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Introduction to Geography

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Importance of Geography

Prelims → 15-16 questions
→ 12 questions (solvable)

Mains
→ GS I
→ Subjective questions (105 marks / 250)
→ GS III (Agriculture) → (40-45 marks)

(→ Environment & Ecology)
(→ Disaster Management)

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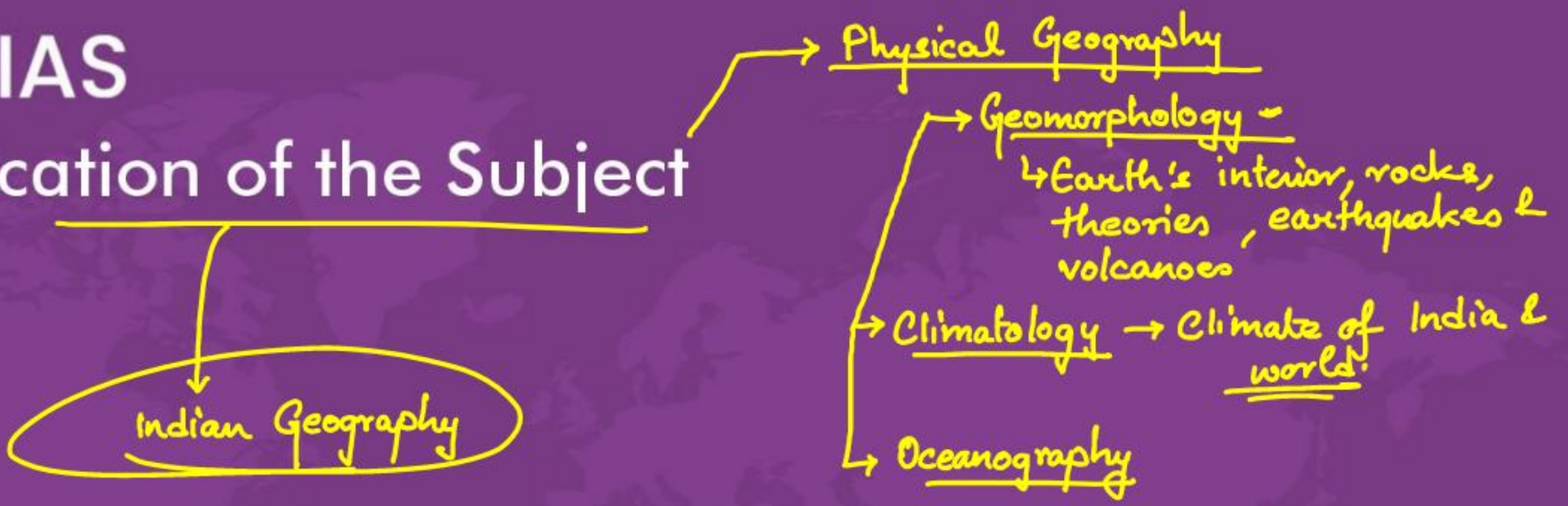
Classification of the Subject



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Material List

- NCERTs → Class 11th & 12th. → In case found to be problematic; ↳ NCERTs of 6th to 10th.
- World Atlas → Any publication. → Study based on current affairs.
- Newspaper

Tablet lectures. → Enough for revision → Can skip NCERTs

Majid Hussain ✗

G. C. Leong. ✗

Down To Earth. → Newer tech. in agri Climate related CA.

