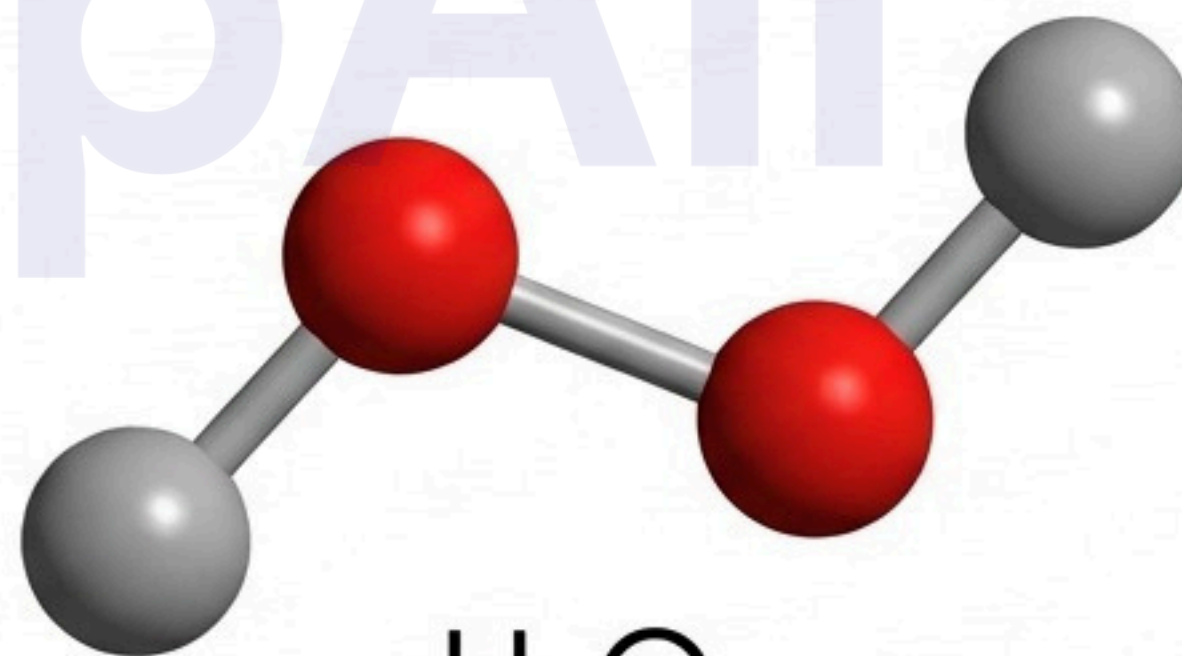
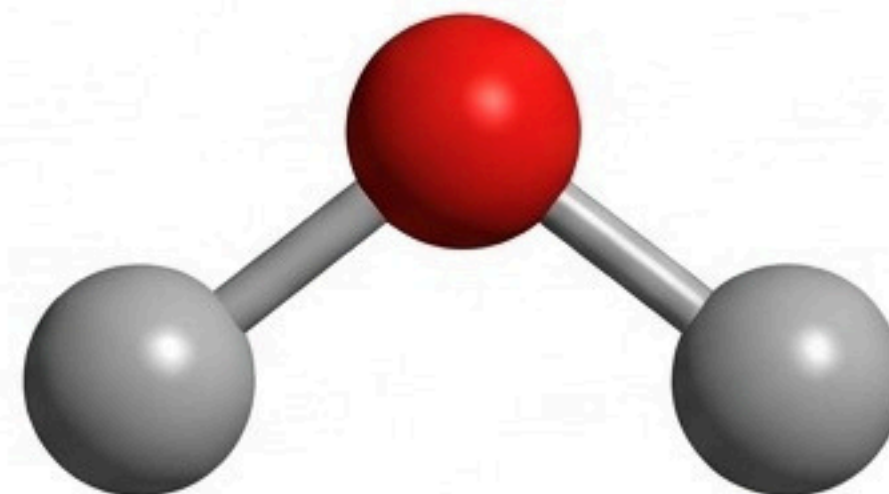


