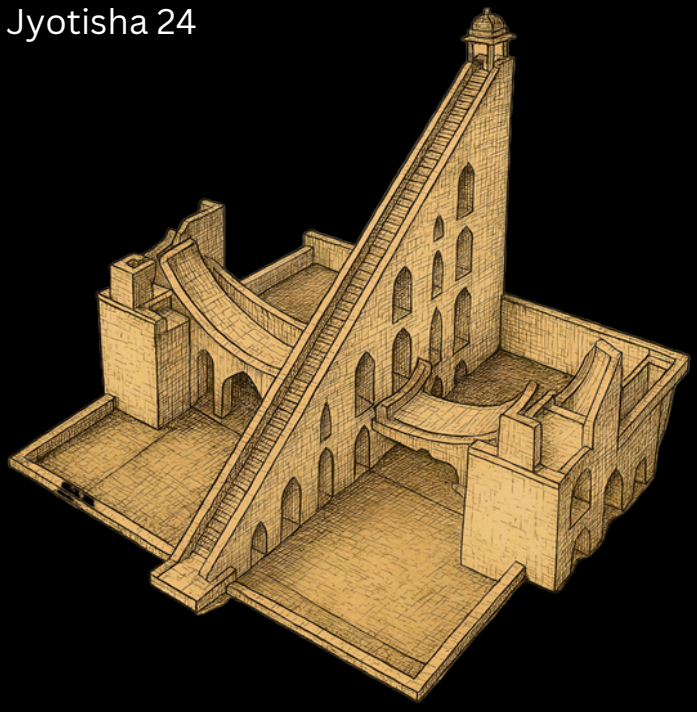
The oldest known object in the universe is a galaxy called z8_GND_5296. It's 13.1 billion years old

only about 700 million years younger than the universe.

ANCIENT INDIAN TIME KEEPING

Ghatika Yantra – Time Measurement in Days of No Sunlight in Ancient India
Lagadha, the Vedic astronomer defines the Muhurta as Adhaka which measures to "a vessel which holds 50 palas of water.

"Four times this is the drona. This lessened by three kudavas (3/16 adhaka) is the volume equivalent of the length of one nadika of time" - Vedanga Jyotisha 24



"Jantar Mantar" literally means "instruments for measuring the harmony of the heavens". It consists of 13 architectural astronomical instruments.

The 4 distinct instruments within the observatory of Jantar Mantar are in New Delhi: the Samrat Yantra, the Jayaprakash, Rama Yantra and the Misra Yantra.

The Konark temple is designed in the form of the chariot of the Sun god. It has 24 wheels and seven horses. Twelve wheels represent 12 months of the year.

According to the Indian calendar, each month has a Shukla paksha and a Krishna paksha, so the other 12 wheels represent them. The wheels of the Konark Temple's chariot are divided into 8 parts representing 3 hours each which are further divided into halves representing 90 minutes.

These sections, there are 30 beads representing 3 minutes each, allowing for tracking of time in increments as small as 3 minutes.

ANCIENT INDIAN

YUGAS AND ERAS

TIME THROUGH THE AGES AS SEEN BY THE SEERS

A Yuga cycle is a cyclic age (epoch) in Hindu cosmology. Each cycle lasts for 4,320,000 years (12,000 divine years) and repeats four yugas (world ages): Krita (Satya) Yuga, Treta Yuga, Dvapara Yuga, and Kali Yuga.

As a Yuga Cycle progresses through the four yugas, each yuga's length along with general moral and physical state of humanity decreases with each Yuga by one-fourth.

Where are we today?

There are 71 Yuga Cycles (306,720,000 years) in a manvantara, a period ruled by Manu, who is the progenitor of mankind.

There are 1,000 Yuga Cycles (4,320,000,000 years) in a kalpa, a period that is a day (12-hour day proper) of Brahma, who is the creator of the planets and first living entities.

There are 14 manvantaras (4,294,000,000 years) in a kalpa with a remainder of 25,920,000 years assigned to 15 manvantara-sandhyas (junctures) each, the length of a Satya Yuga (1,728,000 years).

A kalpa is followed by a pralaya (night or partial dissolution) of equal length forming a full day (24-hour day).

A maha-kalpa (life of Brahma) lasts for 100 360-day years of Brahma, which lasts for 72,000,000 Yuga Cycles (311.04 trillion years) and is followed by a maha-pralaya (full dissolution) of equal length.

