a) Atomic Structure and Mixtures

b) Periodic Table

c) Structure and Bonding

d) Quantitative Chemistry

e) Chemical Changes

f) Energy Changes

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STATES OF MATTER

Ionic Bonding

Covalent Bonding

Metallic Bonding

State of Matter

Ionic compounds

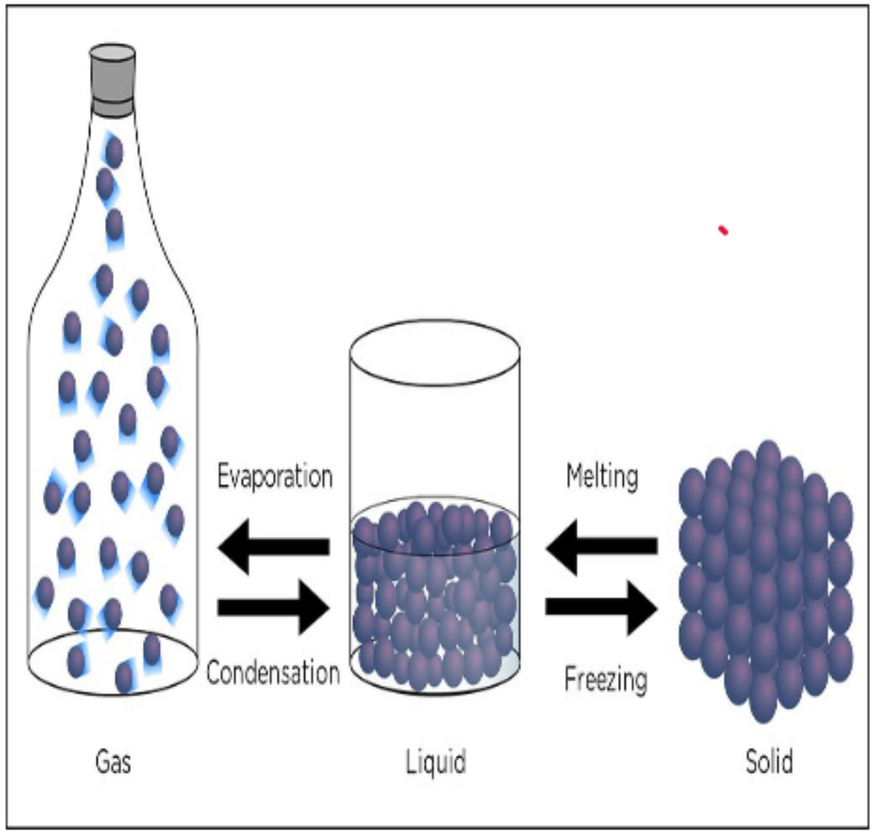
Covalent Compounds

Diamond and Graphite

Nanoparticles

Graphere and Fullerene

STATES OF MATTER !!!!!



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SOLIDS	LIQUIDS	GASES
Particles are close to each other.	Particles are slightly closer to each other.	Particles are far apart.
Have fixed shape	Do not have fixed shape	Do not have fixed shape
Strong forces between the particles	Weak forces between the particles	Very weak forces between the particles.
Have definite volume	Have fixed volume	Do not have fixed volume
cannot be compressed	Can be compressed	Highly compressible
Cannot flow	Can flow	Can flow

