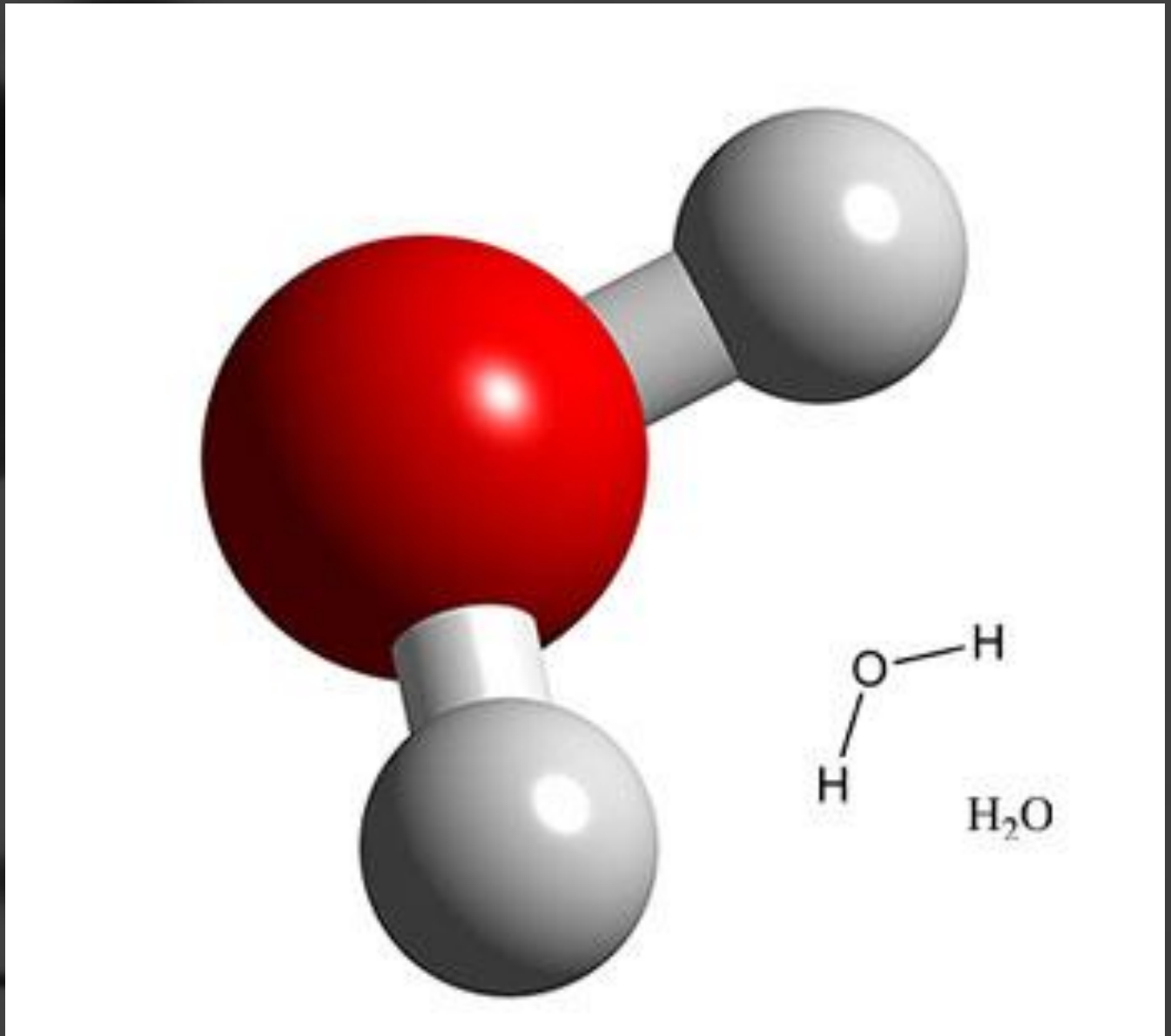