Period	Divine Years	Solar Years
Kalpa	12,000,000	4,320,000,000
Aadhi Sandhya	4800	1,728,000
Swayambhu Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Swarochisha Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Uttama Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Tapas / Tamas Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Raivata Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Chakshusha Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Vaivasvata Manvantara	852,000	306,720,000
Chatur Yuga 1 to 27	324,000	116,640,000
Chatur Yuga 28	12,000	4,320,000
Krta Yuga	4800	1,728,000
Treta Yuga	3600	1,296,000
Dwapara Yuga	2400	864,000
Kali Yuga	1200	432,000
Chatur Yuga 29 - 71	516,000	185,760,000
Manvantara Sandhya	4800	1,728,000
Savarni Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Daksa Savarni Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Brahma Savarni Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Dharma Savarni Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Rudra Savarni	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Raucya or Deva Savarni Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000
Indra Savarni Manvantara	852,000	306,720,000
Manvantara Sandhya	4800	1,728,000

ANCIENT INDIAN TIME

UNITS OF TIME

SMALLEST UNTS OF TIME IN THE SCRIPTURES

Smallest units of time used in the vedas

Unit	Definition	Value in SI units
paramāṇu	base unit	≈ 26.3 μs
aṇu	2 paramāṇu	≈ 52.67 μs
trasareṇu	3 aṇu	≈ 158 μs
truṭi	3 trasareṇu	≈ 474 μs
vedha	100 truṭi	≈ 47.4 ms
lava	3 vedha	≈ 0.14 s
nimeṣa	3 lava	≈ 0.43 s
kṣaṇa	3 nimeṣa	≈ 1.28 s
kāṣṭhā	5 kṣaṇa	≈ 6.4 s
laghu	15 kāṣṭhā	≈ 96 s (1.6 min)
danda (nadika)	15 laghu	≈ 1.44 ks (24 min)
muhūrta	2 danda	≈ 2.88 ks (48 min)
ahorātram(sidereal day)	30 muhūrta	≈ 86.4 ks (24 h)
masa (month)	30 ahorātram	≈ 2,592 ks
ritu (season)	2 masa	≈ 5,184 ks
ayana	3 ritu	≈ 15,552 ks (6 mth)
samvatsara (year) ahorātram of Deva	2 ayana	≈ 31,104 ks

Surya Siddhanta

Unit	Definition	Value in SI units
truti	base unit	≈ 29.6 μs
tatpara	100 truti	≈ 2.96 ms
nimesha	30 tatpara	≈ 88.9 ms
kāṣṭhā	18 nimesha	≈ 1.6 s
kalā	30 kāṣṭhā	≈ 48 s
ghatika	30 kalā	≈ 1.44 ks (24 min)
muhūrta (kṣaṇa)	2 ghatika	≈ 2.88 ks (48 min)
ahorātram(sidereal day)	30 muhūrta	≈ 86.4 ks (24 h)