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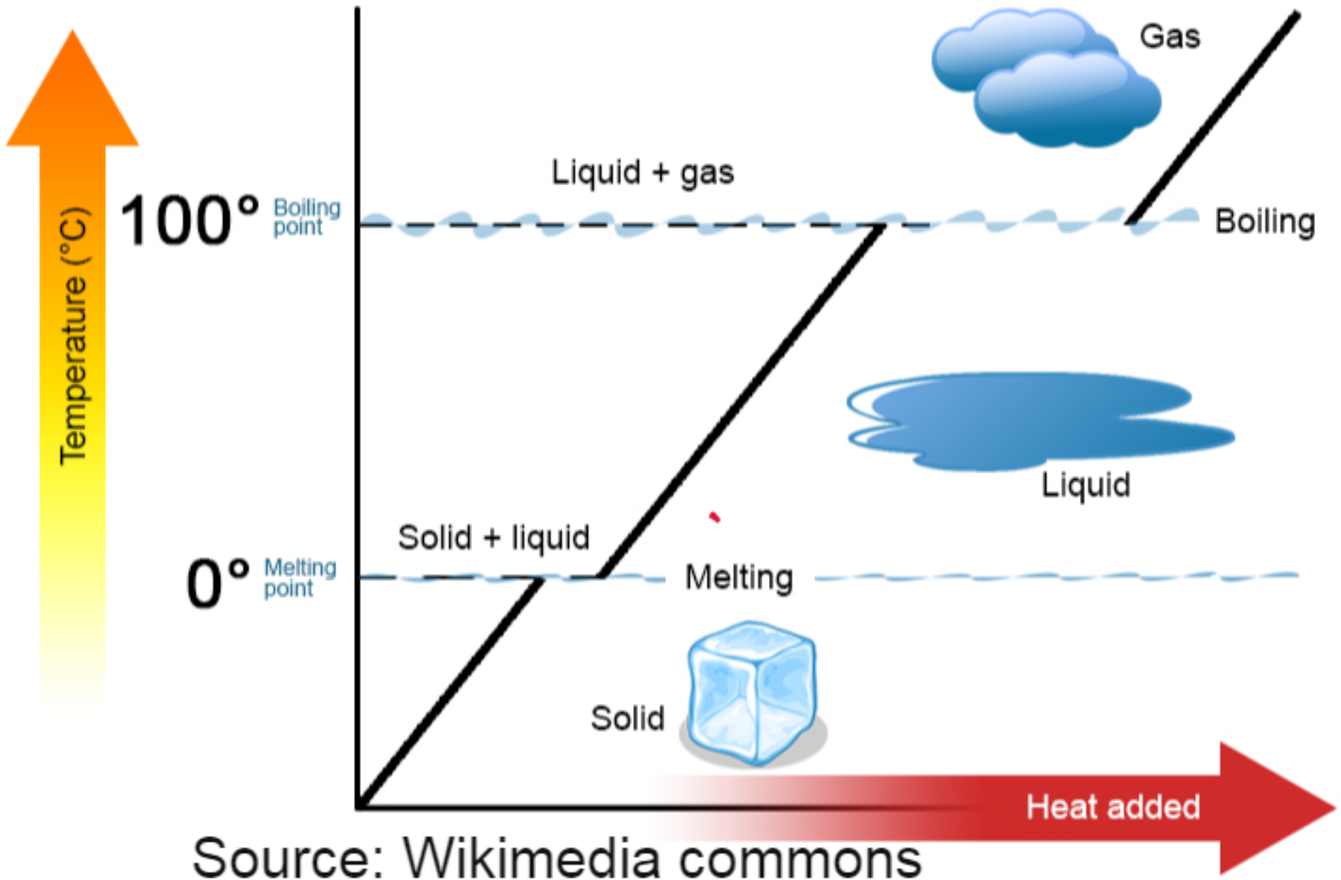

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KEY TERMS !!!!

BitPaper
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Ions – charged atoms with unequal number of protons and electrons.

Ionic Bonding – bond formed between a metal and a non metal which involves complete transfer of electrons from metal to a non metal.

Dot and Cross – diagram that show transfer of electron in an ionic bond or sharing of electrons in a covalent bond.

Covalent Bonding – bonding between two non metals which involves sharing of electrons.

Metallic Bonding – bonding in metals which involves strong electrostatic forces of attraction between fixed positive ions and delocalised electrons.

Intermolecular Forces – The forces between the molecules which determines the melting or a boiling point.

Giant Covalent Molecules – Covalently bonded molecules which forms large giant structure.

Polymers – Molecules which are made up of many repeating units

Delocalised electrons – Mobile electrons that are free to move as they are not associated with a bond or an atom.

Fullerene – Allotrope of carbon which forms a cage like structure like bucky ball.

Graphene – Allotrope of carbon which is equivalent to single layer of graphite

Alloys – Mixture of metals with another metal or a non metal.

Nanoparticles – Particles which are of the size of 1 nm to 100 nm.

Nanoscience – It is the branch of science that deals with nanoparticles.

State of Matter – Different forms that a matter can take. They are solids, liquids and gas.

Solids – States of matter with fixed shape and volume.

Liquids – States of matter without fixed shape but fixed volume.

Gases – States of matter with fixed shape and volume.

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TEST YOURSELF !!!!!

Q1 Name the type of bonding in the following compounds :-

a) Sodium Chloride
b) Magnesium
c) Nitrogen
d) Carbon Dioxide
e) Water
f) Ammonia

Q2 Draw dot and cross diagram to represent bonding in the following
a) sodium chloride
b) Water
c) Magnesium

Q3 Differentiate Between Diamond and Graphite

Q4 Why Ionic compounds do not conduct electricity in solids ?

