All sections marked with a ⚛ are considered essential concepts and must be completed to receive full credit on WS.

1. Octet Rule	C	A.	Elements found on the right side of the periodic table.
2. Metals	B	B.	Elements found on the left side of the periodic table.
3. Valence electrons	D	C.	Says that atoms tend to be more stable with eight valence electrons.
4. Non-metals	A	D.	Electrons in the outermost electron level. Involved in chemical bonding.

How many valence electrons?

Calcium (Ca)	2	Hydrogen (H)	1
Potassium (K)	1	Helium (He)	2
Oxygen (O)	6	Aluminum (Al)	3
Argon (Ar)	8	Sodium (Na)	1
Boron (B)	3	Nitrogen (N)	5

Metal or Non-metal?

M	Aluminum (Al)	M	Iron (Fe)
N	Oxygen (O)	N	Fluorine (F)
M	Gold (Au)	M	Tin (Sn)
N	Nitrogen (N)	M	Lithium (Li)
N	Bromine (Br)	M	Chromium (Cr)
N	Krypton (Kr)	M	Lead (Pb)

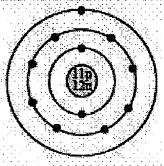
Connect the element on the left with the element on the right that has similar reactivity.

Chlorine	Beryllium
Phosphorous	Potassium
Magnesium	Iodine
Sodium	Aluminum
Boron	Oxygen
Sulfur	Nitrogen

Elements with the same # of Valence electrons *have the same reactivity.*

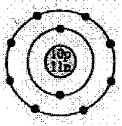
7 protons and 10 electrons. *Neutral atom or ion?*
15 protons and 15 electrons. *Neutral atom or ion?*
35 protons and 37 electrons. *Neutral atom or ion?*

Give the element abbreviation and charge.
5 protons and 2 electrons: Element: B Charge: +3
16 protons and 18 electrons: Element: S Charge: -2
35 protons and 36 electrons: Element: Br Charge: -1



Element: Sodium
# of neutrons: 12
Mass #: 23
# of electrons: 11
# of valence electrons: 1
It is an ion? Yes

Element: Helium
# of neutrons: 2
Mass #: 4
# of electrons: 2
# of valence electrons: 2
It is an ion? No



Element: Neon
# of neutrons: 11
Mass #: 21
# of electrons: 10
# of valence electrons: 8
It is an ion? No

Are these elements isotopes of one another?
Element A: 12 protons; 11 electrons; 13 neutrons.
Element B: 13 protons; 12 electrons; 13 neutrons. No

Are these elements isotopes of one another?
Element A: 14 protons; 15 electrons; 13 neutrons.
Element B: 14 protons; 14 electrons; 15 neutrons. Yes

Are these elements isotopes of one another?
Element A: 12 protons; 11 electrons; 13 neutrons.
Element B: 12 protons; 12 electrons; 13 neutrons. No

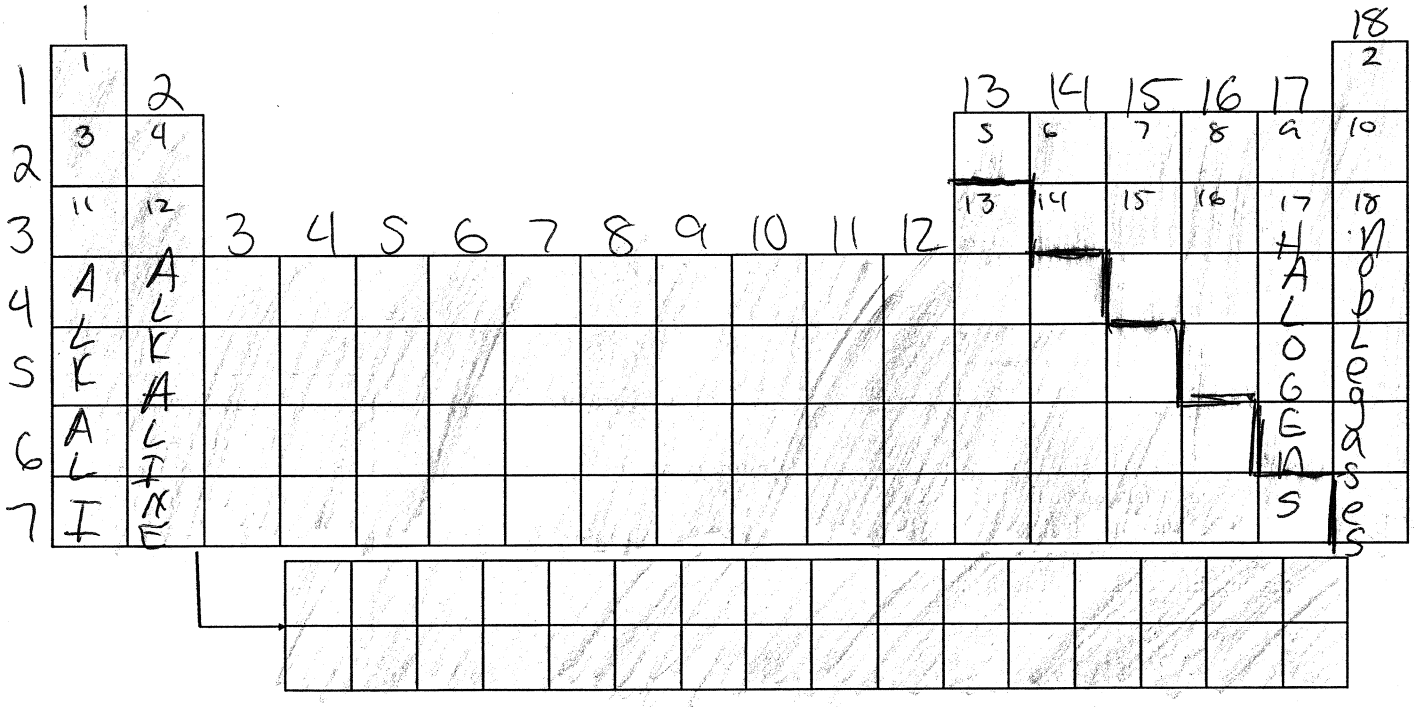
Are these elements isotopes of one another?
Element A: 18 protons; 18 electrons; 18 neutrons.
Element B: 18 protons; 18 electrons; 19 neutrons. Yes

Sulfur (S) is in row 3. Sulfur has 2 complete electron levels and 6 valence electrons in level 3.

Magnesium (Mg) is in row 3. Magnesium has 2 complete electron levels and 2 valence electrons in level 3.

Carbon (C) is in row 2. Carbon has 1 complete electron levels and 4 valence electrons in level 2.

Potassium (K) is in row 4. Potassium has 3 complete electron levels and 1 valence electrons in level 4.

Argon (Ar) is in row 3. Argon has 3 complete electron levels and 8 valence electrons in level 3.

1. Label the Group Numbers (#1-18)
2. Label the Period Numbers
3. Write Atomic Numbers 1-18
4. Color the metals-blue, nonmetals-red, and metalloids-yellow
5. Name the following groups: Alkali Metals, Alkaline Metals, Halogens, and Noble Gases