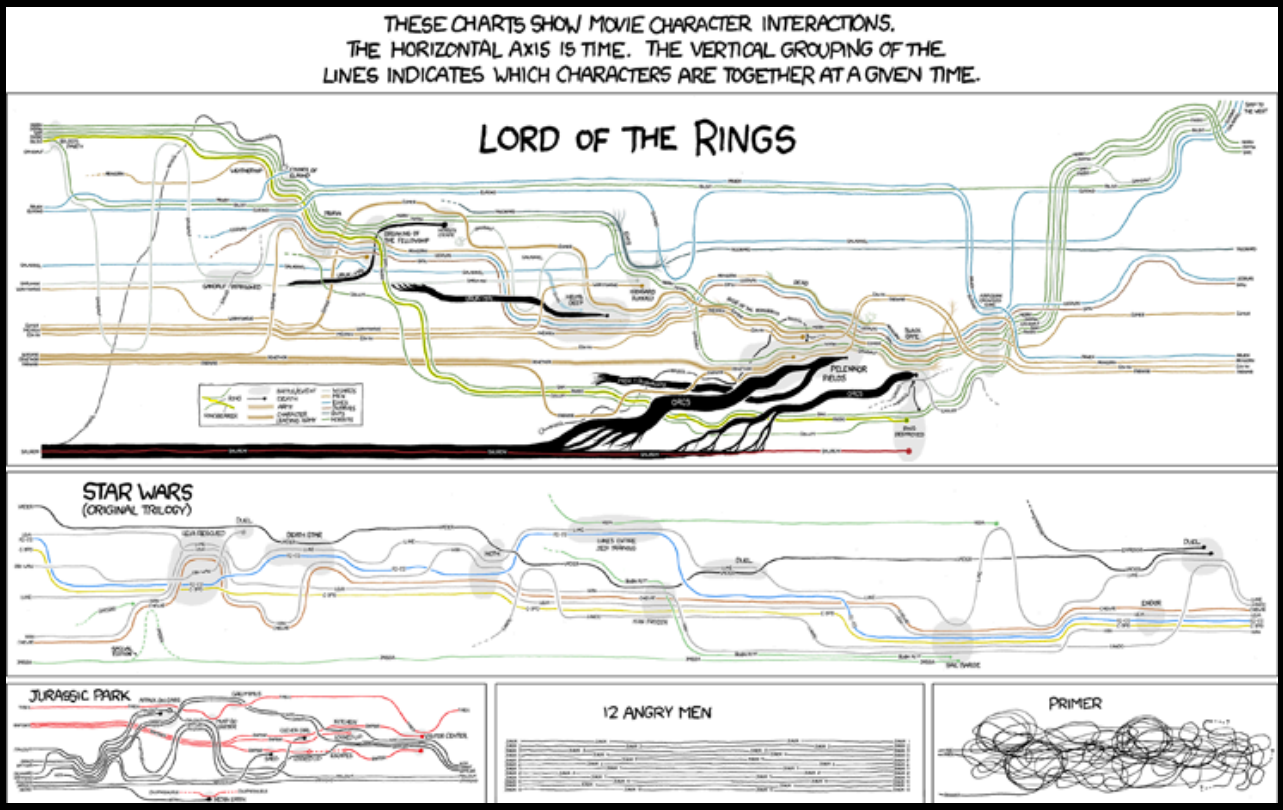
Lunar Metrics

Unit	Definition	Equivalence
tithi (lunar day)	Time for 12° increase of longitudinal angle between Moon and Sun	≈ 1 day (varies 19–26 hours)
pakṣa (lunar fortnight)	15 tithis	≈ 15 days
māsa (lunar month)	2 pakṣas: śukla pakṣa during waxing moon; kṛṣṇa (dark) pakṣa during waning moon	≈ 30 days (29.5 days)
ṛitu (season)	2 māsas	≈ 60 days
ayanam	3 ṛitus	≈ 180 days
varsha (lunar year)	2 ayanams	≈ 360 days (354.36707 days)

Source : https://en.wikipedia.org/wiki/Hindu_units_of_time

POPULAR CULTURE

MOVIETIME



Star Wars movies: Chronological timeline

BBY = Before the Battle of Yavin
ABY = After the Battle of Yavin

1999
Episode I: The Phantom Menace
32 BBY

2008
Star Wars: The Clone Wars
22 BBY

2018
Solo: A Star Wars Story
10 BBY

1977
Episode IV: A New Hope
0 BBY/ABY

1983
Episode VI: Return of the Jedi
4 ABY

2017
Episode VIII: The Last Jedi
34 ABY

22 BBY
Episode II: Attack of the Clones
2002

19 BBY
Episode III: Revenge of the Sith
2005

0 BBY
Days before Episode IV
Rogue One: A Star Wars Story
2016

3 ABY
Episode V: The Empire Strikes Back
1980

34 ABY
Episode VII: The Force Awakens
2015

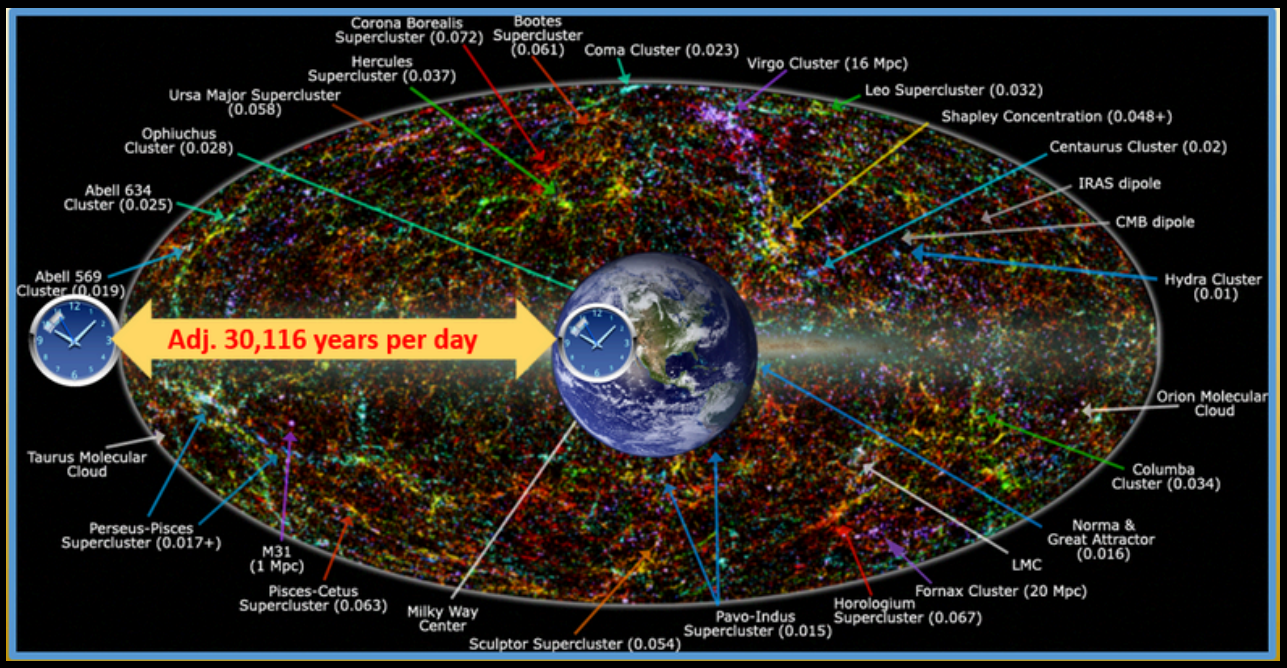
35 ABY
Episode IX: The Rise of Skywalker
2019

Sources:
https://www.radiotimes.com/movies/how-to-watch-the-star-wars-movies-in-the-right-order/
https://starwars.fandom.com/

FUTURISTIC MOVIE TIMELINE

TIME DILATION

THE FASTER YOU MOVE THROUGH SPACE ,THE SLOWER YOU MOVE THROUGH TIME



Time dilation finds that time moves at different rates depending on where the observer is located. Such evidence reveals that time and space distance are not dependent on each other.

$$\Delta t' = \frac{\Delta t}{\sqrt{1 - v^2/c^2}}$$

- $\Delta t'$ — The amount of time that has elapsed on Earth during the time Δt
- Δt — An amount of time, as measured on the satellite. Say, one second
- v — Velocity of the satellite (about 9,000 mph)
- c — Speed of light (186,262 miles per second)

Time passes faster for your face than for your feet (assuming you're standing up).

