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What is a Chemical Reaction? - Notes Sheet

Key Concepts:

- A _____, such as a state change or dissolving, _____, but a chemical change does.
- In a chemical reaction, the atoms and molecules that _____ _____are called _____.
- In a chemical reaction, the atoms and molecules _____ _____ are called _____.
- In a chemical reaction, _____ _____. No new atoms are _____, and no atoms are _____.
- In a chemical reaction, _____ contact each other, _____in the reactants _____ _____, and _____ _____ to make the _____.

EXPLAIN IT WITH ATOMS & MOLECULES

In a chemical equation, like the one below, you will notice that there are regular-sized numbers in front of some of the molecules and small numbers after certain atoms within a molecule. The little number is called the *subscript* and tells how many of a certain type of *atom* are in a molecule. The bigger number is called the *coefficient* and tells how many of a particular type of *molecule* there are.

If there is a coefficient in front of the molecule and a subscript after an atom, multiply the coefficient and the subscript to get the number of atoms. For example, in the products of the chemical reaction there are two water molecules, or $2H_2O$. The coefficient means that there are two molecules of water. The subscript means that each water molecule has two hydrogen atoms. Since each water molecule has 2 hydrogen atoms and there are two water molecules, there must be 4 (2×2) hydrogen atoms.

CH_4	$2O_2$	CO_2	$2H_2O$
methane	oxygen	carbon dioxide	water

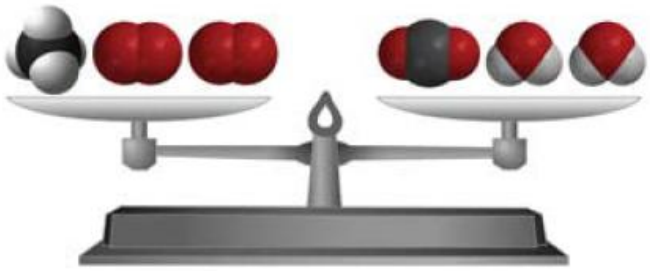
What is a Chemical Reaction, processing…

Count up the number of atoms on each side of the equation below and write this in the chart.

$CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$		
Atom	**Reactant side**	**Product side**
Carbon		
Hydrogen		
Oxygen		

Are atoms created or destroyed in a chemical reaction?

How do you know?



In a physical change, like changing state from a solid to a liquid, the substance itself doesn't really change. How is a chemical change different from a physical change?