



Unit 4: Chemical Reactions

Lesson 2: Electron Glue

Guiding Question: Explain the 4 types of substances and how they differ from each other (use examples).

Do Now:

What is the main difference between the substances that conducted electricity and those that didn't?

Does it conduct electricity?

Yes

Dissolve?

No

Copper
Aluminium

METALLIC

Yes

NaCl
CaCl₂
CuSO₄

IONIC

No

Dissolve?

Yes

C₁₂H₂₂O₁₁ (sugar)
Ethanol
H₂O

MOLECULAR
COVALENT

No

SiO₂ (sand)
Wax

NETWORK
COVALENT

Notes

- A chemical bond is an attraction between atoms that holds them together in space
- How the electrons are arranged in a chemical bond is responsible for many of the different properties of a substance.

Notes

There are four main types of bonding that we're going to look at:

- Ionic bonding results from the transfer of electrons from one atom to another. The resulting ions have opposite charges and are attracted to one another. Occurs in compounds that contain metals and nonmetals.

Notes

- Covalent bonding happens when one or more pairs of valence electrons are shared between the atoms. Covalent bonding can be molecular covalent (electrons are shared within small molecules) or network covalent (electrons are shared across a large network of nonmetals). Occurs in substances that are made entirely out of nonmetals.
 - A molecule is a group of atoms that are covalently bonded together

Notes

- Metallic bonding is a bond between a large number of metal atoms in which the valence electrons are allowed to move freely throughout the substance. Occurs in substances that are made entirely out of metals.

Closure

- Answer guiding question on page 6.
- Homework #2 due Friday, 2/9 at the start of class.
- Achieve 3000: Give Up Oil? Not So Fast! due Friday, 2/9 at 11:59 pm.