Einstein's theory of relativity dictates that the closer you are to the centre of the Earth, the slower time goes – and this has been measured.

At the top of Mount Everest, a year would be about 15 microseconds shorter than at sea level.

This is a hidden sentence. If you read this then email us at content@paraminnovation.org with the code "SEENZONED" to win a prize.

EQUATIONS

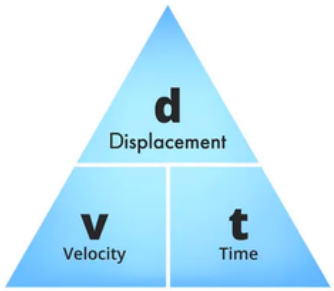
The Planck time is the time required for light to travel a distance of 1 Planck length in vacuum, which is a time interval of approximately 5.39×10-44 s.

No current physical theory can describe timescales shorter than the Planck time, such as the earliest events after the Big Bang.

Fact: There are more units of Planck time in one second than there have been seconds since the Big Bang almost 14 billion years ago.

$$Life = \int_{birth}^{death} (experience)\Delta time$$

Date / Time to be calculated			= Year, Month, Day, Hour, Time Zone (+ ve East of Greenwich)
		x1	$= (367 \times Year) - 730\,531.5$
		x2	$= \text{int}\left(7 \times \text{int}\left(Year + \left(\frac{Month-9}{12}\right)\right)/4\right)$
		x3	$= \text{int}(275 \times Month) + Day$
Days since Epoch		D^{days}	$= x1 + x2 + x3 + \left(\frac{Hour - Time\ Zone}{24}\right)$
Obliquity		$\eta°$	$= 23.439° - 0.000\,000\,4° \times D^{days}$
		η^{rad}	$= \frac{\pi}{180} \times E°$
Mean Anomaly	⊗	$M°$	$= 365.528° + 0.985\,600\,3° \times D^{days}$
		M^{rad}	$= \frac{\pi}{180} \times M°$
Mean Equatorial Longitude	⊗	$\gamma°$	$= 280.460° + 0.985\,647\,4° \times D^{days}$
Solar Ecliptic Longitude	⊗	$\lambda°$	$= \gamma° + 1.915° \times \sin(M^{rad}) + 0.020° \times \sin(2 \times M^{rad})$
		λ^{rad}	$= \frac{\pi}{180} \times \lambda°$
Solar Right Ascension		α^{rad}	$= \tan^{-1}\left(\frac{\sin(\lambda^{rad}) \times \cos(\eta^{rad})}{\cos(\lambda^{rad})}\right)$ if available, use atan2 function to obtain correct quadrant, but note Excel uses atan2(x,y) while most other programs use atan2(y,x)



$$v = d/t$$
$$t = d/v$$
$$d = v \cdot t$$

$$T_c = 0.272 \cdot \frac{L_c A^{0.4}}{(D \cdot S_c^{0.2})}$$

$$T_c = 0.066 \cdot \left(\frac{L_c}{\sqrt{S_c}}\right)^{0.77}$$

$$T_c = 0.000003035 \cdot \left(\frac{L_c}{\sqrt{S_c}}\right)^{0.64}$$

$$T_c = 0.397 \cdot \left(\frac{L_c}{\sqrt{S_c}}\right)^{0.75} ST^{1.3}$$

$$T_c = 0.0014 \cdot \left(\frac{L_c}{\sqrt{S_c}}\right)^{0.79}$$

$$T_c = T_{sheet} + T_{shallow} + T_{channel} \;;\; T_{sheet} = \frac{0.0018 L_{sheet}^{0.6} \cdot n^{0.6}}{i^{0.4} \cdot S_w^{0.3}} \;;\; T_{shallow} = \frac{L_{shallow}}{3.6C\sqrt{S_w}} \;;\; T_{channel} = \frac{0.44 \cdot L_c \cdot n^{0.75}}{i^{0.25} A^{0.125} \cdot S_c^{0.375}}$$

$$T_c = 0.734 \cdot L_c^{0.841}$$

$$T_c = 0.00031 \cdot A^{0.1} L^{0.25} L_{ca}^{0.25} S_w^{-0.2}$$

$$T_c = 0.39\sqrt{A} + DD^2$$

$$G_{\mu\nu} + \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

$$\Delta t' = \frac{\Delta t}{\sqrt{1 - \frac{v^2}{c^2}}}$$

$$t = \frac{-v_o \pm \sqrt{v_o^2 - 4\left(\frac{1}{2}a\right)(-d)}}{2\left(\frac{1}{2}a\right)}$$

