Positive Ions (Cations)

Monatomic

Only One Ion Possible

Rule:
Name of element + ion

Examples:
Na^{+} sodium ion
Mg^{+2} magnesium ion
H^{+} hydrogen ion

More Than One Ion Possible (transition metals)

Rule:
Positive charges indicated by a Roman numeral

Examples:
Fe^{+2} iron(II) ion
Fe^{+3} iron(III) ion
Cu^{+} copper(I) ion
Cu^{+2} copper(II) ion

Polyatomic

Rule: Cations formed from nonmetal atoms have names that end in –ium

Examples:
NH_4^{+} ammonium ion
H_3O^{+} hydronium ion
Hg_2^{+2} mercury(I) ion

Negative Ions (Anions)

Monatomic

Rule:
Stem of the element name + ide

Examples:
H^{-} hydride ion
F^{-} fluoride ion
O^{-2} oxide ion
N^{-3} nitride ion

Oxyanions (Containing Oxygen)

Rule:
Least oxygen: hypo_ite ion
Less oxygen: _ite ion
More oxygen: _ate ion
Most oxygen: per_ate ion

Examples:
ClO^{-} hypochlorite ion
ClO_2^{-} chlorite ion
ClO_3^{-} chlorate ion
ClO_4^{-} perchlorate ion
SO_3^{-2} sulfate ion
SO_4^{-2} sulfite ion

Comment: Halogens (except F) form all four ions. Most others only form two ions, the _ite and the _ate ions.

Oxyanions (Containing Hydrogen)

Rule:
H oxyanion: "hydrogen" + name of oxyanion or "bi" + oxyanion
H_2 oxyanion: "dihyrogen" + name of oxyanion

Examples:
HCO_3^{-} hydrogen carbonate ion or bicarbonate ion
HSO_4^{-} hydrogen sulfate ion or bisulfate ion
$H_2PO_4^{-}$ dihydrogen phosphate ion

Comment:
H_2CO_3 is not named according to this rule because it is a compound, not an ion.

Others and Exceptions

Rule:
These items do not follow any rules; they must be memorized.

Examples:
OH^{-} hydroxide ion
CN^{-} cyanide ion
SCN^{-} thiocyanate ion
O_2^{-2} peroxide ion
$C_2H_3O_2^{-}$ acetate ion