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| **Metals** | **Nonmetals** |
| All elements on the left-side the zig-zag line | All elements on the right side of the zig-zag line |
| Exhibit luster, ductility, malleability, conductivity of heat and electricity | One family is inert |
| Almost all are solids at room temperature | May be a solid, liquid, or gas at room temperature |
| Tend to lose electrons in reactions/bonding | Tend to gain electrons in reactions/bonding |
| Reactivity depends upon ionization energy | Reactivity depends upon electronegativity |
| Reactivity decreases across a period, but increases down a family | Reactivity increases across a period, but decreases down a family |
| Francium is the most reactive | Fluorine is the most reactive |
| Low ionization energies | High electronegativities |
| When forming an ion, the outer energy level is lost and a noble gas configuration is achieved. | When forming an ion, the outer energy level is filled and a noble gas configuration is achieved. |
| Form cations | Form anions |
| Ions are smaller than the parent atoms | Ions are larger than the atoms |
| Alkali, alkaline earth, transition, inner transition | Halogens, noble gases, most of the oxygen family |