$$\text{STI} = \sqrt{(c\Delta t)^2 - (\Delta x)^2}$$

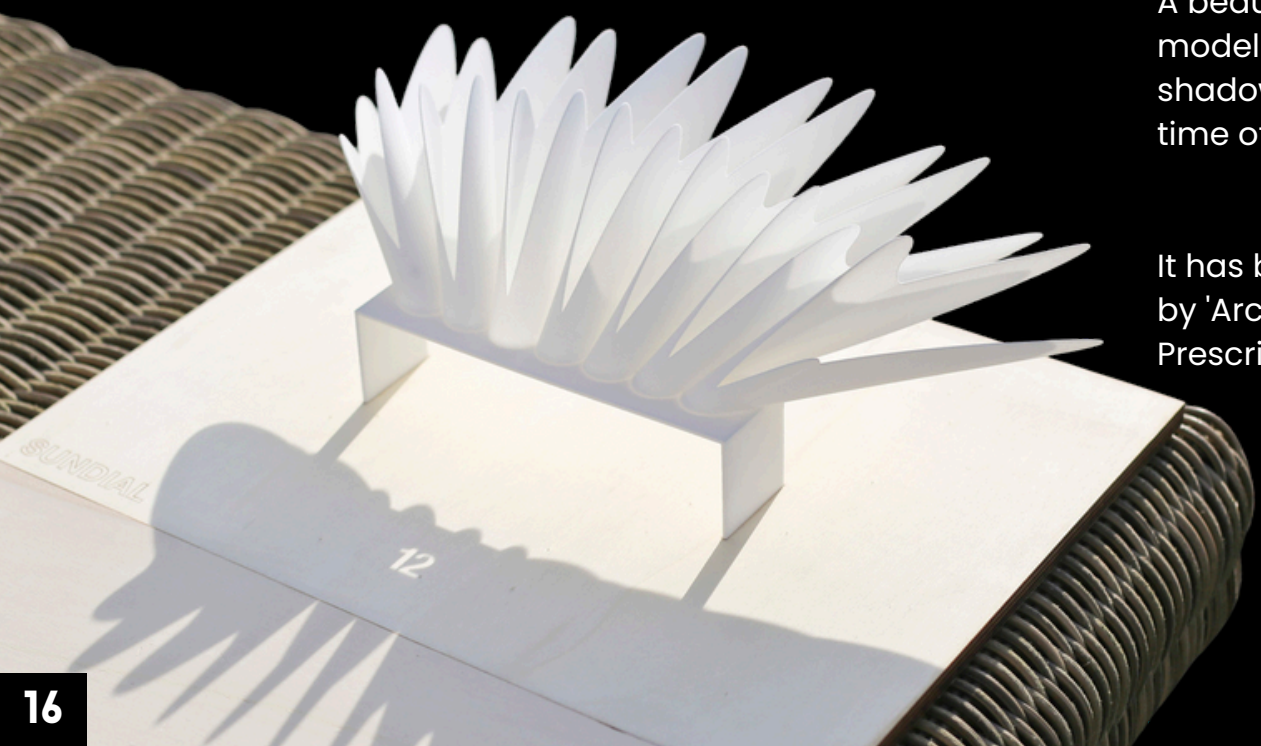
EXHIBIT OF THE MONTH

ELEMENTAL CLOCKS

WATER AND LIGHT BASED INTRICATE CLOCKS

An outdoor time telling fountain.

It drops water with precision to look like an actual clock showing the current time and date.



A beautiful outdoor model where the shadows show the time of day digitally.

It has been designed by 'Architectural Prescription'.

MONTHLY CHALLENGES

SOLVE FAST

TIME THEMED PUZZLES

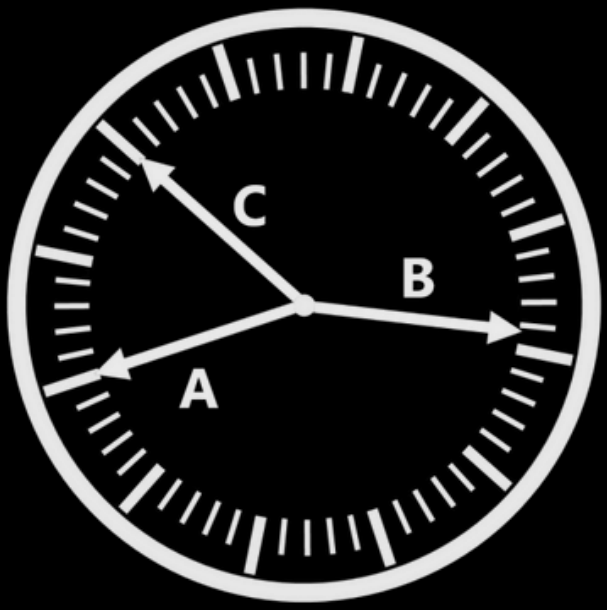
How do we measure fortyfive minutes using two identical wires, each of which takes an hour to burn?