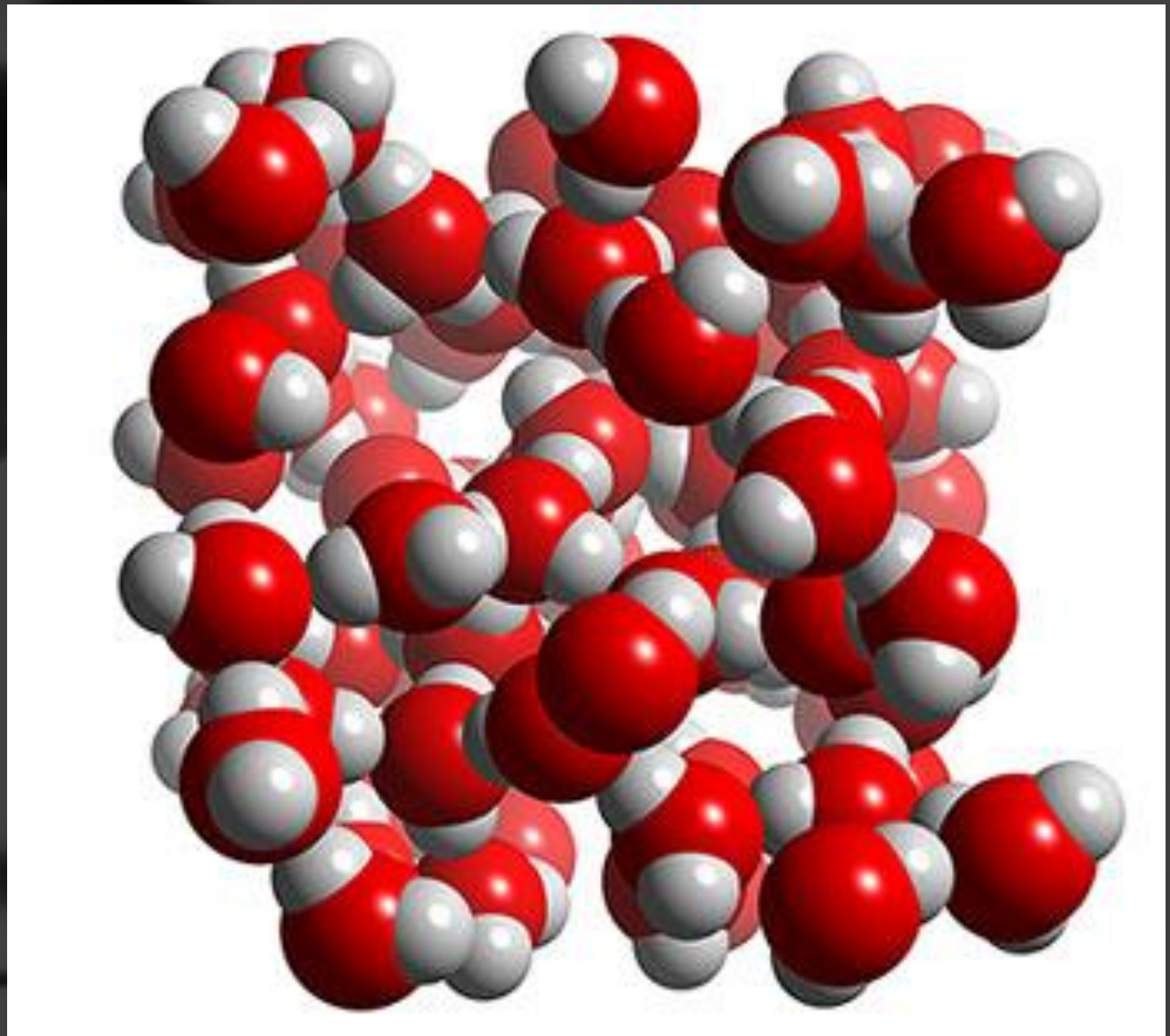

