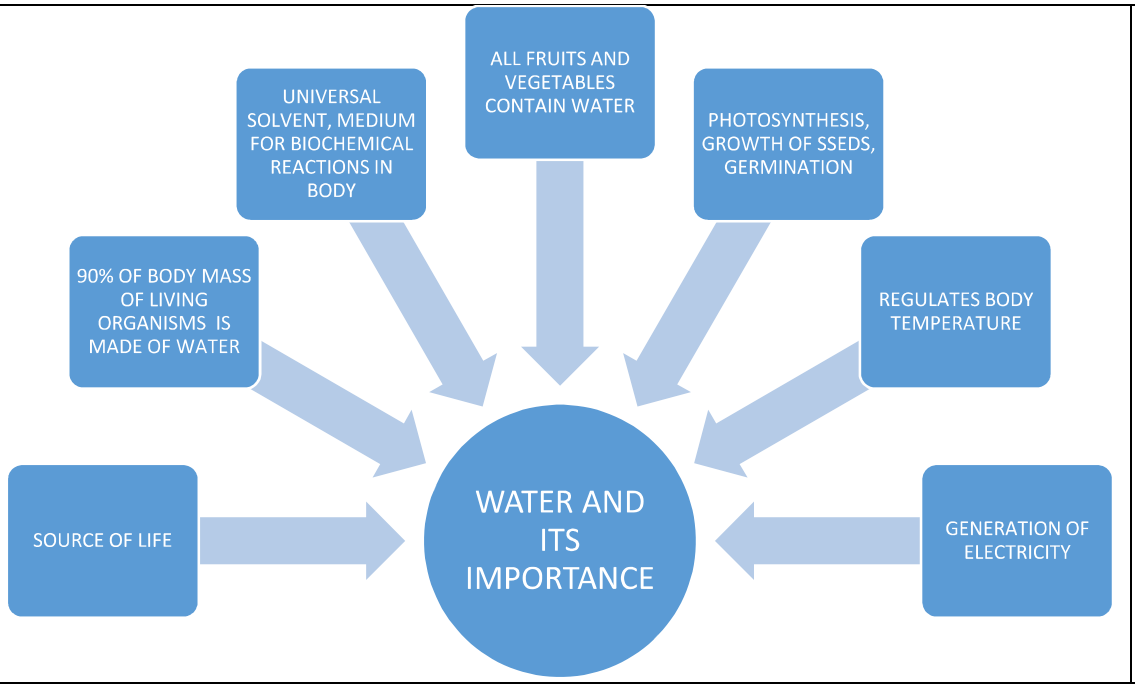
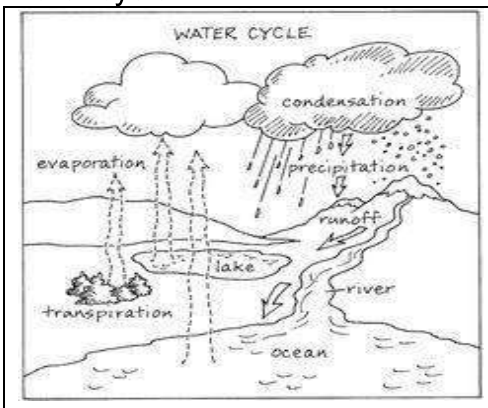
ICSE CLASS 8 CHEMISTRY
WATER

WHY IS WATER IMPORTANT?



Water is a compound made of hydrogen and oxygen
It can be separated into H_2 and O_2 by electrolysis
Freezing pt: 0°C
Melting pt: 0°C
Boiling pt: 100°C
High specific heat

Water cycle



Hard and soft water:
Hard water has dissolved salts of calcium and magnesium. It cannot lather with soap
Soft water has dissolved salts of sodium
It can form lather with soap.
Rain water is soft but may become hard if Ca and Mg salts dissolve in it

Potable water: (drinking water)

- Colourless and odorless
- Clear and transparent
- No microbes
- Should contain minerals needed for body
- Free from harmful chemicals

Reaction with non-metals

$C + H_2O \rightarrow [CO + H_2]$

$Cl_2 + 2H_2O \rightarrow 2HCl + O_2$

Reaction with compounds:

$Na_2O + H_2O \rightarrow 2NaOH$

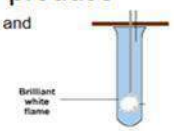
$K_2O + H_2O \rightarrow 2KOH$

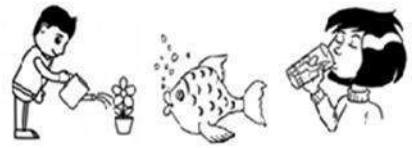
$CaO + H_2O \rightarrow Ca(OH)_2$

$CO_2 + H_2O \rightarrow H_2CO_3$

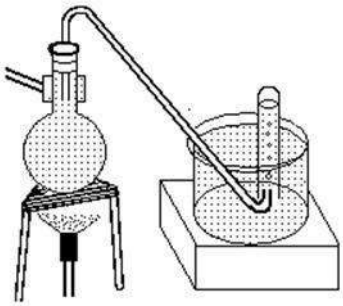
$SO_2 + H_2O \rightarrow H_2SO_3$

Increasingly reactive

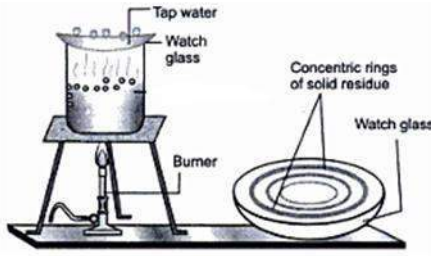
Metal	Reaction with water
Sodium	Violent explosive reaction with cold water
Calcium	Reacts readily, hydrogen gas formed, solution turns milkv 
Magnesium	Reacts with hot water to produce white magnesium oxide and hydrogen 
Iron	Red hot metal reacts with steam to form iron oxide and hydrogen. Reversible reaction



Plants and acquatic animals use dissolved air and solids for growth
We derive mineral content from water we drink



When water is heated, bubbles of gas escape which can be collected by downward displacement of water
This shows the presence of dissolved air in water



When water has evaporated from the watch glass, we find solid residue left behind, showing water has dissolved solids

Prevented by:
Proper collection and disposal of sewage
Proper treatment of industrial wastes to reduce effluents
Treatment of effluents before releasing into water