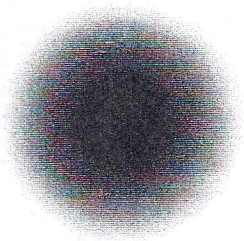
Name _____
Period _____ Date _____

2 · Elements and Compounds

2.1 NOTES – ATOMS, ISOTOPES, IONS

Never trust atoms ... they make up everything!

What an Atom Looks Like



Particle	Symbol	Location	Charge	Mass	Size
Proton					10^{-15} m
Neutron					10^{-15} m
Electron					10^{-18} m

(1 charge = 1.60×10^{-19} C)

How Big Is An Atom?

Watch: http://ed.ted.com/lessons/just-how-small-is-an-atom

- If an atom were the size of a blueberry, there would be enough atoms in a grapefruit the size of _____.
- If at atom were the size of a football stadium, the nucleus would be the size of a _____.
- Between the nucleus and electrons there is _____.
- The density of the nucleus is like putting _____ in a 1 ft^3 box.

Another Model of the Atom:

object	actual size	model size	model
proton	10^{-15} m	10 cm	orange
neutron	10^{-15} m		
electron	10^{-18} m		
atom	10^{-10} m		

The atom's mass is due to: _____

The atom's volume is due to: _____

Isotopic Notation

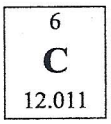
$$^{13}_{6}C$$

- Atomic Number:
- Mass Number:
- If you change the number of protons, you get _____.
  Elements are arranged on the Periodic Table in order of their _____.
- If you change the number of neutrons in an atom, you get _____ of that element.
- If you change the number of electrons in an atom, you get _____ of that element.
  In a neutral atom, _____.

Example 1: State the number of protons, neutrons, and electrons in $^{35}_{17}Cl^-$

Example 2: Mass Number = 60, Atomic Number = 26, Charge = +2
State the number of protons, neutrons, and electrons, and write the atom in isotopic notation.

Atomic Mass



- Atomic Mass:

Example 3: 98.9% of carbon atoms are C-12, and 1.1 of carbon atoms are C-13. Assuming the mass of each isotope is its mass number, calculate the atomic mass of carbon.