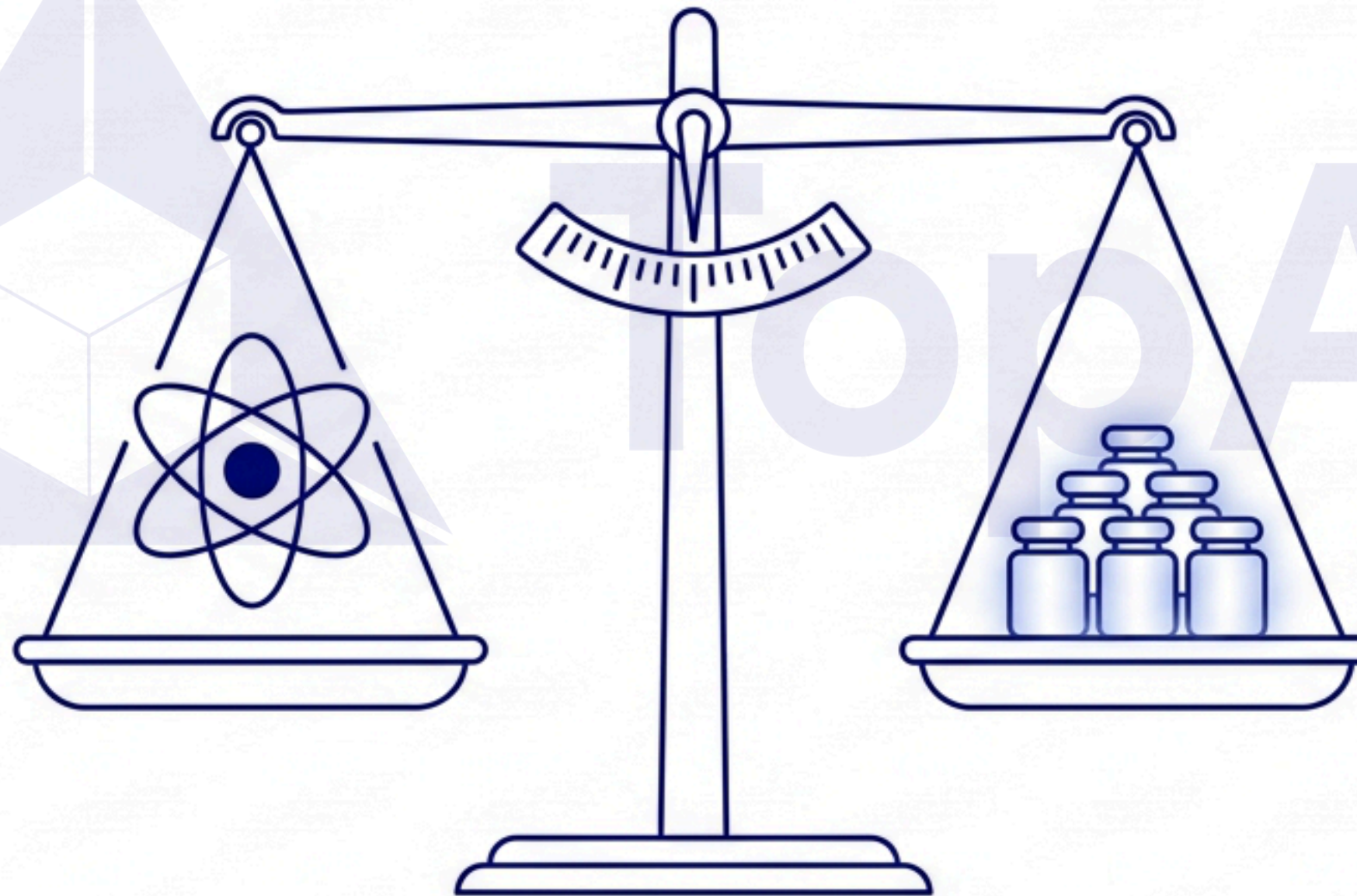


Atomic Mass Using Carbon-12

Understanding the relative scale of the microscopic world.