Compounds

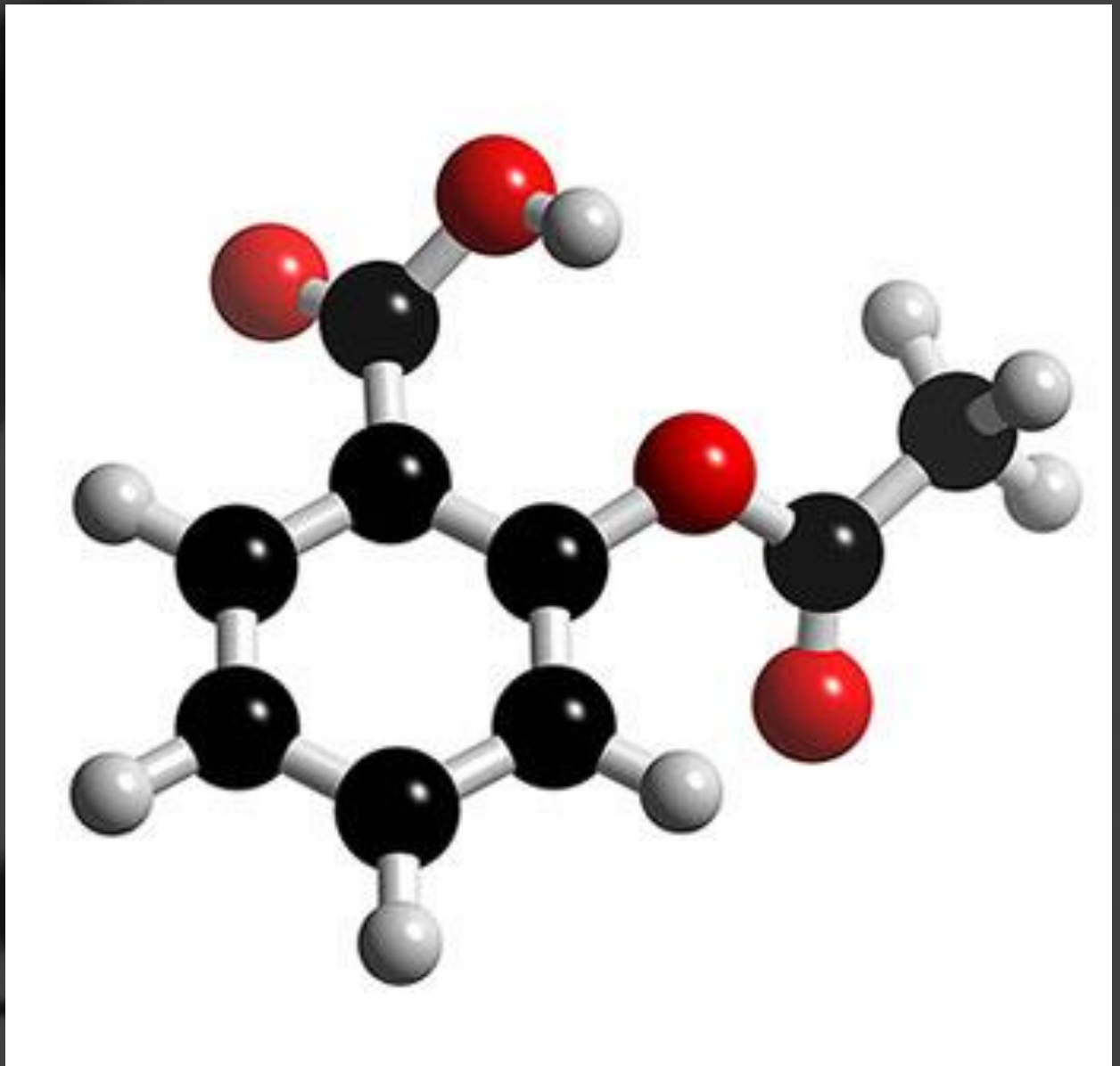
Water (a single particle)



Water (many particles)



