



# Foucault Pendulum

## Why in News?

[India's newly inaugurated Parliament](#) building showcases a remarkable piece of scientific artistry suspended from its ceiling - **a Foucault pendulum**.

- Foucault's pendulum in the New Parliament building also represents the **spirit of scientific inquiry and scientific temper** which is enshrined in the **Article 51A of the Indian Constitution**.



## What is a Foucault Pendulum?

- A **Foucault pendulum**, named after the **19<sup>th</sup> century** French physicist **Leon Foucault**, is a simple **experiment to demonstrate the [Earth's rotation](#)**.
  - It consists of a **heavy object hung from a long wire, free to swing in any direction**. When set in to-and-fro motion, the **pendulum appears to change its orientation slowly over time**, due to the relative motion between the pendulum and the rotating Earth.
- Foucault first performed this experiment publicly in **1851 at the Pantheon in Paris**, where he suspended a **28-kg iron ball from a 67-m wire**. It was the first direct visual evidence of the Earth's rotation.
  - The experiment concluded that **"pendulum does not change its plane of motion, but the ground beneath it does."**
  - When **aligned along the Earth's axis at the north and south poles**, the pendulum's back-and-forth motion comes **back to its original plane in exactly 24 hours**.
  - At other latitudes, it takes **longer for the pendulum to return to its original orientation of swinging**. That is because **the pendulum is not aligned with the axis of rotation of the earth**.
- The rate and direction of the pendulum's apparent rotation depend on its latitude.
  - At the North Pole, it would **complete one clockwise rotation in 24 hours**.

- At the equator, it would **not rotate at all**.
- At other latitudes, it would rotate at **intermediate rates and directions**.

## What is Special about the Pendulum in the New Parliament Building?

- The pendulum in the new Parliament building was created by the [National Council of Science Museum \(NCSM\) in Kolkata](#).
  - It is **said to be the largest such piece in India**, with a height of 22m and a weight of 36 kg.
- The pendulum hangs from a skylight at the top of the Constitution Hall, and signifies the **“integration of the idea of India with the idea of the cosmos”**.
- At the **latitude** of Parliament, New Delhi ( $28.6^{\circ}$  N), it takes about **49 hours and 59 minutes** for the pendulum to **complete one clockwise rotation**.

[Source: IE](#)

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