Law of Multiple Proportions

1.5.3 | Laws of Chemical Combinations

**One combination.
Multiple outcomes.
Fixed ratios.**



The Core Concept

—————● 1803 | John Dalton



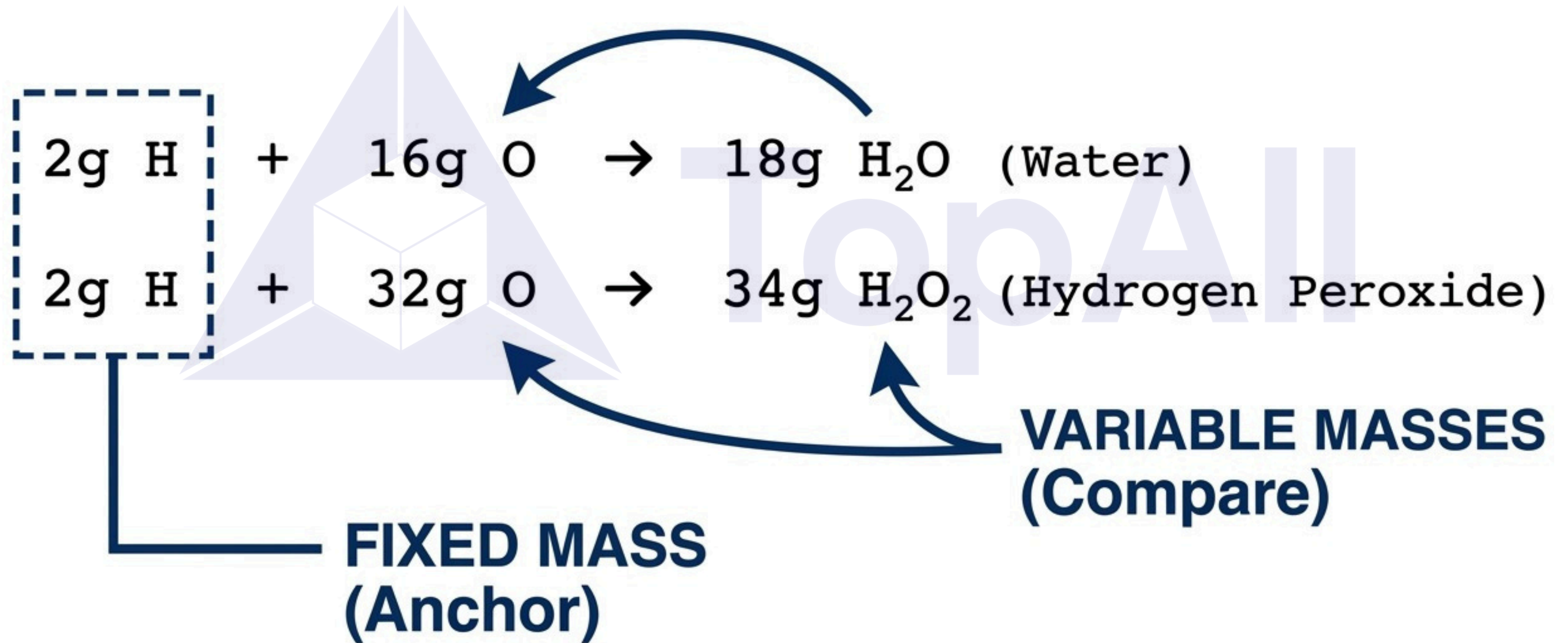
“If two elements can combine to form more than one compound, the masses of one element that combine with a fixed mass of the other element, are in **the ratio of small whole numbers.**”

Element A + Element B $\rightarrow$ Compound 1
Element A + Element B $\rightarrow$ Compound 2



The secret to this law is the phrase ‘**fixed mass**’. You must anchor one element’s mass to accurately compare the other.

The Classic Demonstration





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

$$E=mc^2$$



Turn theory into marks with **unlimited MCQs, smart analysis, and focused revision.**

Practice Now



At prep.topall.app

Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



Extracting the Ratio

Mass of Oxygen in H_2O = 16g

Mass of Oxygen in H_2O_2 = 32g

Ratio = 16 : 32

Ratio = 1 : 2

1:2 is a simple, whole-number ratio. This proves **Dalton's Law:**
matter combines in **discrete**, indivisible packets (atoms).

Failing to Fix One Element First!

Examiners will give you compounds where *both* masses change.

Compound 1: 14g N + 16g O

Compound 2: 28g N + 80g O

The Trap

Students immediately compare Oxygen ($16:80 = 1:5$).

WRONG

The Fix

You MUST scale Compound 1 so the Nitrogen matches Compound 2.

Multiply Compound 1 by 2 →
(28g N + 32g O). **CORRECT**

Now compare Oxygen: $32:80 = 2:5$.

Mini Application

Carbon and Oxygen form two compounds: Carbon Monoxide (CO) and Carbon Dioxide (CO_2). In CO , 12g of C combines with 16g of O. In CO_2 , 12g of C combines with 32g of O. Identify the simple whole-number ratio.

Step 1: Check anchor.
Carbon is fixed at 12g in both.

Step 2: Compare Oxygen.
16g (in CO) vs 32g (in CO_2).

Step 3: $16 : 32 = 1 : 2$.

Revision: Law of Multiple Proportions



1. **Identify** the two elements forming multiple compounds.



2. **Select** one element to serve as your “fixed mass” anchor.



3. **Scale** (multiply/divide) the experimental masses if necessary so your anchor element’s mass is identical across all compounds.



4. **Compare** the masses of the second (variable) element.

Result: They will always form a simple whole-number ratio (e.g., 1:2, 2:3, 1:4).



You've Learned the Theory.

Now Let's Test It.

Reading notes gets you knowledge.

Practicing MCQs gets you marks.

That's exactly what TopAll Pro is built for.

Try TopAll Pro Now

What TopAll Pro Does Differently

-  **Stuck? Snap it. Solve it. — Doubts AI**
Photo → step-by-step solution in seconds, 24/7
-  **Your AI Coach finds your blind spots**
Concept-level weakness detection — not just chapter-level
-  **4.5 Lakh+ questions. Never run out.**
13× more content than any other prep app in India
-  **Build your own test in 60 seconds**
Pick a chapter, set difficulty — AI does the rest instantly.
-  **AI Recommendation that helps you improve**
AI Recommendation Analysis your Tests and tell you where you need to improve.



Practice the moment you finish studying
Jump in while the concept is still fresh in your head

4.5L+
MCQs

1.5L+
Students

AI Powered
In-Depth Analysis