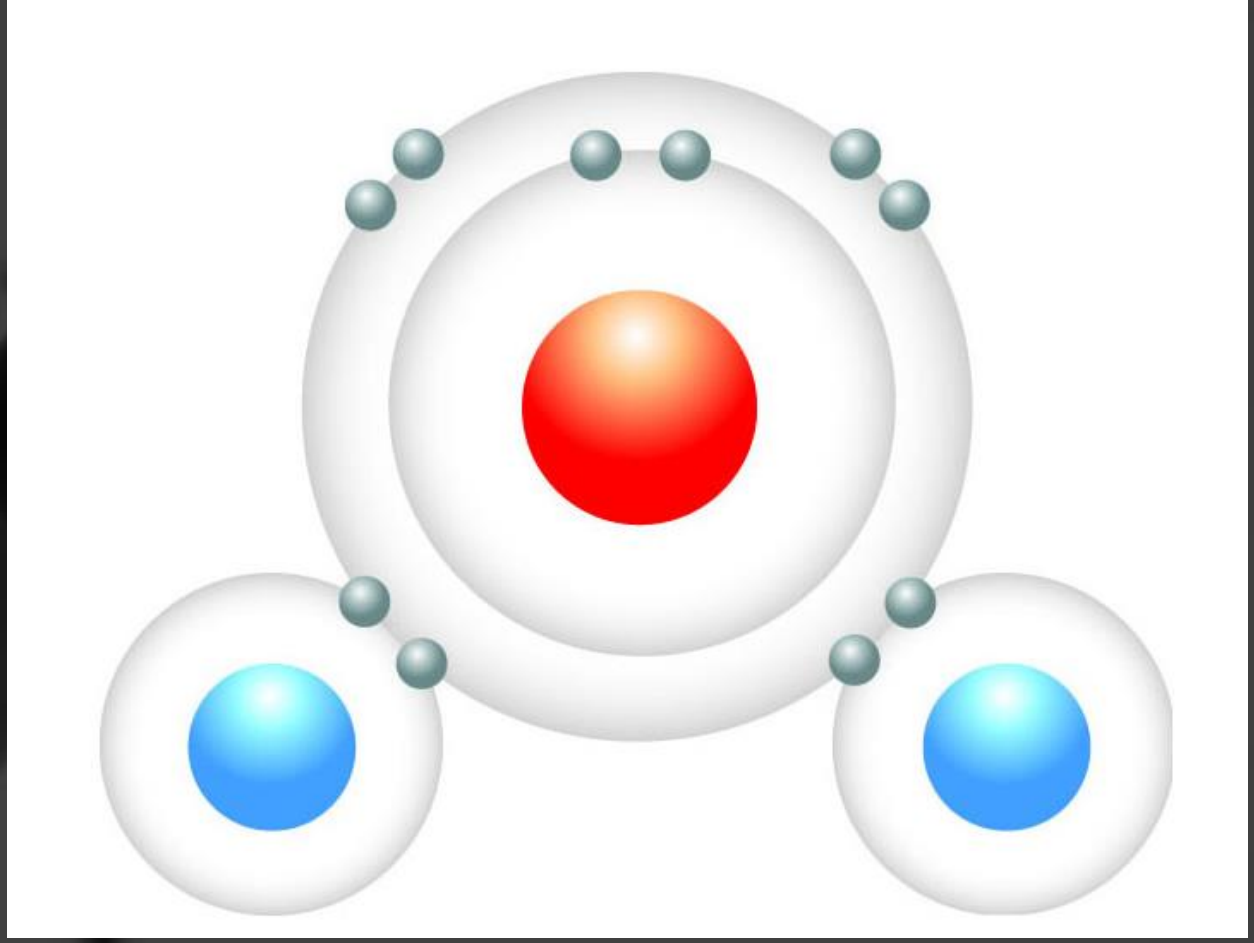
Aspirin ($C_9H_8O_4$)



Napalm

Covalent Compounds (Molecules)

- Atoms combine by sharing valence electrons to form a molecule
- A **molecure** is a group of atoms connected by the sharing of one or more pairs of electrons
- The shared pairs of electrons form “covalent bonds”
- Ex : CO_2 and H_2O



The Bohr model for water → notice how the electrons are shared

Hydrogen

Ionic Compounds

- Atoms gain or lose one or more electrons to form a compound
- Ex : Na and Cl form NaCl

