Session 1 Worksheet

Vocab

Organic Chemistry:

Organic Compounds:

Inorganic Compounds:

Isotopes:

Ex:

Number of Neutrons = 12 – 6 = 6	Number of Neutrons = 13 – 6 = 7	Number of Neutrons = 14 – 6 = 8
$^{12}_{6}C$	$^{13}_{6}C$	$^{14}_{6}C$

Valence Electrons:

The_____number tells you how many valence electrons the element has in the valence shell

Ionic Bonding:

Covalent Bonding:

Polar Covalent:

In the chart below, write down whether the bonding is ionic, covalent, or polar covalent

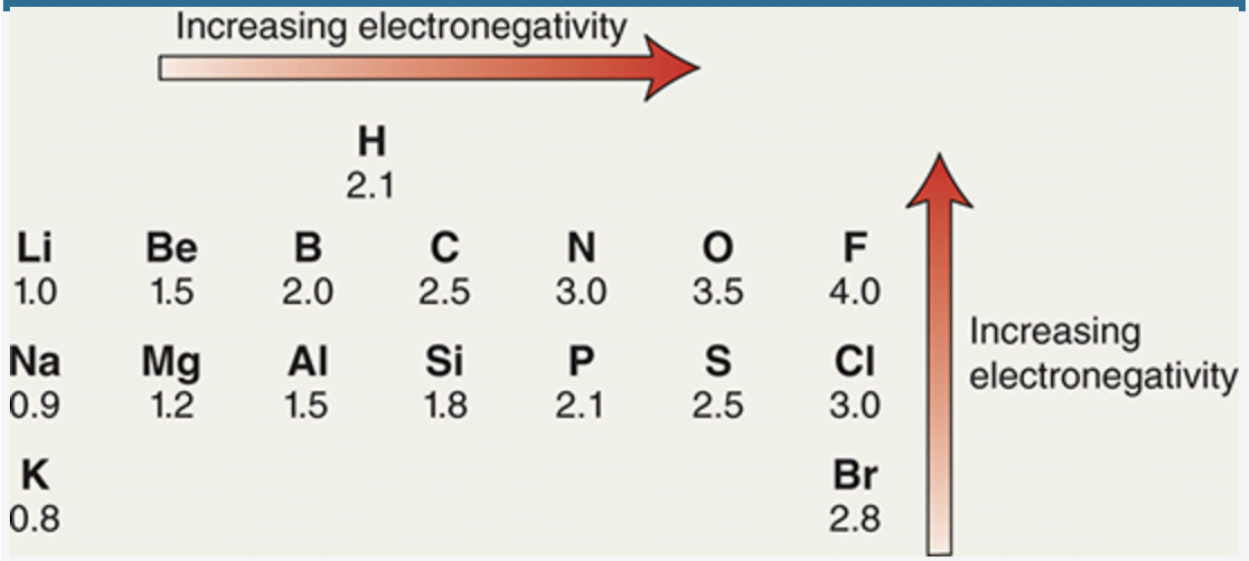
Br_2	NaOH	H_2O	CH_3	NaBr	$C(CH_3)_3$

Electronegativity Trend:

Tournament of the Elements

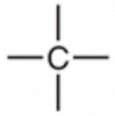
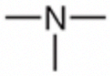
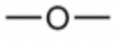
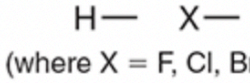
TABLE 1.1

ELECTRONEGATIVITY VALUES OF SOME COMMON ELEMENTS



Heterolysis:

Homolysis:

Tetravalent	*Trivalent*	*Divalent*	*Monovalent*
			 (where X = F, Cl, Br, or I)
Carbon generally forms ***four*** bonds.	Nitrogen generally forms ***three*** bonds.	Oxygen generally forms ***two*** bonds.	Hydrogen and halogens generally form ***one*** bond.

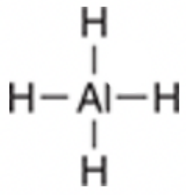
Draw the Lewis structures of:

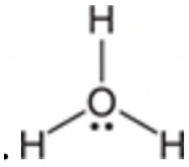
CCl_4 NH_3 Dihydrogen Monoxide

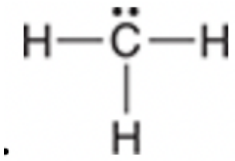
Calculating Formal Charge

Formal Charge = # - -

Find the formal charge of the central atom:

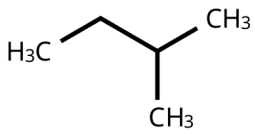
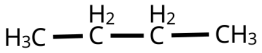
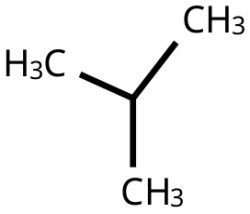
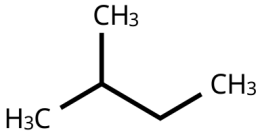
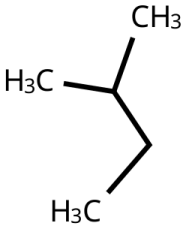






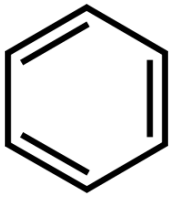
Constitutional Isomers:

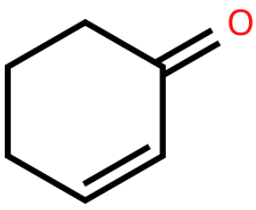
What is the relationship of these molecules? Different, Same, or Constitutional Isomers?

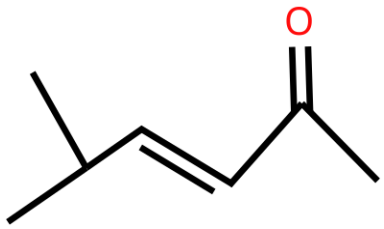
C_4H_{10}	
	
	

In organic chemistry, we mainly use bond line structure to represent compounds, however, converting bond line to condensed formula (and vice versa) is important to understand and know how to do.

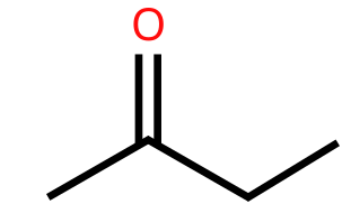
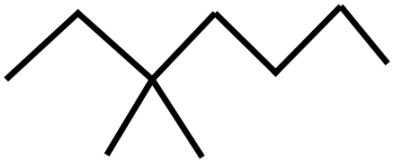
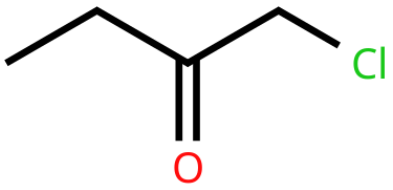
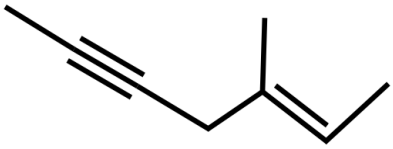
First, start with labelling all carbons, hydrogens, and possible lone pairs on the given structures:







Write the condensed formula given the structure:

Write the structure given the condensed formula:

$CH_3CH_2CH_2CH_2Br$	
$CH_3CH(CH_3)CH_2CH_3$	
CH_2CHCH_2OH	

Wedges and Dashes:

When thinking about molecules in a 3D plane, we use _____to represent the substituent going behind the page, and _____ to represent the substituent coming out of the page