

Atoms  
 basic unit of matter  
 1/100 electrons: negative,  $e^-$  outside of the nucleus  
 neutrons: no charge,  $n^0$  inside nucleus  
 protons: positive,  $p^+$  inside nucleus

Elements  
 - pure substances made up entirely of the same atoms

Isotopes  
 mass # = # of protons + # of neutrons  
 $C_{12} = 6p + 6n$   
 $C_{13} = 6p + 7n$   
 $C_{14} = 6p + 8n$

# of protons and # of neutrons are not the same. radioactive

Sep 14-1:28 PM

Molecule  
 - 2 or more atoms bonded together  
 $H_2O$   
 $NaCl$

Bonds...  $CO_2$   $\Rightarrow$  involves  $e^-$ s  
 Covalent: sharing  $e^-$ s  
 outer shell (orbit) of  $e^-$ s = valence  $e^-$ s

polarity (+) (-)

Sep 14-1:57 PM

Ionic

$Na \cdot Cl \cdot$

$\rightarrow Na^+ Cl^-$

- bond where one atom takes  $e^-$ s from another atom

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