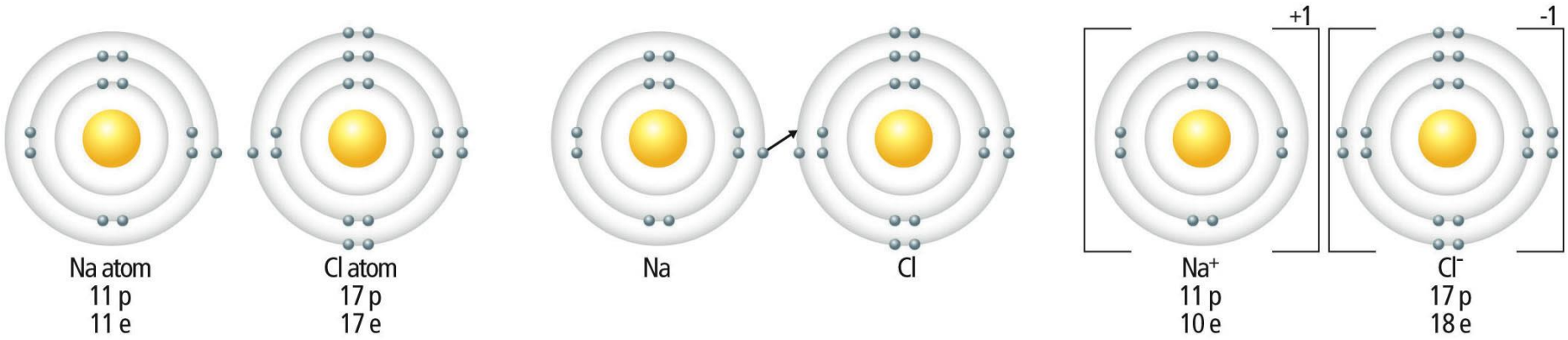
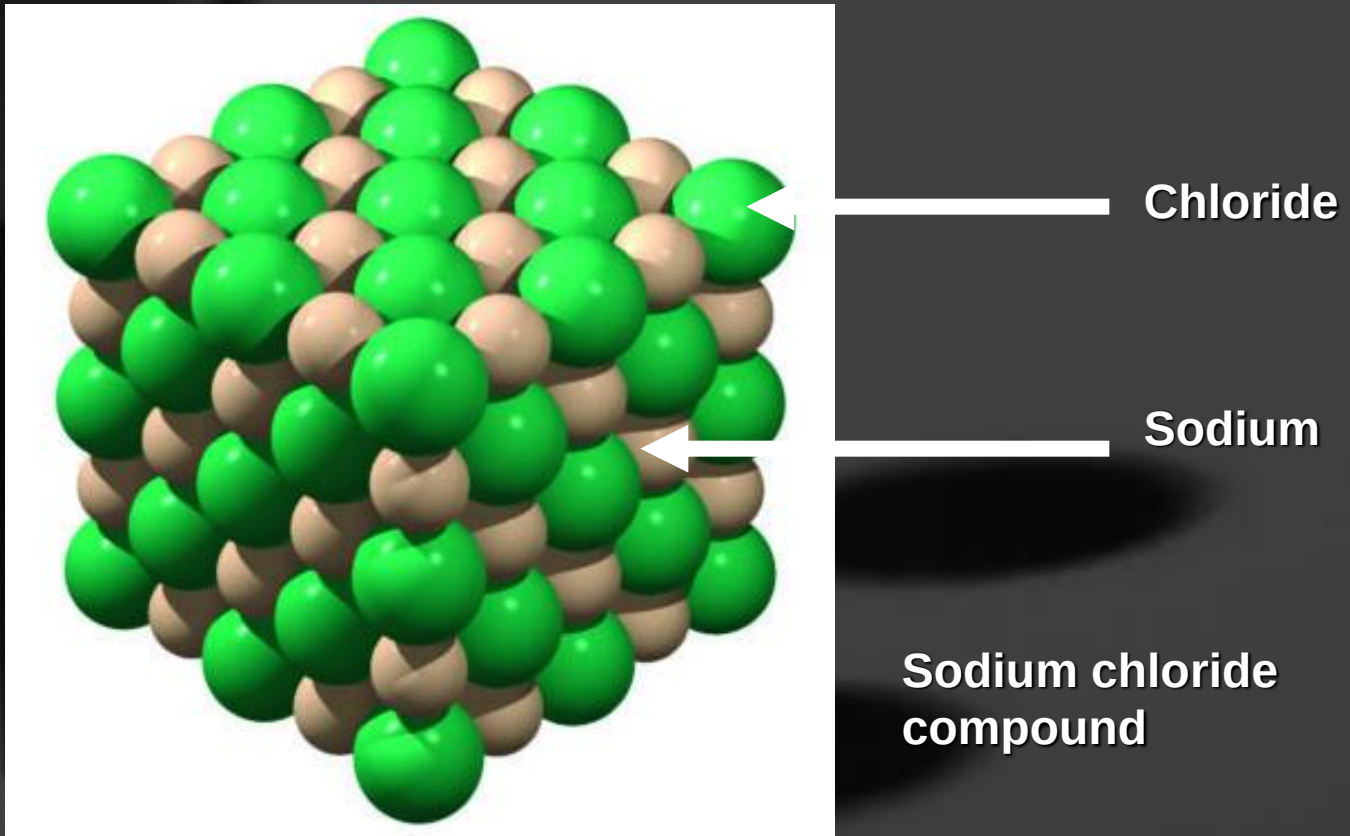


Figure 3.3 An ionic compound forms when an electron on a metal atom transfers to a non-metal atom, creating oppositely charged ions.

