



CLASS 10- SCIENCE

CHAPTER 3- METALS AND  
NON-METALS

PART 4- CHEMICAL  
PROPERTIES OF NON-METALS



# 1) REACTION OF NON-METALS WITH OXYGEN

★ Non-metals react with oxygen to form non-metallic oxides.

★ The non-metallic oxides are acidic oxides as they turn blue litmus solution to red.



★ Examples-





★ Some non-metal oxides are neutral i.e. they are neither acidic nor basic in nature.

★ Examples-

i) When carbon burns in an insufficient supply of oxygen, it forms carbon monoxide which is neutral in nature, but very toxic.



ii) When hydrogen combines with oxygen, it forms water which is neutral.



★ Non-metals do not react with water or steam to evolve hydrogen gas.

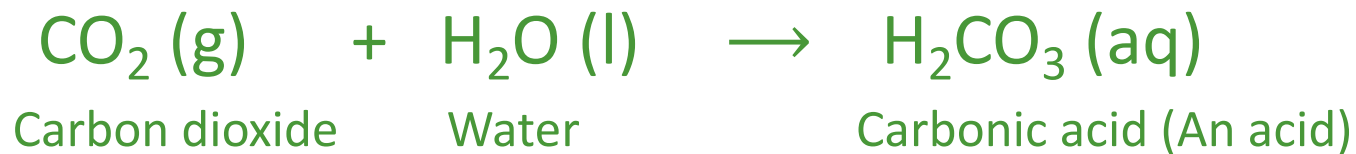
Non-metals + water  $\rightarrow$  No reaction

★ Such reactions do not take place as non-metals cannot donate electrons to reduce the hydrogen ions of water into hydrogen gas.

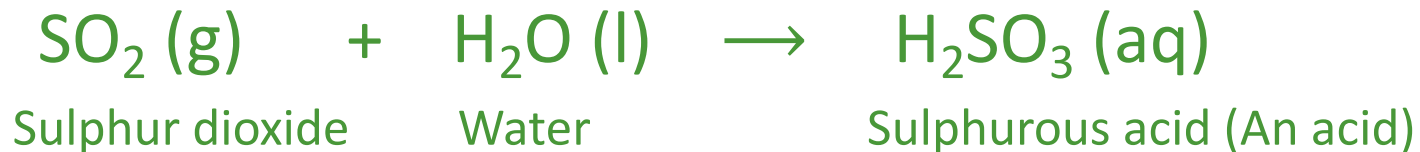
★ Non-metal oxides can react with water to form acids.

## ★ Examples-

i) Carbon dioxide dissolves in water to form carbonic acid.



ii) Sulphur dioxide dissolves in water to form sulphurous acid.



### 3) REACTION OF NON-METALS WITH DILUTE ACIDS

★ Generally, non-metals do not react with dilute acids.



★ Non-metals themselves are acceptors of electrons and so cannot donate electrons to the hydrogen ion of the acid.

★ Exceptions- Some concentrated acids like sulphuric acid and nitric acid, which are strong oxidising agents, can oxidise non-metals like sulphur, phosphorus, carbon etc.

★ Examples-



## 4) REACTION OF NON-METALS WITH SALT SOLUTIONS

★ When a non-metal reacts with a salt solution, then the more reactive non-metal displaces the less reactive non-metal from its salt solution.

★ Example- The passing of chlorine in a solution of sodium bromide gives sodium chloride and bromine, as chlorine is more reactive than bromine.



★ The order of reactivity of non-metals (in decreasing order):

Fluorine > Chlorine > Oxygen > Bromine > Iodine > Sulphur > Phosphorus



THANK YOU