We have matchsticks with us. The wires burn non-uniformly. So, for example, the two halves of wire might burn in 10 minutes and 50 minutes respectively

The hour and minute hands are at equal distance from the 6 hour, what time will it be exactly?

The timepiece has no numbers, and it may have been rotated out of position.

Also, the second, minute and hour hands are of the same length (the hands are labeled A, B, C in the diagram). But it operates like a standard timepiece.



Mind Your Decisions

Videos by Presh Talwalkar

What time is it?

FACTS & SNIPPETS

Interesting tidbits about time

- 1 million seconds = about 12 days
- 1 billion seconds = about 32 years
- 1 million minutes ago was approximately 2 years ago
- 1 billion minutes ago was the year 114AD
- 1 million hours ago it was the dawn of the 20th century (1901)
- 1 billion hours ago was around the time we think the first modern humans walked (141k ya)
- 1 million days ago it was about 700BC
- 1 billion days ago was 2.7 million years BC

People massively underestimate the difference between a million and a billion in the context of time.

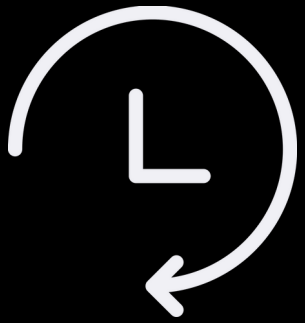
If time stopped all around you like in the movies, you would instantly go blind as light entering your eyes also stops.

T-Rex vs Stegosaurus as shown in Jurrasic Park could never happen as they lived in different time periods.

Because light takes time to reach us, everything we see is in the past. The sun that you see at any point is actually 8 minutes and 20 seconds old.

Cleopatra lived closer to us today than to the pyramids.

When the dinosaurs were alive, there were 370 days in a year. The Earth's spin is getting slower because the moon's gravity is acting as a drag, so days are getting longer, by about 1.7 milliseconds per century.

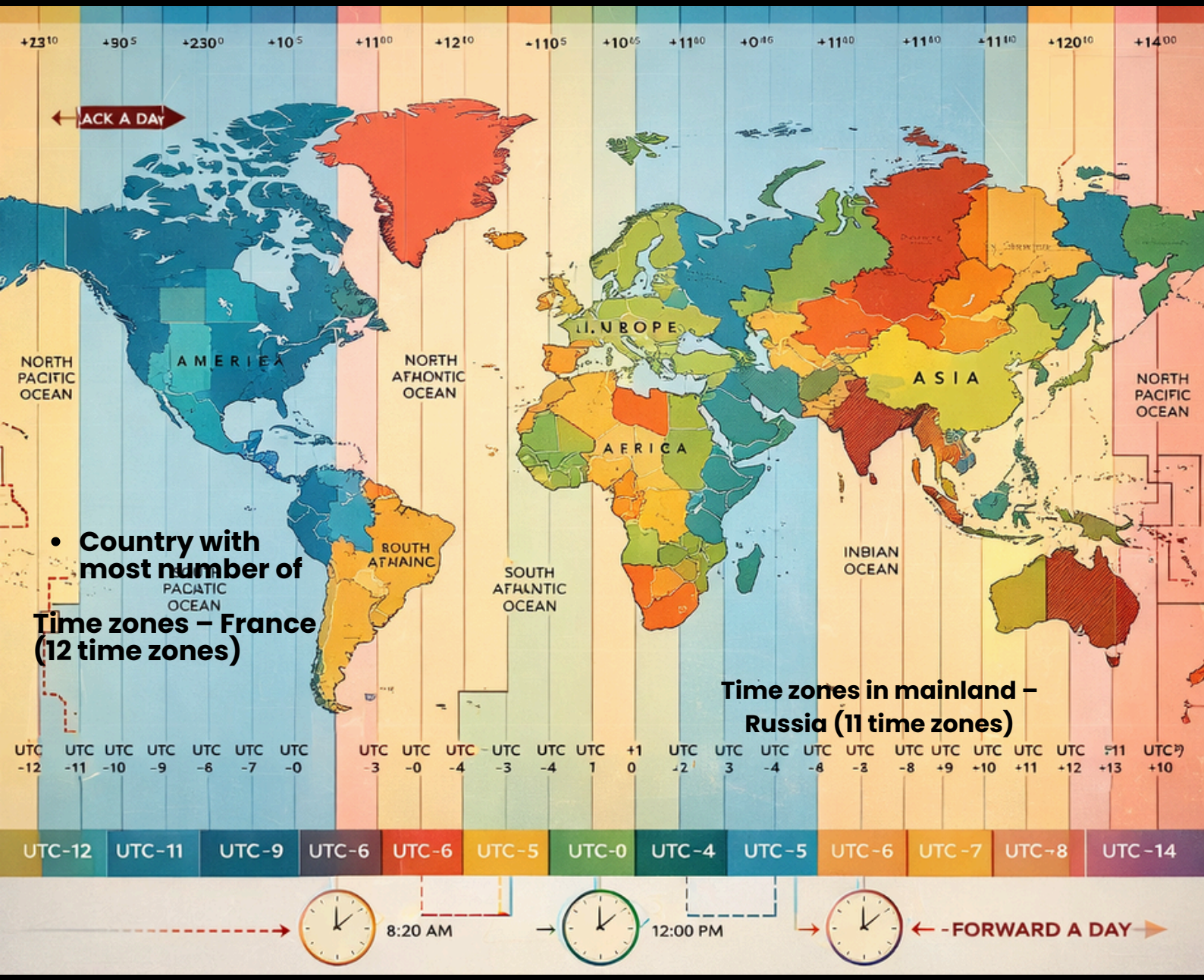


Oxford University is older than the Aztec empire

Time is now.