Q5 Why Alloys are stronger than metals

Q6 Why alumunium has a stronger melting point than sodium

Q7 What are nanoparticles ? Write the properties and applications of nanoparticles

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TEST YOURSELF !!!!!

Q1 Name the type of bonding in the following compounds :-

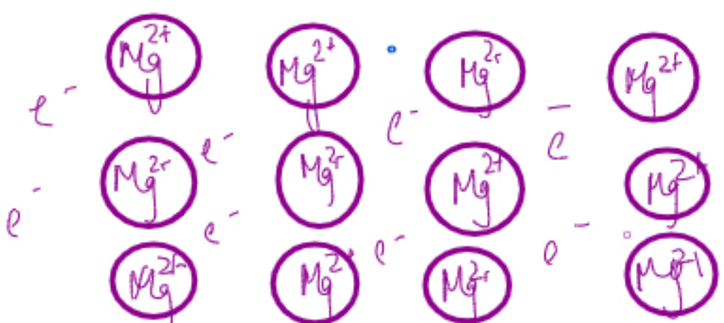
a) Sodium Chloride — Ionic
b) Magnesium — Metallic
c) Nitrogen — Covalent
d) Carbon Dioxide — Covalent
e) Water — Covalent
f) Ammonia — Covalent

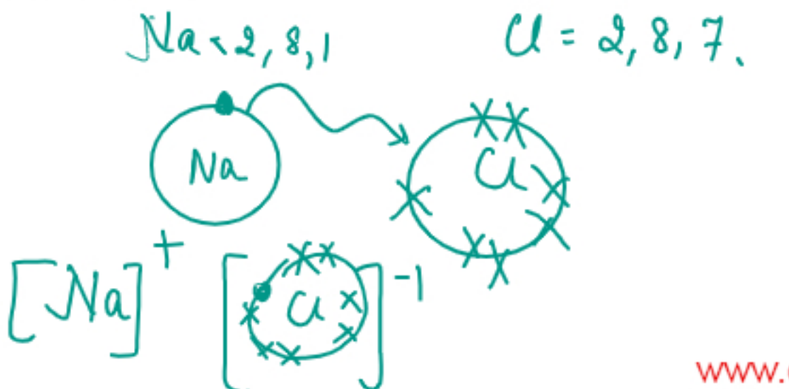
Q3 Differentiate Between Diamond and Graphite

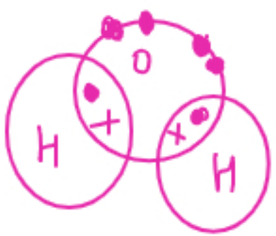
DIAMOND	GRAPHITE
It is hard.	It is soft and greasy.
It is an insulator	It is a conductor
It has a high density.	It has a lower density than diamond.
Each carbon atom is covalently bonded to four other carbon atoms giving it a strong rigid structure.	Carbon atoms are bonded in the form of layer in the form of hexagons. No covelent bonding between the layers so they can slide past. Each carbon atom is bonded with three other carbon leaving the fourth electron has delocalized
No delocalised electrons present	It has delocalised electrons
Used in cutting or jewellery	It is used in pencil leads.

Q2 Draw dot and cross diagram to represent bonding in the following

a) sodium chloride
b) Water
c) Magnesium







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Q4 Why Ionic compounds do not conduct electricity in solids ?

In solids, the ions are held together by strong electrostatic force of attraction in the giant ionic lattice. In molten state the ions are free to move therefore conduct electricity.

Q5 Why Alloys are stronger than metals

Alloys are the mixture of metals which distors the regular arrangement of metal as a result of which layers are not able to slide past each other making alloys stronger than metals.

Q6 Why alumunium has a stronger melting point than sodium

Aluminium has a greater charge. Due to greater charge of aluminium there is a stronger electrostatic forces of attraction between fixed positive ions and delocalised elecctrons. As a result aluminium has a greater melting point than sodium.

Q7 What are nanoparticles ? Write the properties and applications of nanoparticles

Nanoparticles are the particles betwen the size of 1 to 100 nm.

Due to smaller size they have large surface area to volume ratio making them highly useful in medicine, catalysts, cosmetics and electronic industry.

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NEXT STEP !!!!!

- Check the specification
- Do Exam Style Questions on this topic

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