SCH 4U Unit 2

Aggregates

Students will be able to:

Objective 1

- define the meaning of Van der Waals forces (dispersion or London forces) and describe how they affect the properties of the solids that are held together by these bonds

Objective 2

- define dipole-dipole forces and hydrogen bonding and describe how they affect the properties of the solids that are held together by these bonds
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Objective 3

- define metallic bonds and describe how they affect the properties of the solids that are held together by these bonds

Objective 4

- define network solids (covalent crystals)

Objective 5

- define ionic crystals

Objective 6

- develop an appreciation of the idea that substances are held together by both intermolecular and intramolecular forces

Objective 7

- indicate the relative strengths among different intermolecular bonds and using the relative atomic radius and ion/semi-ion charge indicate the relative strength among examples of the same bonding type

Objective 8

- describe the shape and bonding that is found in two and three dimensional network solids and relate this bonding to each solid' s hardness and electrical conductivity

Objective 9

- relate metallic bonding to how many valence electrons are present and ionization energy
- develop skill in using the periodic table to predict which elements or combination of elements are likely to form metallic crystals, network solids or molecular solids

Objective 10

- describe the differences and similarities between metallic and ionic bonding

Objective 11

- explain the properties of substances that are held together by Van der Waals forces, dipole forces or hydrogen bonds

Objective 12

- explain the properties of substances held together by intermolecular ionic bonds

Objective 13

- explain the properties of substances held together by intermolecular metallic bonds

Objective 14

- explain the properties of substances held together by ntermolecular covalent bonds

Objective 15

- recognize and explain which elements in the Periodic Table form liquids or solids held together predominantly by Van der Waals forces

Objective 16

- explain why water is an excellent solvent in terms of its polarity
- identify polar solvent - polar/ionic solute and non-polar solvent – non¥polar solute solubilities