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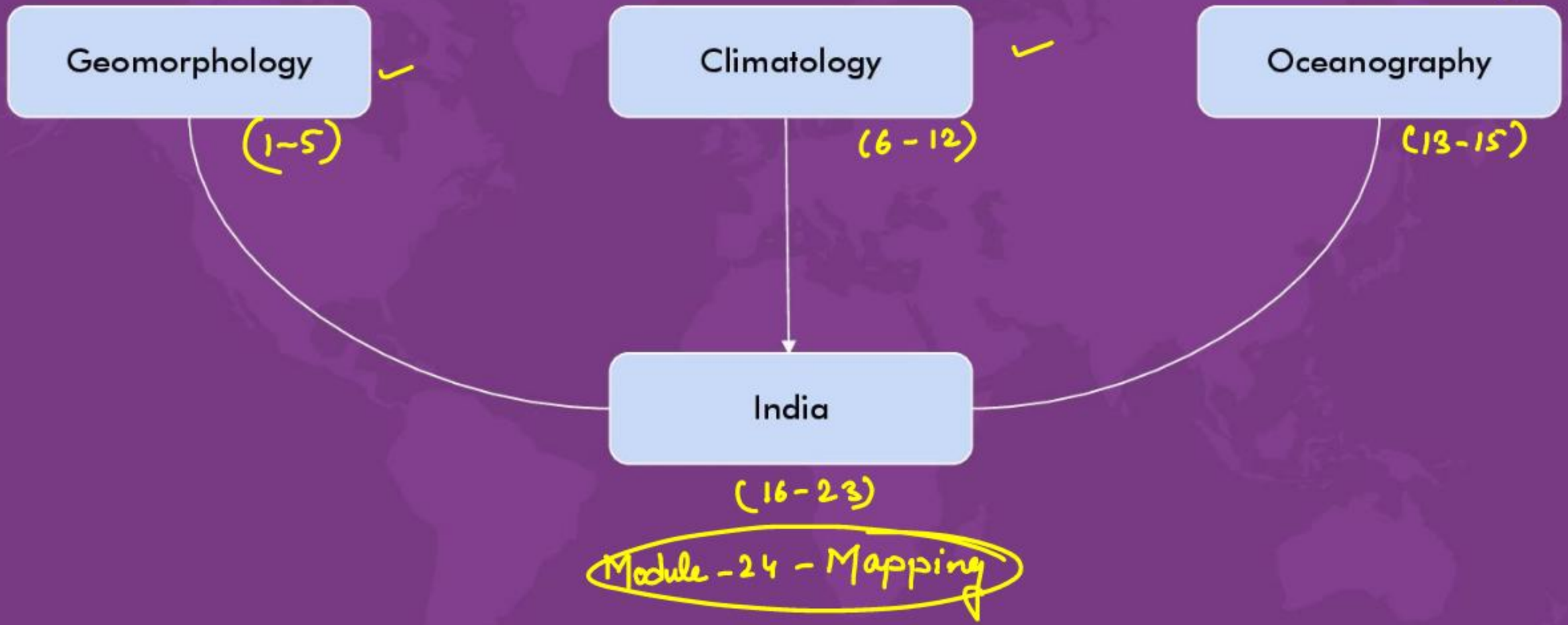
Module Progression



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Approach to Study

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(Geocentric model of universe)

Heliocentric model

↳ Sun as the centre of universe, with celestial objects moving around the sun.

→ Kant.

→ Laplace.