Establishing a Universal Standard

Instead of weighing atoms in absolute grams, scientists weigh them relative to a chosen anchor. Since 1961, that anchor has been Carbon-12.

The 1961 Standard



Mass = **EXACTLY** 12 units



**You've Learned the Theory.
Let's Test Them Now.**

$$E=mc^2$$



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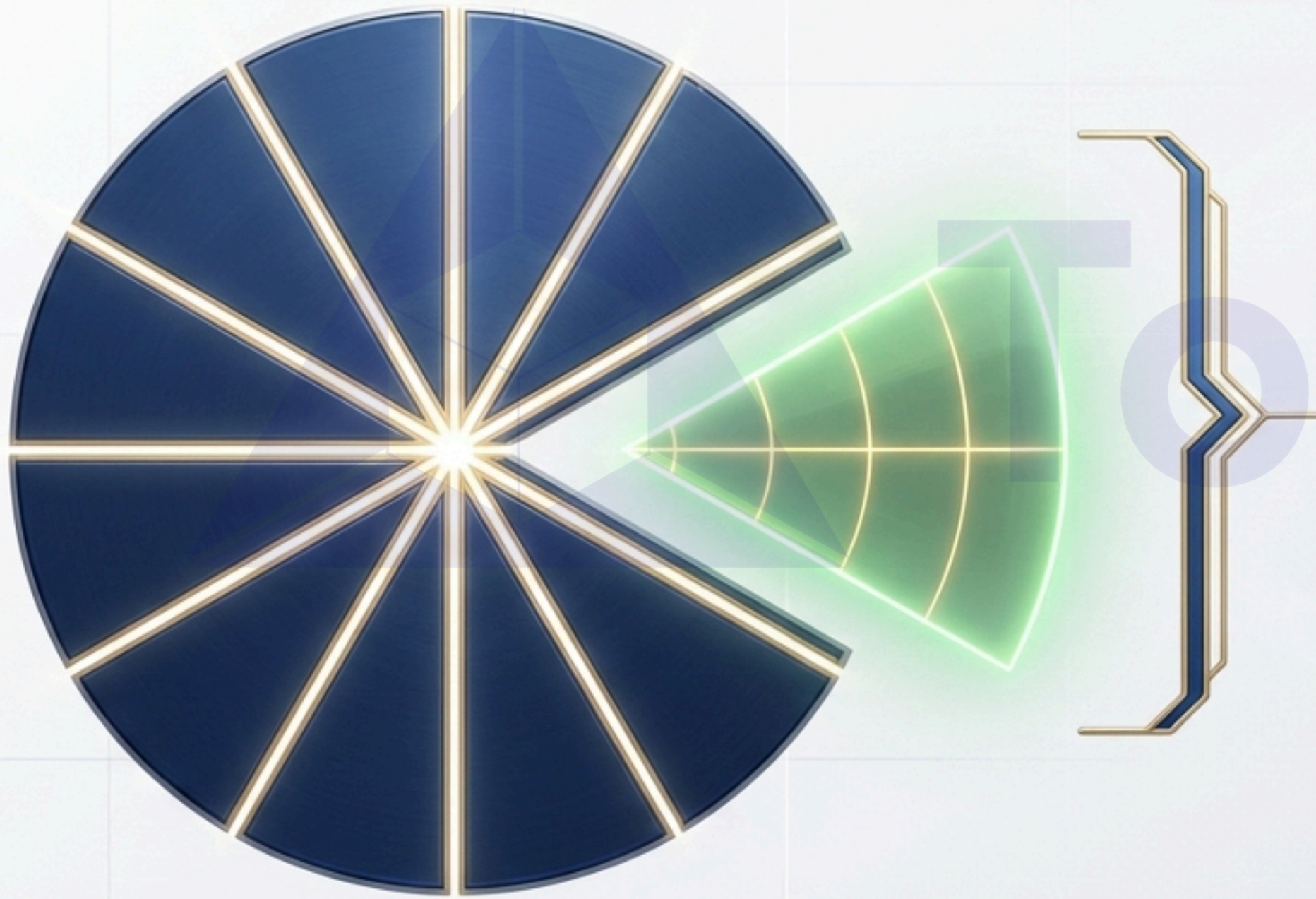
Key Highlights