AROUND THE WORLD IN 24 HOURS

TIMEZONES



- **Country with most number of Time zones – France (12 time zones)**

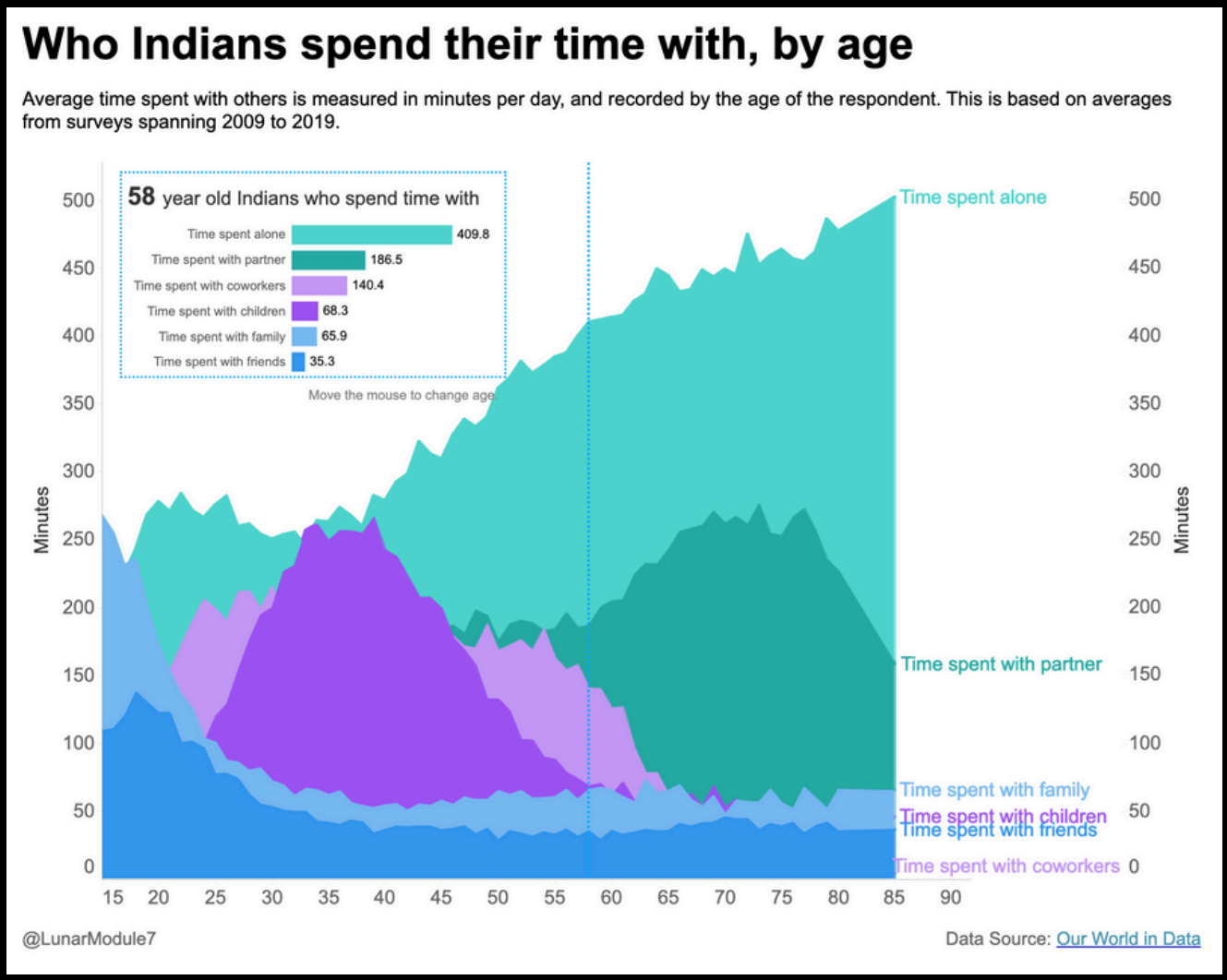
Time zones in mainland – Russia (11 time zones)

India had two time zones (Calcutta and Bombay) in the past.

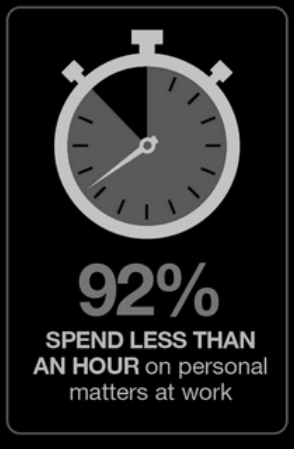
In 1802, British astronomer John Goldingham at the East India Company established time in Chennai as GMT+5:30.