Edwin Hubble → Theory of expanding universe

Geography

The Big bang theory

Milky way galaxy

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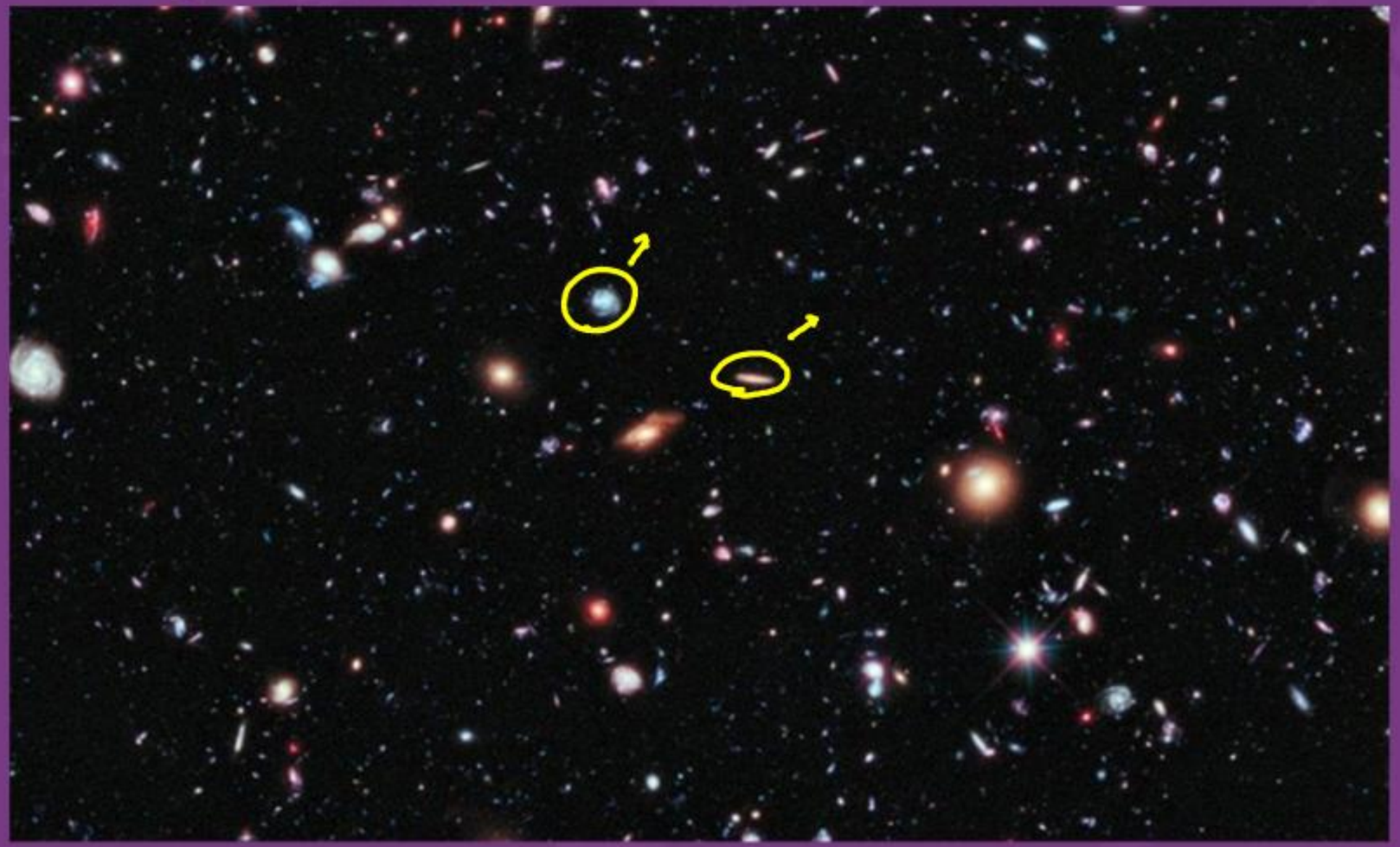
Big Bang Theory → [Le Maitre & Gammow]

Origin of universe



Singularity

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The Big Bang Theory

Theory of expanding universe.

This theory was born of the observation that other galaxies are moving away from our own at great speed in all directions, as if they had all been propelled by an ancient explosive force.

Around 13.7 billion years ago, everything in the entire universe was condensed in an infinitesimally small singularity a point of infinite denseness and heat.

Suddenly, an explosive expansion began, ballooning our universe outwards faster than the speed of light.

