

- .) Any chemical change in which matter involves its transformation into one or more new substance is called a chemical reaction
- .) A chemical reaction also involves transfer of energy.
- .) A chemical reaction is a process to show a chemical change.
- .) A chemical reaction is represented by a chemical equation.

### Examples of a chemical Reaction

- 1.) For example, the reaction between hydrogen and oxygen:-  
$$2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$$

2.) Another example, the reaction between Magnesium and Oxygen:-  
$$2\text{Mg} + \text{O}_2 \longrightarrow 2\text{MgO}$$

• In the reaction 1, the hydrogen and oxygen were the elements that undergo chemical change to form a new substance water, a compound which is completely different from hydrogen and oxygen.

• It has been observed that the total mass of the reactants is equal to the mass of the products.

• This is possible when the total number of atoms of each kind ~~is~~ remains same before and after the chemical reactions.

• This is supported by the "Law of Conservation of matter" which states that "Matter can neither be



created nor destroyed. It can be transformed from one form to another.

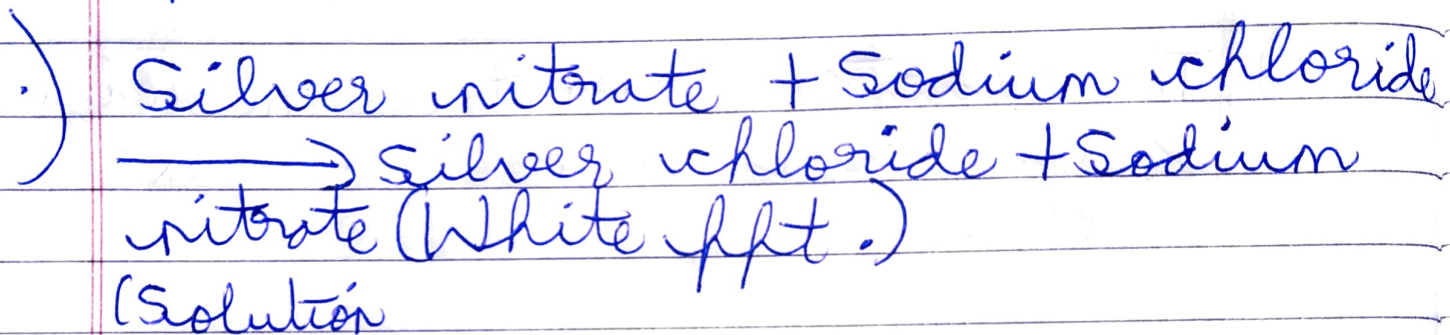
### Close Contact

- ) The reactants must be mixed for a chemical change to take place.
- ) For example, sodium reacts violently with water when in close contact to produce sodium hydroxide and hydrogen gas.
- ) Sodium + Water  $\longrightarrow$  Sodium hydroxide + hydrogen.

### Solution form

- ) Some substances react only when they are in the form of solution.
- ) For example, when sodium

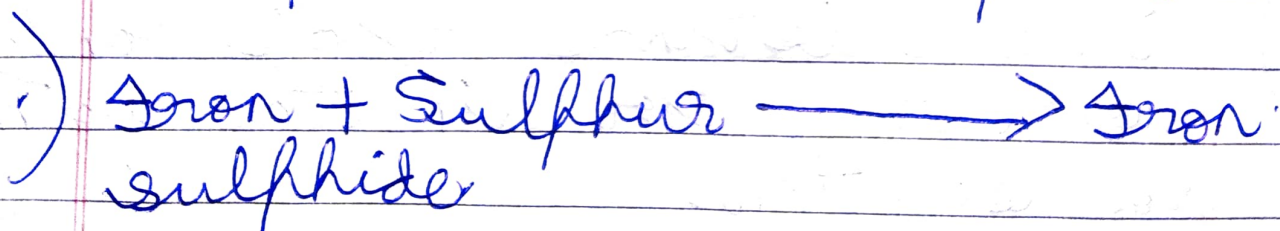
chloride is added to silver nitrate in the aqueous form of in the solution form, they react to produce a white precipitate of silver nitrate.



