

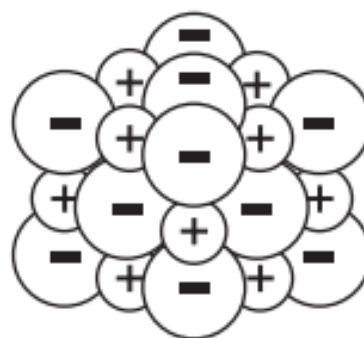
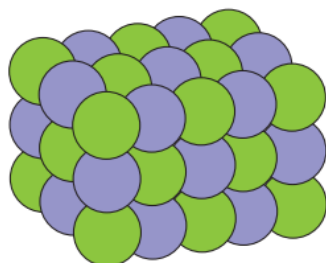
TOPIC 4 SUMMARY NOTES

IONIC BONDING

Summary

- Ions:
 - ions are formed when atoms lose or gain electrons to obtain the stable electron arrangement of a noble gas;
 - in general, metal atoms lose electrons forming positive ions and non-metal atoms gain electrons forming negative ions;
 - ion-electron equations can be written to show the formation of ions through loss or gain of electrons.
- Ionic bonding:
 - ionic bonds are the electrostatic attraction between positive and negative ions;
 - ionic compounds form lattice structures of oppositely charged ions with each positive ion surrounded by negative ions and each negative ion surrounded by positive ions.
- Properties of ionic substances:
 - ionic compounds have high melting and boiling points because strong ionic bonds must be broken in order to break up the lattice;
 - many ionic compounds are soluble in water. As they dissolve the lattice structure breaks up allowing water molecules to surround the separated ions;
 - ionic compounds conduct electricity only when molten or in solution as the lattice structure breaks up allowing the ions to be free to move;
 - conduction in ionic compounds can be explained by the movement of ions towards oppositely charged electrodes.

Structure of sodium chloride



Arrangement of sodium and chloride ions in sodium chloride