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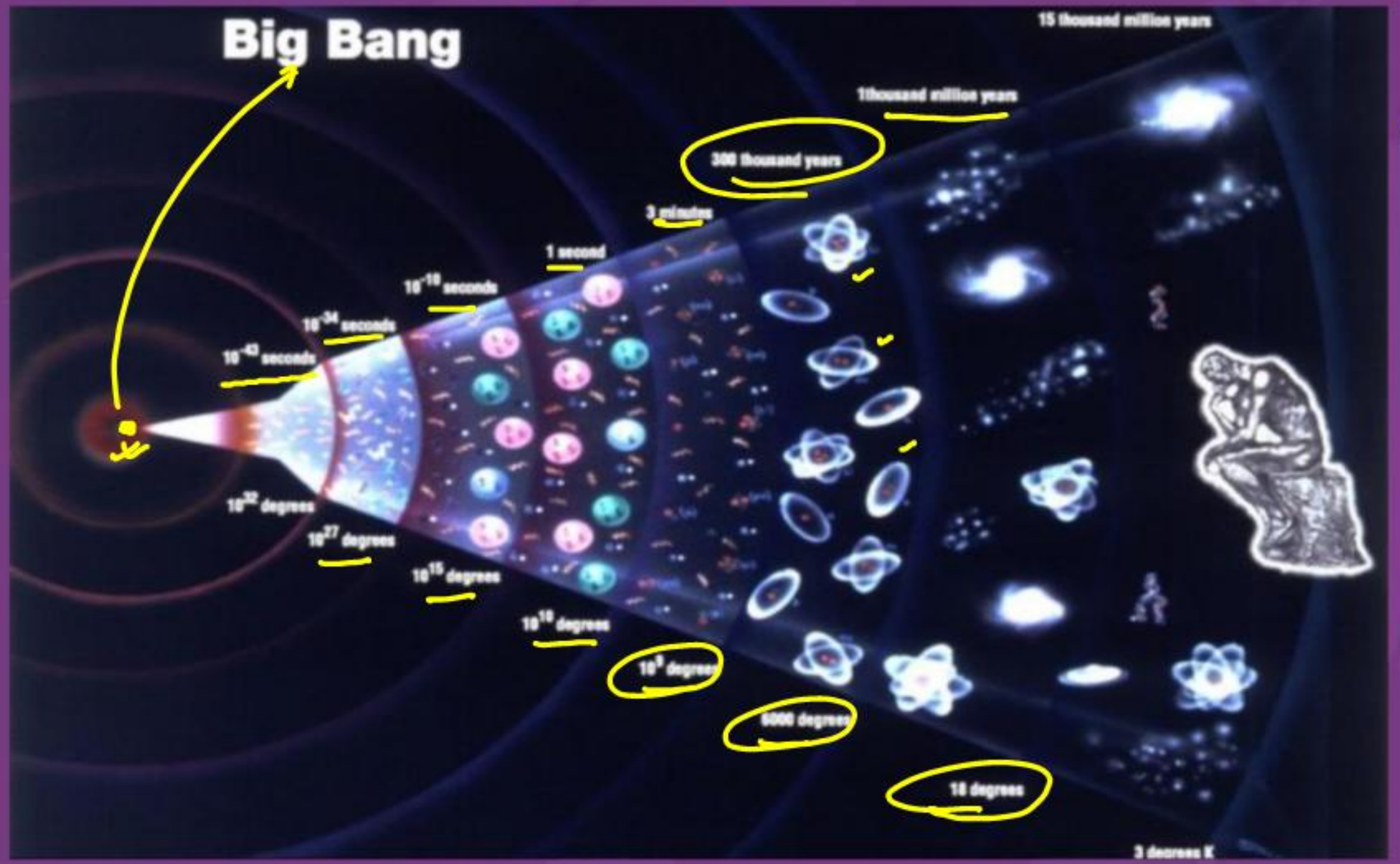

10^{32} degrees. celcius

10^{10} degrees.

10^{-43} s

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The Big Bang Theory

Simply put, it says the universe as we know it started with an infinitely hot and dense single point that inflated and stretched — first at unimaginable speeds, and then at a more measurable rate — over the next 13.7 billion years to the still-expanding cosmos that we know today.

Big bang theory → LeMaitre & Gammow

(Based upon theory of expanding universe → Edwin Hubble.)

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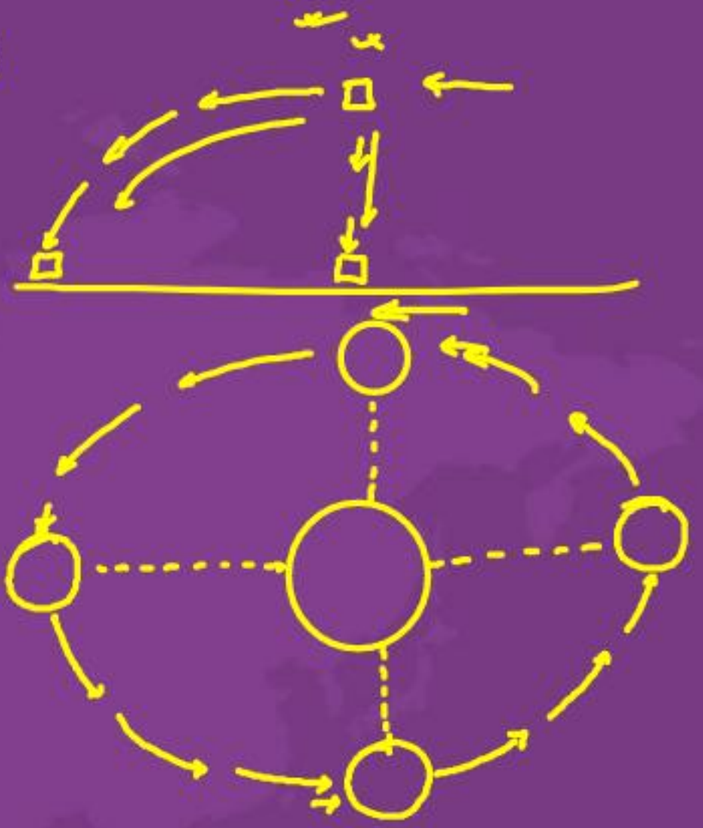
Solar System



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Earth

Circle of illumination → Imaginary circle separating day & night.