Ionic compounds form when a metal transfers its valence electron(s) to a non-metal

Ionic lattice

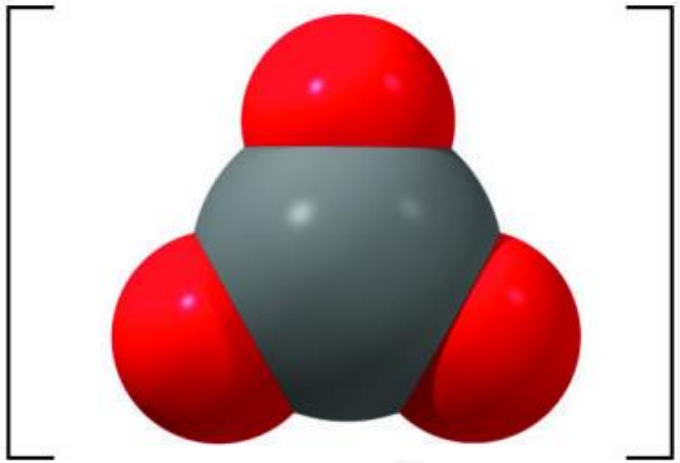
- A repeating pattern of positive and negative ions




Na
Cl

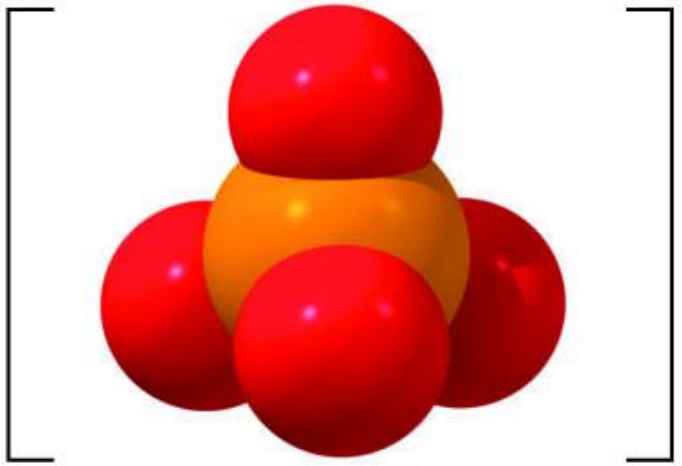
Polyatomic Ions

- An ion made up of more than one type of atom
- « poly » means more than one
- Ex : Ammonium NH_4^+ ; see p.92 for the table of Common Polyatomic Ions



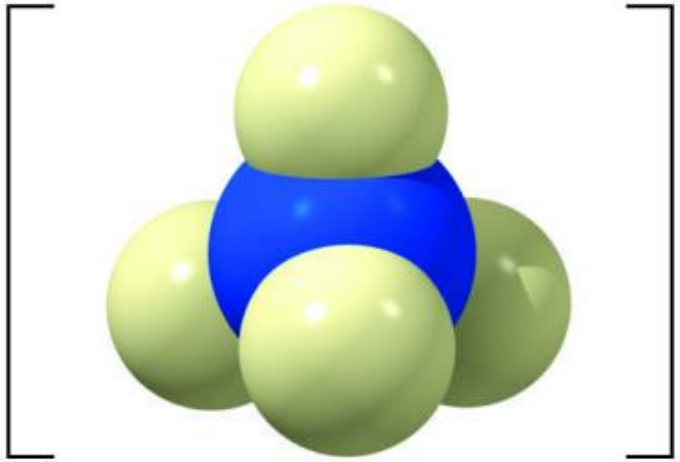
CO_3^{2-}

carbonate



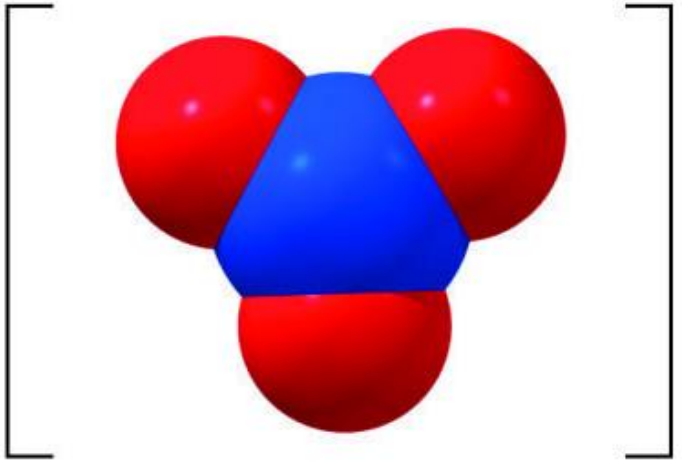
PO_4^{3-}

phosphate



NH_4^+

ammonium



NO_3^-

nitrate