

INDIA ADOPTS NEW STANDARDS FOR MEASURING UNITS KILOGRAM, KELVIN, MOLE & AMPERE

Relevant for: Pre-Specific GK | Topic: Miscellaneous Facts

A replica of the International Prototype Kilogram is pictured at the International Bureau of Weights and Measures (BIPM) in Sevres near Paris, France. | Photo Credit: [Reuters](#)

With the definition of the 'kilogram' getting a global, technical makeover, textbooks — from those used in schools to ones recommended by engineering colleges in India — are set to undergo an update.

Until Monday, the kilogram derived its provenance from the weight of a block of a platinum-iridium alloy housed at the International Bureau of Weights and Measures in France. All other prototypes that served as national reference standards, including the one at New Delhi's CSIR-National Physical Laboratory (NPL), were calibrated to it. No longer.

On May 20, the kilogram joined other standard units of measure such as the second, metre, ampere, Kelvin, mole and candela that would no longer be defined by physical objects.

The measures are all now defined on the basis of unchanging universal, physics constants. The kilogram now hinges on the definition of the Planck Constant, a constant of nature that relates to how matter releases energy.

The CSIR-NPL, which is India's official reference keeper of units of measurements, on Monday, released a set of recommendations requiring that school textbooks, engineering-education books, and course curriculum update the definition of the kilogram.

The institute is also in the process of making its own 'Kibble Balance', a device that was used to measure the Planck Constant and thereby reboot the kilogram, said Dinesh Aswal, Director of the NPL. "We've already written to the NCERT and the AICTE to update the curriculum," Dr. Aswal told *The Hindu*. "A Kibble Balance capable of measuring at least a kilogram takes about 50 crore to manufacture. So it's still a work in progress," he added.

An updated kilogram doesn't mean that weights everywhere will be thrown off balance. For everyday measurements, consumers wanting to calibrate their instruments — whether it's for high-precision drug manufacturing or retail weighing machines — will continue doing it the same way. The NPL itself will be relying on the kilogram maintained in the U.S.-based National Institutes of Standards and Technology to calibrate its one-kilogram weight.

"With our own Kibble Balance capable of measuring a kilogram, we can be fully independent," Dr. Aswal said.

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