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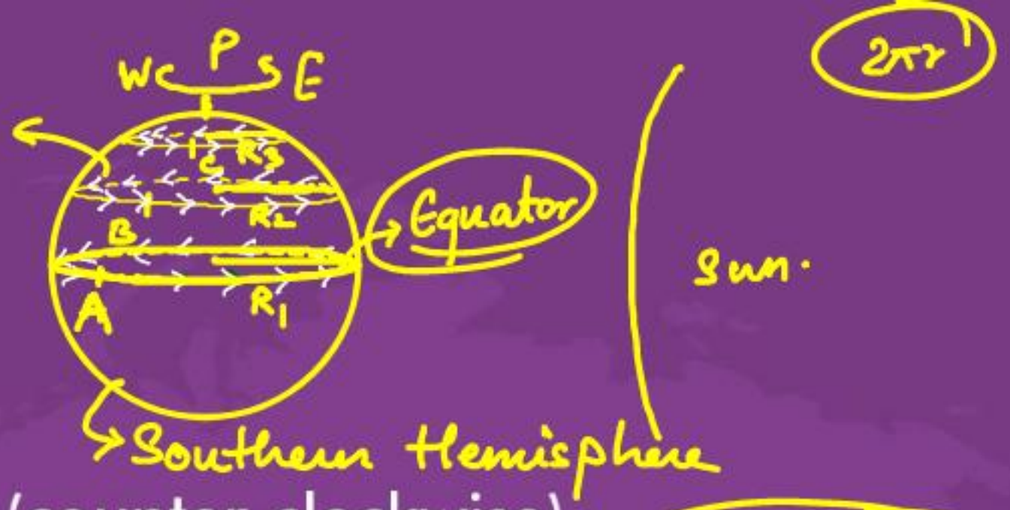
Earth as a rotating planet

Time for 1 rotation → 1 day

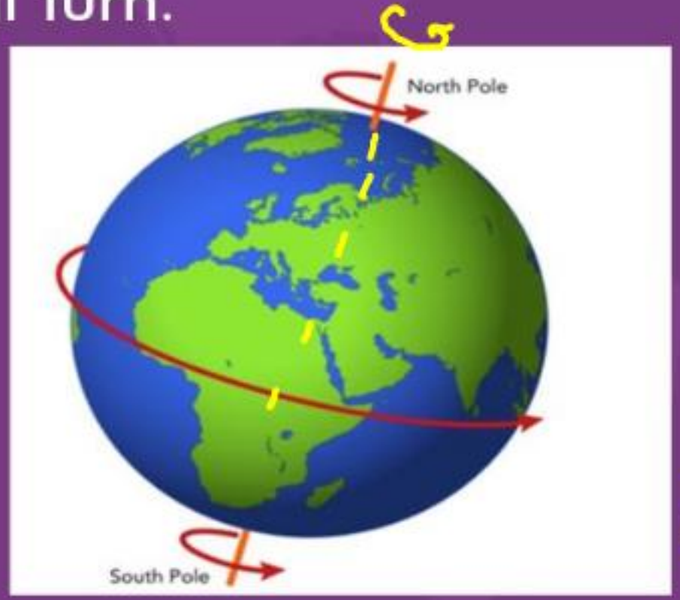


Rotation

- The Earth spins on its axis from West to East (counter-clockwise).

Speed = D/T

- It takes the Earth 23 hours, 56 minutes, and 4.09 seconds to complete one full turn.



$D_A = 2\pi R_1$; $D_B = 2\pi R_2$; $D_C = 2\pi R_3$; $D_P \approx 0$

$R_1 \gg R_2 \gg R_3$

$D_A \gg D_B \gg D_C \gg D_P = 0$

$S_A = \frac{D_A}{T}$; $S_B = \frac{D_B}{T}$ ....

