VIIIB *Metals*

In order of increasing atomic number the members of group VIIIB of the periodic table are:

iron,
cobalt,
nickel,
ruthenium,
rhodium,
palladium,
osmium,
iridium,
platinum and
unnilennium.

Ruthenium, rhodium and platinum have one electron in their outer shells; iron, osmium, cobalt and nickel have two electrons in their outer shell; iridium has 17 outer electrons and palladium 18 outer electrons. Although all of these elements fall into one group, they appear in the classification in three subgroupings (hence the sometimes used terms *triads*): (1) iron, cobalt and nickel each have valences of 2+ and 3+; (2) ruthenium, rhodium and palladium each have valences of 4+, in addition to other valences; (3) osmium, iridium, and palladium each have valences of 4+, in addition to other valences.