Name	
Date	Block

Periodic Trend Research

- 1. Which trend are you researching? **Chemical Properties Trend**
- 2. Define "chemical property". _a characteristic that is observed during a chemical reaction
- 3. What are some things you can **observe** that prove a chemical reaction has occurred? <u>color change;</u> temperature change; formation of gas; emitting light; formation of precipitate; change in odor
- 4. List examples of **chemical reactions**? <u>fermentation (gas); oxidation (rust); electrolysis (precipitate);</u> combustion (heat and light); milk souring (odor change)
- 5. Chemical Properties are caused by the *number of valence electrons* in a group or family on the periodic table. List the name and number of valence electrons for each of the following groups. (Hint: Valence electrons can be found in the **s** and **p** block orbitals.)

Group #	Group Name	# of Valence Electrons
1	Alkali Metals	1
2	Alkaline Earth Metals	2
17	Halogens	7
18	Noble Gases	8

- 6. What happens to valence electrons in **ionic** bonding? <u>Metals **transfer** valence electrons to nonmetals</u>
- 7. What happens to valence electrons in **covalent** bonding? <u>Nonmetals share valence electrons</u>
- 8. List some chemical properties of **metals**: <u>Metals lose electrons to become positive cations</u>
- 9. Which group of metals is the most chemically reactive? <u>Alkali Metals (Group 1)</u>
- 10. Why? When they lose 1 valence electron, the next lower orbital has all 8 valence electrons making the ion more stable
- 11. Which metal **element** is the most reactive? <u>Francium (most shielding; least ionization energy)</u>
- 12. List some chemical properties of **non- metals**: <u>Nonmetals gain electrons to become negative anions</u>
- 13. Which group of non-metals is the most chemically reactive? <u>Halogens (Group 17)</u>
- 14. Why? When they gain 1 valence electron, their outer orbital becomes 8 valence electrons making the ion more stable
- 15. Which non- metal **element** is the most reactive? Fluorine (least shielding; highest electronegativity)