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- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
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- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



Defining the **Unified Mass Unit (u)**

By assigning Carbon-12 a mass of exactly 12, we can define the fundamental **unit** of atomic mass.



$$1 \text{ u} = \frac{1}{12} \text{ mass of Carbon-12 atom}$$

$$1 \text{ amu} = 1.66056 \times 10^{-24} \text{ g}$$

*Note: 'amu' (atomic mass unit) and 'u' (unified mass unit) are functionally equivalent.

Application 1: Weighing Hydrogen

Application

Absolute Mass (Grams)



Relative Mass (Unified Mass Units)



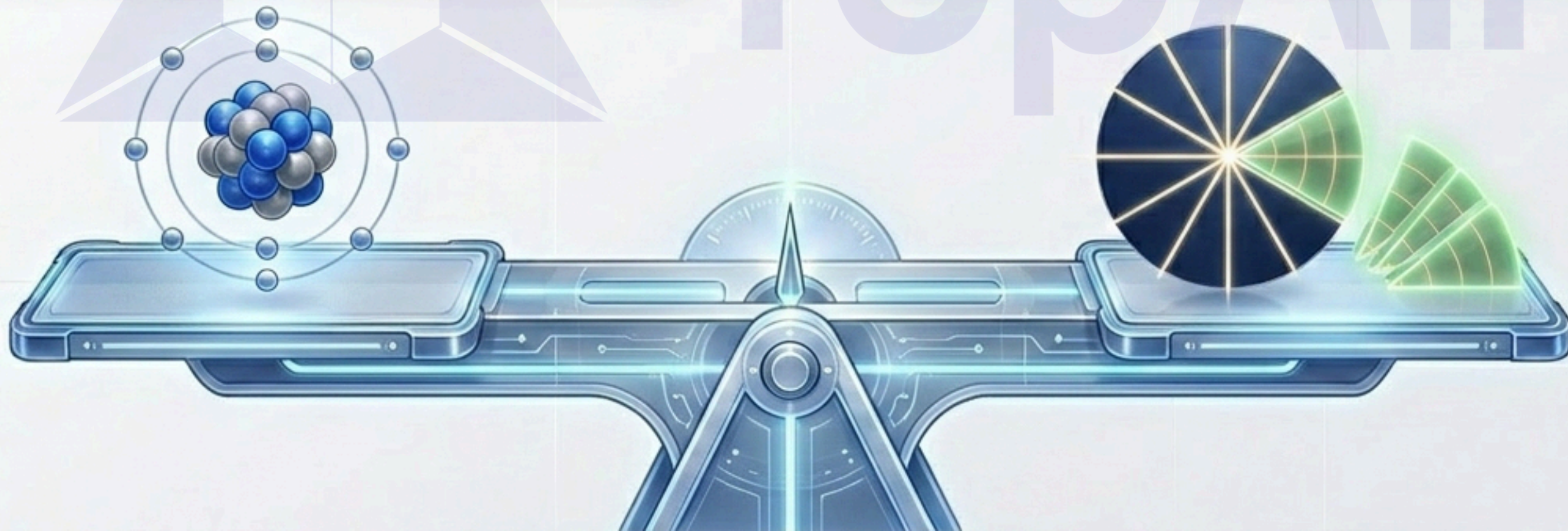
1.0080 unified mass units

Application

Application 2: Weighing Oxygen-16

Absolute Mass (Grams)

Relative Mass (Unified Mass Units)



The Fundamental Takeaway

Atomic mass is a relative scale based on Carbon-12.



We do not weigh atoms in isolation; we measure how many times heavier they are than one-twelfth of a Carbon-12 atom.



You've Learned the Theory.

Now Let's Test It.

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