HOW DO PEOPLE SPEND TIME?

TIME DATA



ARE INDIA'S EMPLOYEES ALWAYS 'ON' AT WORK?



65%
Chat with family / friends on messaging apps

37%
Scroll through social media

1 in 2
Speak with colleagues on personal matters

1 in 2
Search for information for personal reasons

27%
Send personal emails

TIME MANAGEMENT TECHNIQUES

EFFECTIVE STRATEGIES TO BOOST YOUR PRODUCTIVITY!

PARETO ANALYSIS AKA th 80/20 RULE

Focus on tasks that solve priorities!

Focus on tasks that solve priorities!

WORKS WELL FOR:

- Problem solvers
- Analytical thinkers

Give yourself a deadline!

PARKINSON'S LAW

The more time you give yourself to finish a task, the longer it will take!

WORKS WELL FOR:

- Procrastinators
- People under pressure

Give yourself a deadline!

POMODORO TECHNIQUE

Set a timer to focus on work in short intervals!

Break tasks down into 25-minute intervals!

WORKS WELL FOR:

- Creative thinkers
- Those feeling burnt out

WORKS WELL FOR:

- Tough decision-makers
- Critical thinkers

TIME BLOCKING METHOD

Assign time blocks to specific tasks!

WORKS WELL FOR:

- Distractible people
- List lovers

WORKS WELL FOR:

- Distractible people
- List lovers

USE THESE TECHNIQUES TO HELP YOU FOCUS, GET ORGANIZED, AND BOOST YOUR PRODUCTIVITY!

TIME MANAGEMENT TIPS

Rapid Planning (RPM) Method

Train your brain to focus on the outcome you want to achieve.

Results
What do you want to Achieve?

Purpose
Why do you want that?

Massive action plan

WORKS WELL FOR:
- Working students/professionals
- People with long-term goals.

Prioritize tasks like filling a jar with **rocks**, **pebbles**, and sand.

"Give me six hours to chop down a tree and I will spend the first four sharpening the axe."~Abraham Lincoln

Eat That Frog Technique

Tackle your biggest tasks first thing in the day and clear it from your to-do list.

WORKS WELL FOR:
- Busy people
- People with long.

Eat That Frog Technique

Tackle your biggest tasks **first thing** in the day and clear it from your to-do list.

WORKS WELL FOR:
- Busy people
- People with long-term goals

" Give me six hours to chop down a tree and I will spend the first four sharpaning the axe."
– Abraham Lincoln

Source: https://plato.stanford.edu/entries/time-travel-phys/

JOURNEY TO MARS: 72 HOURS THAT PROVED WE CAN DO THIS

This wasn't just a hackathon.

It's the beginning of a multi-year movement to get humanity to Mars — not through government programs or billionaire ventures alone, but through open innovation and a distributed network of makers across India who will build the technologies that get us there.

The Grand Vision: By 2035, we take the hackathon to Mars itself. Makers test their prototypes on the actual surface.

December 19-21, 2025: Three Days, Two Nights, One Mission

70 makers selected from 100+ applications. Teams from Kashmir, Chennai , Mumbai, Manipal, Indore, Pilani, Pune, and more. Primarily students with a maker mindset, plus a few working professionals. All invited to Bengaluru specifically for this event.

Their challenge: design and prototype hardware that could function on Mars.

Hosted at ParSEC inside Param Science Experience Centre in Jayanagar, Bengaluru, the event compressed what typically takes months into 72 hours.

What They Actually Built

Over three days, teams went from concept to working prototype. Here's what they produced:

First Prize: Team from Manipal Institute of Technology built the prototype for a smart fault detection system that identifies anomalies in motors and actuators. It triggers predictive maintenance before failures cascade — critical for rovers operating millions of miles from any repair shop.

Second Prize: The BITS Pilani team developed a prototype for COMSAT: a modular, low-power satellite antenna communication system designed to withstand Mars' harsh conditions. Resilient, adaptable, and built for the communication delays that define deep space operations.

Third Prize: SSN College, Chennai prototyped AGROS, an autonomous growth and resource optimization system — Bio-pods that can grow plants on Mars and move where the resources are. Closed-loop life support starts here.

Other teams built models such as Rovers, Live satellite tracking, and the Environmental model for Mars.

WHAT MADE THIS POSSIBLE

24-HOUR PCB FABRICATION!

10-MINUTE COMPONENT DELIVERY!

ON-DEMAND 3D PRINTING!

LIVE MENTORSHIP!

FROM IDEA TO PROTOTYPE IN 72 HOURS!

JOURNEY TO MARS 2.0 PROVED IT WORKS!


Are you ready for an immersive **Science Experience** in **Jayanagar?**
Scan /press the QR
Join us in spreading the wonder of science.
Email us at
magazine@paraminnovation.org
to make a difference!
www.paraminnovation.org