Chemistry May 15.

I. All chemical interactions are electrostatic in nature and can be described by some variation of Coulombs Law. Elements behavior in forming molecular bonds will depend on their electronegativity.

Electronegativity is a relative ability of nuclei to attract electrons that form chemical bonds. Electronegativity characterizes atom's ability to polarize chemical bond and can be estimated quantitatively.
The first two groups of the periodic table (alkali and alkali-earth metals) have low electronegativity and can be considered as "loosing electrons" when they form chemical bonds. They form positively charged ions in solutions (if soluble).
Electronegativity of atoms in general increases along the periods (rows). Fluorine is the most electronegative atom (3.98). Highly electronegative atoms attract electrons and form negatively charged ions in solutions.

II. The main classes of chemical compounds that we talked about are oxides (acidic and basic), acids (made from hydrogen atoms and a conjugate base, provide proton, H^+ in solutions), bases (made from a metal and hydroxide ion, provide, OH^- in solutions), and salts (made from a metal and a conjugate base).
III. Conjugate bases can transfer from one to another compound without change; hydroxide ions can transfer from one to another compound without change.
IV. Metals generally form basic oxides, bases; non-metals form acidic oxides and acids.
V. However, compounds with metals with intermediate electronegativity can behave both as acids and bases (e.g., Al(OH)3, Zn(OH)2) depending on what they react with (they behave as bases in reactions with acids and as acids in reactions with bases).