Last Name, First Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_ Period: \_\_\_

**Breaking down Bonding**

**Objective:** Students will learn about chemical potential energy, types of bonds and types of intermolecular forces and how they relate to each other and energy in chemistry.

**Essential Questions:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Thinking Side: Main Notes:

What is energy?

**Types of Energy**

**Kinetic:**

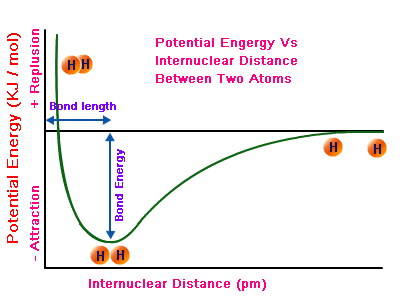
**Potential:**

**Forms of Energy:**

Can you name things that release chemical potential energy and the reaction that releases that energy?

Chemical Bonds:

What holds compounds together?

 Bond Length:

Bond Energy:

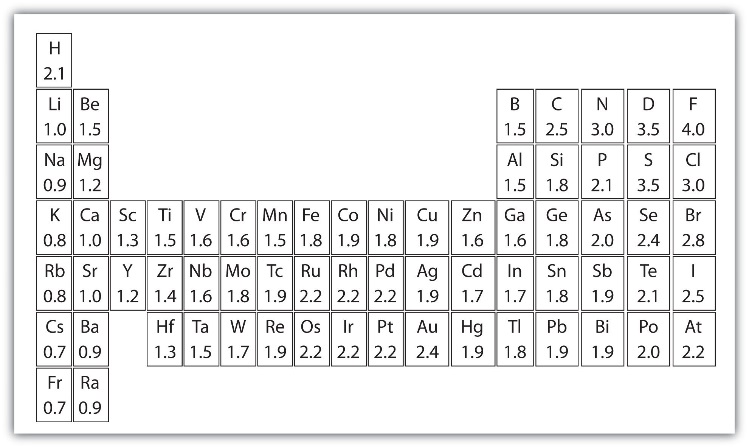
In a covalent bond, are electrons taken or shared?

What does electronegativity mean?

Which electrons participate in bonding?

**Chemical Potential:**

Individual atoms have relatively low stability ( \_\_\_\_\_\_\_ gases are the only exception). Individual atoms become more stable when part of a \_\_\_\_\_\_\_\_\_\_\_\_\_.



valence electrons are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nonpolar covalent:

Draw bonding of H2

What do you think happens when the electronegativities are not the same?

Draw the Lewis dot for C and O

Which has a higher electronegativity?

Which one wants the electrons more?

Polar Covalent Bond:

Draw the polar covalent bond

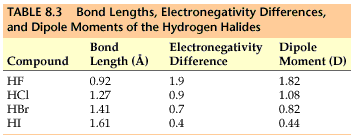
Why is there are partial (-) charge?

Polar Molecules

What does the word polar mean?

Draw the water molecule shown:

Dipole:



Would a greater electronegativity difference be associated with a stronger or weaker bond?

Bringing back Bonding:

Draw the Lewis dot structure for O and H:

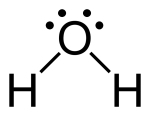
How many H atoms will bond with 1 O?

Carbon dioxide vs Water

Draw the CO2 and H2O molec.

Valence electrons are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Bond energy (KJ/mol) \*bond energy =



Carbon dioxide is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (doesn’t have a dipole), the attractive force between carbon dioxide molecules is \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The attractive force between water molecules is \_\_\_\_\_\_\_\_\_\_\_\_ because of the \_\_\_\_\_\_\_\_\_\_\_ (partial positive and partial negative charges), attractive force btwn. water molecules is \_\_\_\_\_\_\_\_\_\_\_\_\_.

Single bond

Draw:

Double bond

Draw:

Triple bond

Draw:

Intermolecular Forces:

Dipole-Dipole:

London Dispersion: