

Balancing Equations

10th Grade

Conservation of mass, enforced with coefficients — never subscripts.



A balanced equation has the same number of each type of atom on both sides, because atoms are never created or destroyed.

- Only coefficients may change — the big numbers in front.
- Never change a subscript; that would change the substance.
- Balance metals first, then non-metals, then hydrogen and oxygen last.
- Polyatomic ions can be balanced as one unit if they stay intact.
- Check by counting every element on both sides at the end.

LOOK FOR IT

$\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$. Carbon 1:1, hydrogen 4:4, oxygen 4:4.

Changing H_2O to H_2O_2 balances nothing — it turns water into hydrogen peroxide.