$S_A \gg S_B \gg S_C \gg S_P = 0$

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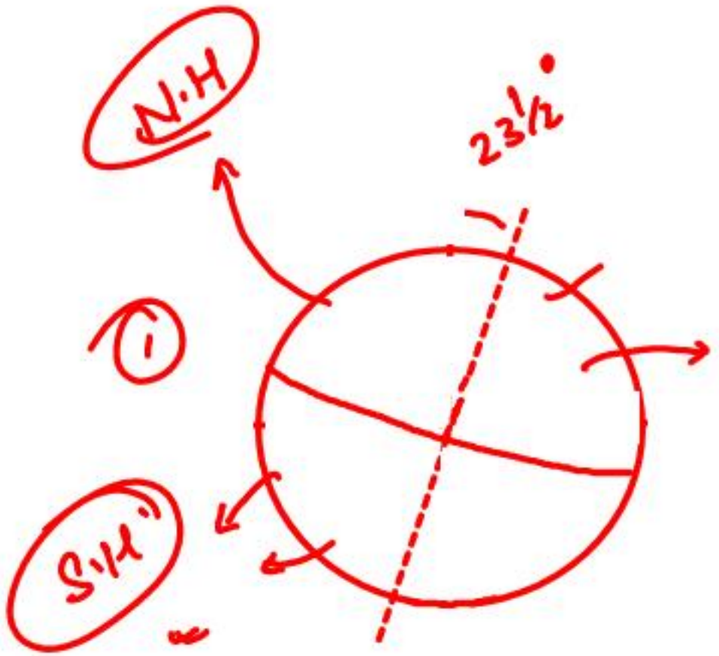
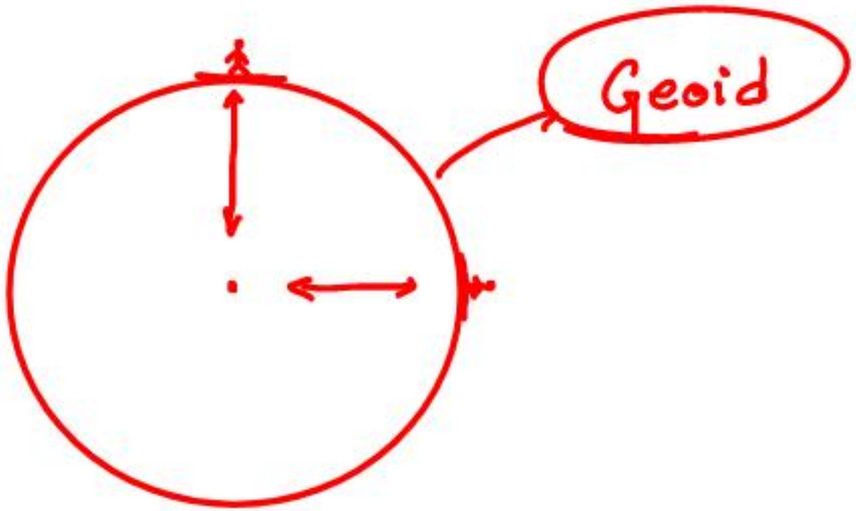
Speed of Rotation of Earth

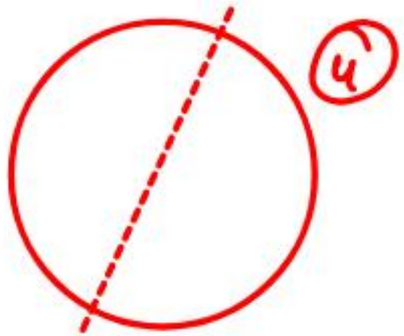
1600 Km/hr

- The speed of rotation at any point upon the equator is at the rate of approximately 1,038 miles per hour, decreasing to zero at the poles.

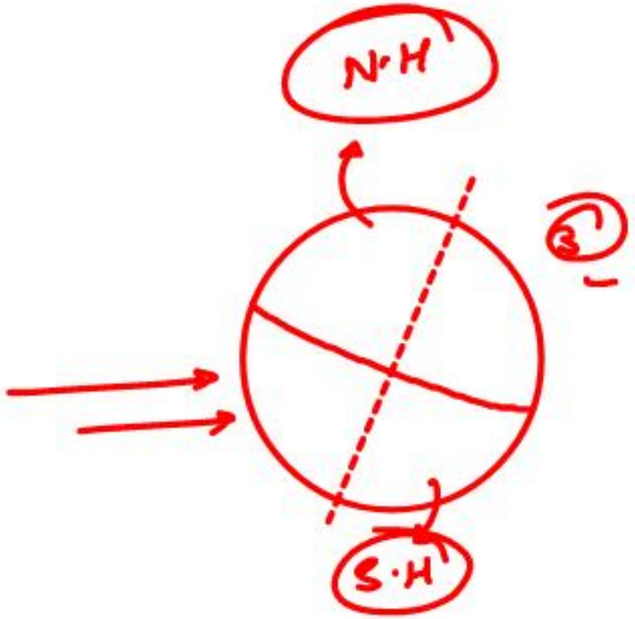
→ Hence majority of satellite launches are carried out closer to equator to provide that additional speed push