Heat

.) Some chemical reactions that take place in the presence of heat,

.) For example, Iron reacts with sulphur in the presence of heat to produce Iron sulphide

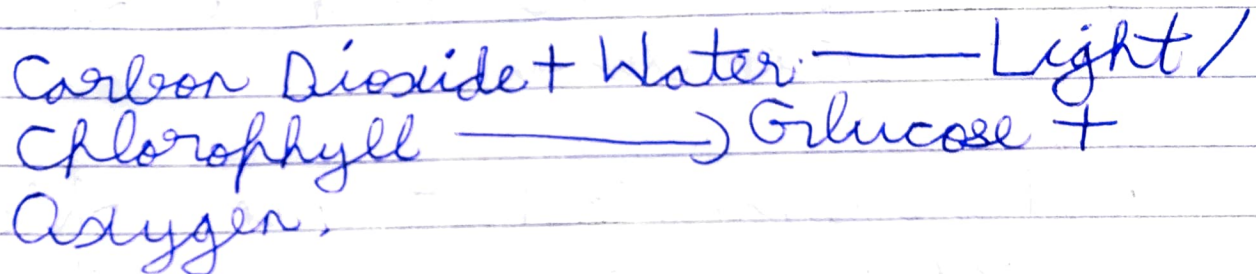




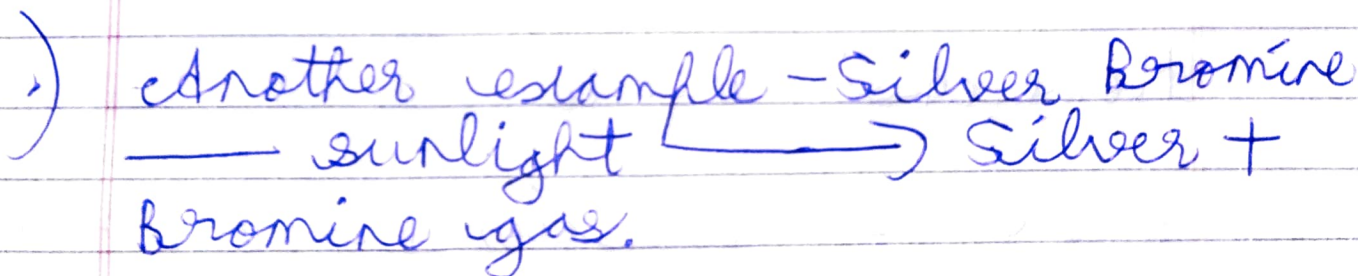
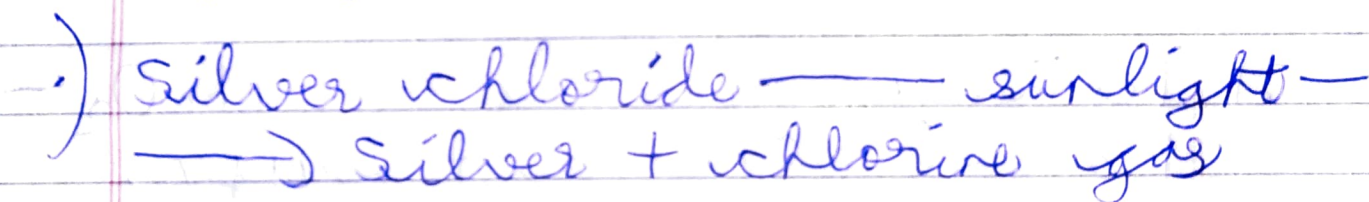
## Light

Some chemical reaction that takes place in the presence of ~~heat~~, light.

For example, Photosynthesis.



Another example of a reaction that takes place in the presence of light.



# Catalyst

A Catalyst is a substance that changes the rate of chemical reactions without undergoing any change by itself.

Some reactions need a catalyst to take place.

For example, Potassium chlorate can be decomposed in the presence of Manganese dioxide as a catalyst to produce potassium chloride and oxygen.

