

NAME: \_\_\_\_\_

## ATOMIC STRUCTURE- Review

Use your periodic table to answer the following questions and fill out the following tables.

Subatomic Particle	Charge	Mass	Location	Formula
Proton (defines the type of atom)	+1	1	Nucleus	= atomic number
Neutron	0	1	Nucleus	= mass number - atomic number
Electron	-1	0	Electron clouds orbiting the nucleus	= atomic number - charge

$p^+ = e^-$  in a neutral atom

If there is a negative charge the ion has more electrons than protons (gained  $e^-$  to become an anion)

If there is a positive charge the ion has less electrons than protons (lost  $e^-$  to become a cation)

Atomic mass	28.0855
Symbol	<b>Si</b>
Atomic number	14
Name	Silicon

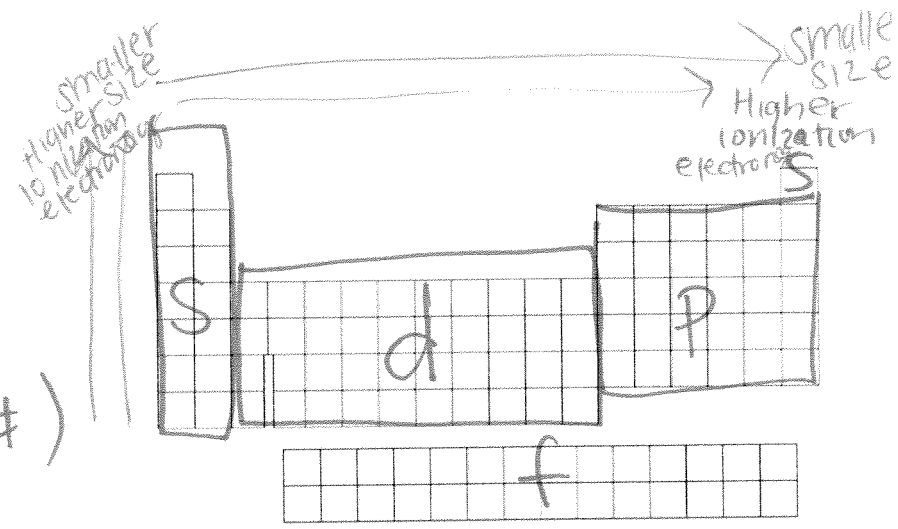
- Atomic number 14
  - # of protons 14
  - # of electrons 14
  - # of neutrons in Silicon-30 16
  - Molar mass 28.09 g/mole
  - # valence electrons 4
- mass #  $p^+ + n^0$*

	Protons	Neutrons	Electrons	Mass Number	Atomic Symbol
a. tin-120	50	70	50	120	<sup>120</sup> <sub>50</sub> Sn
b. boron-11	5	6	5	11	<sup>11</sup> <sub>5</sub> B
c. gallium-69	31	38	31	69	<sup>69</sup> <sub>31</sub> Ga
d. sulfur-35	16	19	16	35	<sup>35</sup> <sub>16</sub> S

*pt + n<sup>0</sup>*      *Max*

	Protons	Electrons
a. $Cl^{1-}$	17	18
b. $Al^{3+}$	13	10
c. $S^{2-}$	16	18
d. $Li^{1+}$	3	2
e. $O^{2-}$	8	10

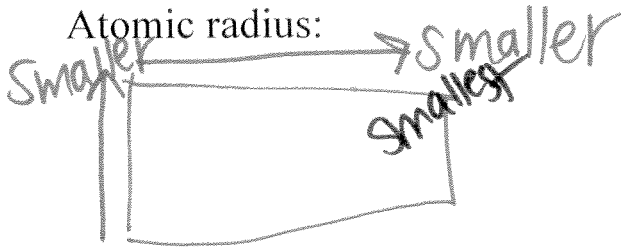
Label periodic table with s, p, d, and f-block



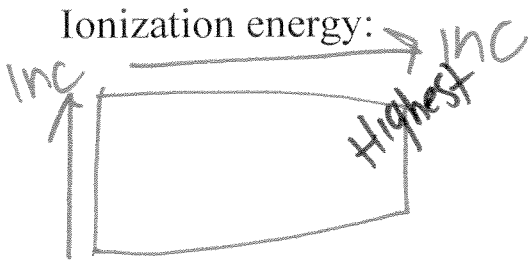
Define isotope:

Same element (#  $p^+$ )  
different  $n^0$  (mass #)

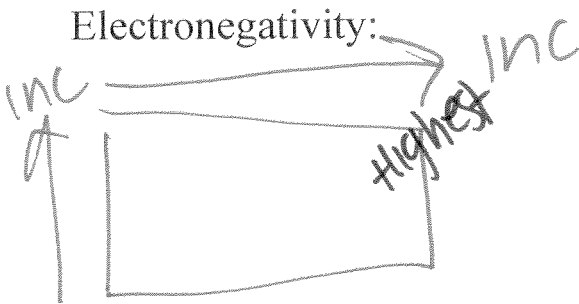
Define and describe the periodic trend exhibited by each of the following.  
Label these trends on periodic table on previous page.



size of the atom



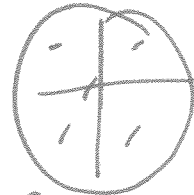
energy needed to remove  $e^-$



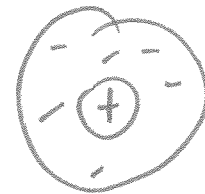
likelihood to take another atom's  $e^-$  in a bond.

Describe each of the following atomic models.

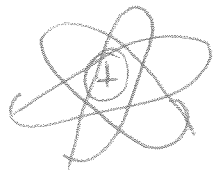
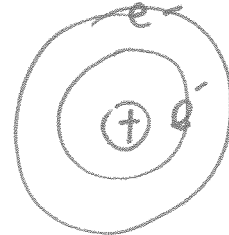
Thomson: plum pudding;  $e^-$



Rutherford: goldfoil exp, nucleus positive  
empty space



Bohr: planetary; orbits/E levels



Quantum-Mechanical: s, p, d, f  
 $e^-$  cloud shapes