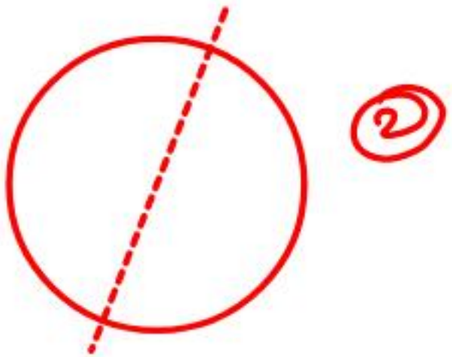






Sun





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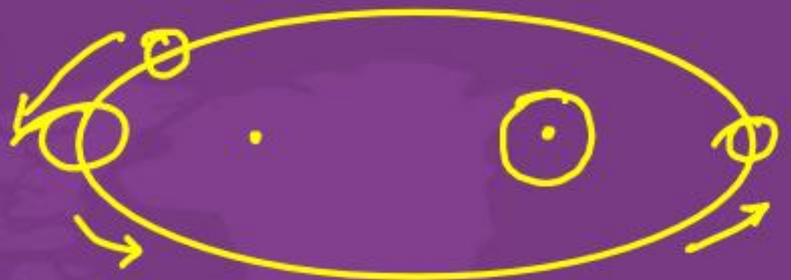
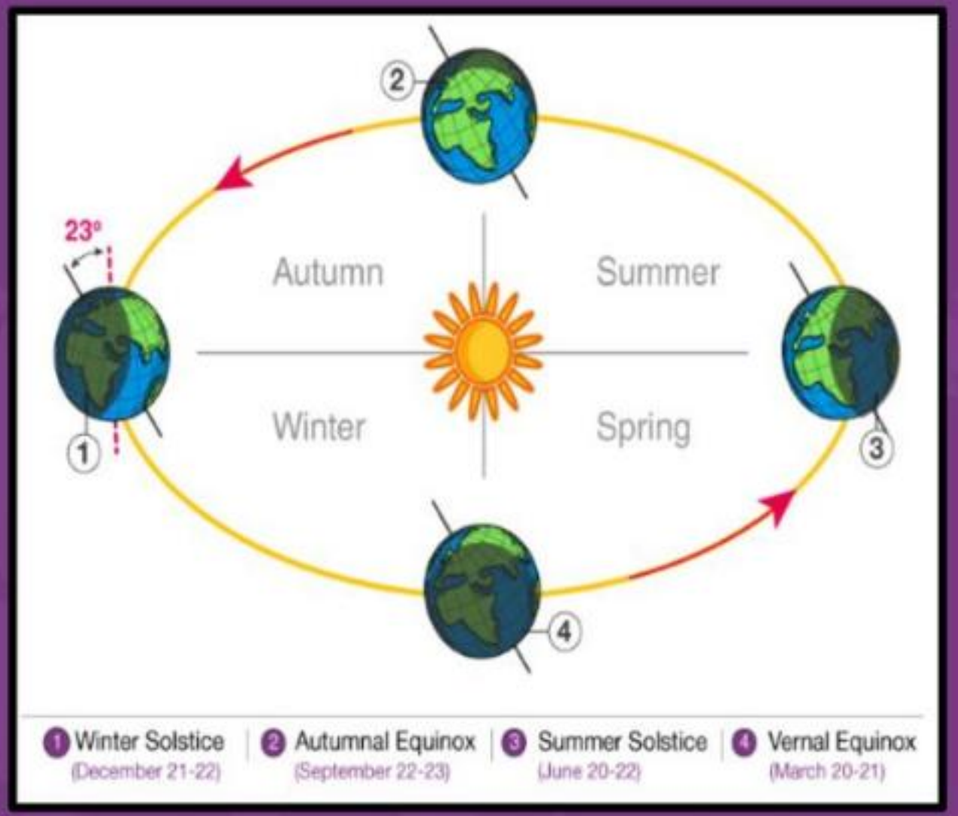
Revolution



- While the Earth is spinning on its axis, it is revolving around the Sun in a counter-clockwise direction.
- It takes the Earth one full year to complete one full revolution around the Sun.
- The mean distance of the Earth from the Sun is about 93 million miles and the distance varies by 3 million miles, forming a slightly oval path.



