

# Chemistry Equations Answers (Speedy Study Guides)

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Guides

## CHEMISTRY EQUATIONS & ANSWERS

**HOW TO BALANCE CHEMICAL EQUATIONS**

A chemical equation is a theoretical or written representation of what happens during a chemical reaction. The law of conservation of mass states that no atoms can be created or destroyed in a chemical reaction, so the number of atoms that are present in the reactants has to balance the number of atoms that are present in the products. Follow this guide to learn how to balance chemical equations.

**Method 1 of 2: Traditional balance**

- **Write down your given equation**

$\text{CH}_4 + \text{O}_2 \rightarrow \text{H}_2\text{O} + \text{CO}_2$

This reaction occurs when propane (C<sub>3</sub>H<sub>8</sub>) is burned in the presence of oxygen to produce water and carbon dioxide.
- **Write down the number of atoms that you have on each side of the equation.**

Look at the subscripts next to each atom to find the number of atoms in the equation.

Left side: 1 carbon, 4 hydrogen and 2 oxygen.

Right side: 1 carbon, 2 hydrogen and 3 oxygen.
- **Always leave hydrogen and oxygen for last. This means that you will need to balance the carbon atoms first.**
- **Add a coefficient to the single carbon atom on the right of the equation to balance it with the 1 carbon atom on the left of the equation.**

$\text{CH}_4 + \text{O}_2 \rightarrow \text{H}_2\text{O} + 1\text{CO}_2$

The coefficient 1 in front of carbon on the right side indicates 1 carbon atom just as the subscript 1 on the left side indicates 1 carbon atom.

In a chemical equation, you can change coefficients, but you should never alter the subscripts.
- **Balance the hydrogen atoms next. You have 4 on the left side. So you'll need 4 on the right side.**

$\text{CH}_4 + \text{O}_2 \rightarrow 2\text{H}_2\text{O} + 1\text{CO}_2$

On the right side, you now added a 2 as the coefficient because the subscript showed that you already had 2 hydrogen atoms.

When you multiply the coefficient 2 times by the subscript 2, you end up with 4.
- **The other 6 atoms of Oxygen come from 3O<sub>2</sub> subscript 2 (3x2=6 atoms of oxygen- the other 4=10).**
- **Balance the oxygen atoms.**

Because you've added coefficients to the molecules on the right side of the equation, the number of oxygen atoms has changed. You now have 4 oxygen atoms in the water molecules and 2 oxygen atoms in the carbon dioxide molecule. That makes a total of 6 oxygen atoms.

Add a coefficient of 3 to the oxygen molecule on the left side of the equation. You now have 6 oxygen molecules on each side.

$3\text{CH}_4 + 5\text{O}_2 \rightarrow 4\text{H}_2\text{O} + 3\text{CO}_2$



Molecular Structure of Hydrogen

Atoms combined to  
Molecule Number: 1  
Molecule Weight: 1.0079

Filesize: 8.84 MB

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*An exceptional pdf as well as the typeface utilized was interesting to see. I am quite late in start reading this one, but better then never. I am very happy to explain how this is actually the best pdf i actually have go through within my individual daily life and might be he greatest publication for possibly.*

*(Freddie Zulauf)*

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