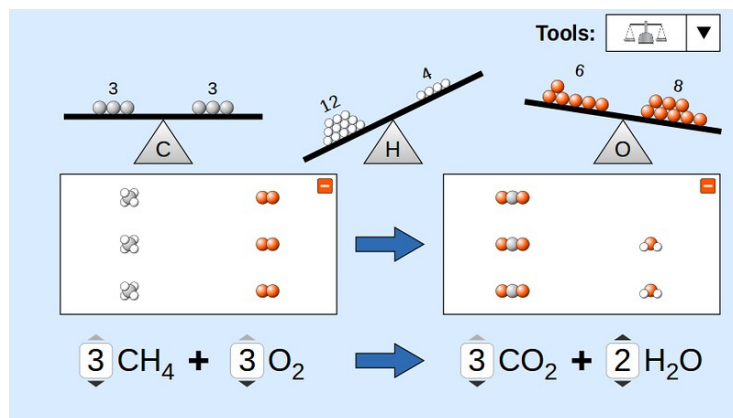


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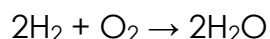
Chemical Reactions and Balancing Equations

Chemical reactions involve the rearrangement of atoms to form new substances. Chemical equations are used to represent these reactions, with reactants on the left side and products on the right side.



Balancing a chemical equation is the process of ensuring that the number of each type of atom on both sides of the equation is the same. This conservation of mass principle is crucial in chemistry.

For example, the balanced equation for the reaction between hydrogen and oxygen to form water is:



This equation shows that two molecules of hydrogen (H_2) react with one molecule of oxygen (O_2) to produce two molecules of water (H_2O).

Questions

1. What are chemical reactions, and why are they important in chemistry?
2. What is a chemical equation, and what does it represent?
3. Why is it essential to balance a chemical equation?
4. Explain the balanced equation for the formation of water from hydrogen and oxygen.
5. True or False: In a chemical equation, the number of atoms can change from reactants to products.