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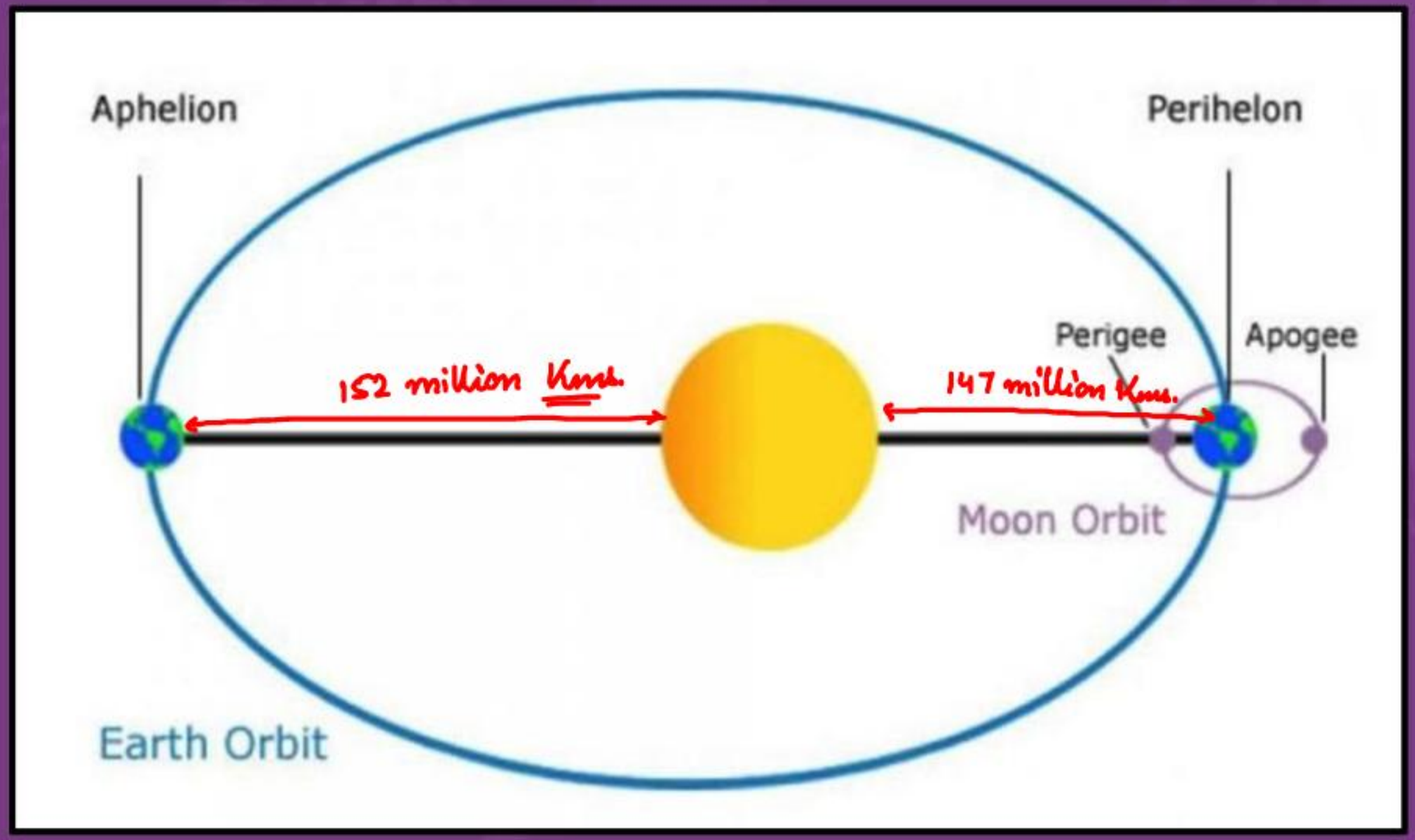
Aphelion and Perihelion



Earth is at its maximum distance from the sun at aphelion, and at its minimum distance at perihelion.

The point in the moon's orbit where it is farthest from the earth is called apogee, while it's closest approach is known as perigee.

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Seasons on Earth