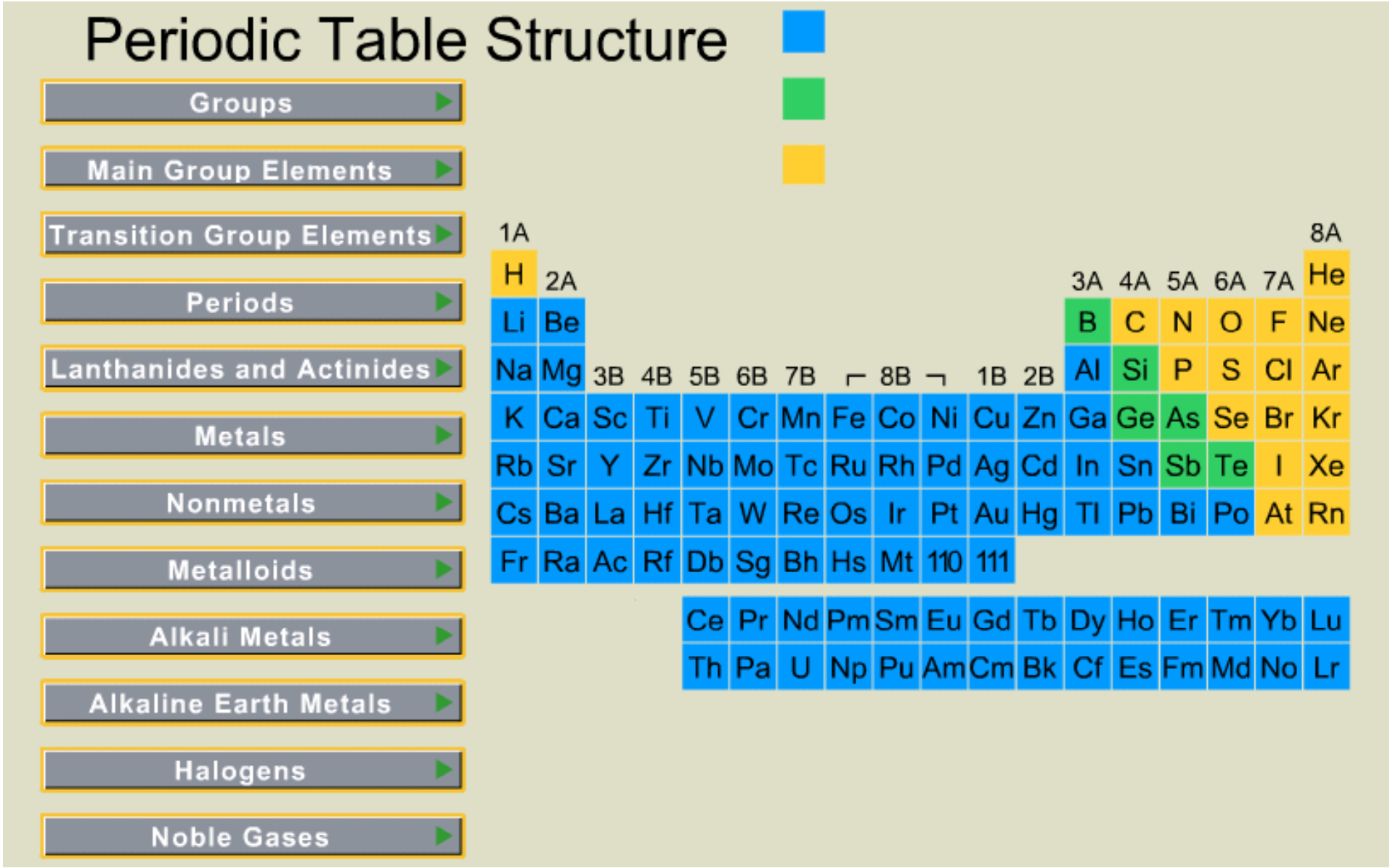
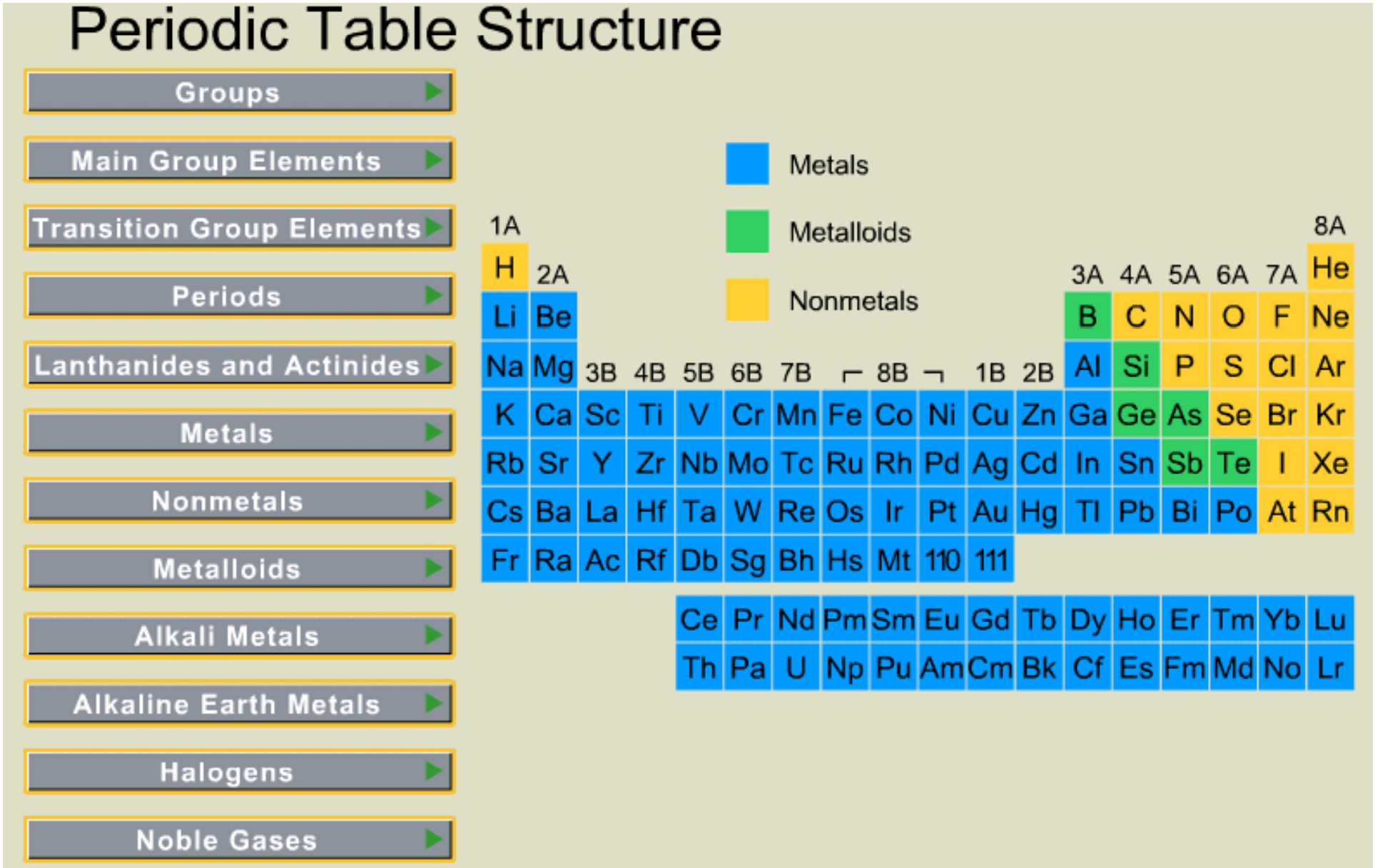
2.5 What Is the Periodic Table – *Metals – Nonmetals – Metalloids*



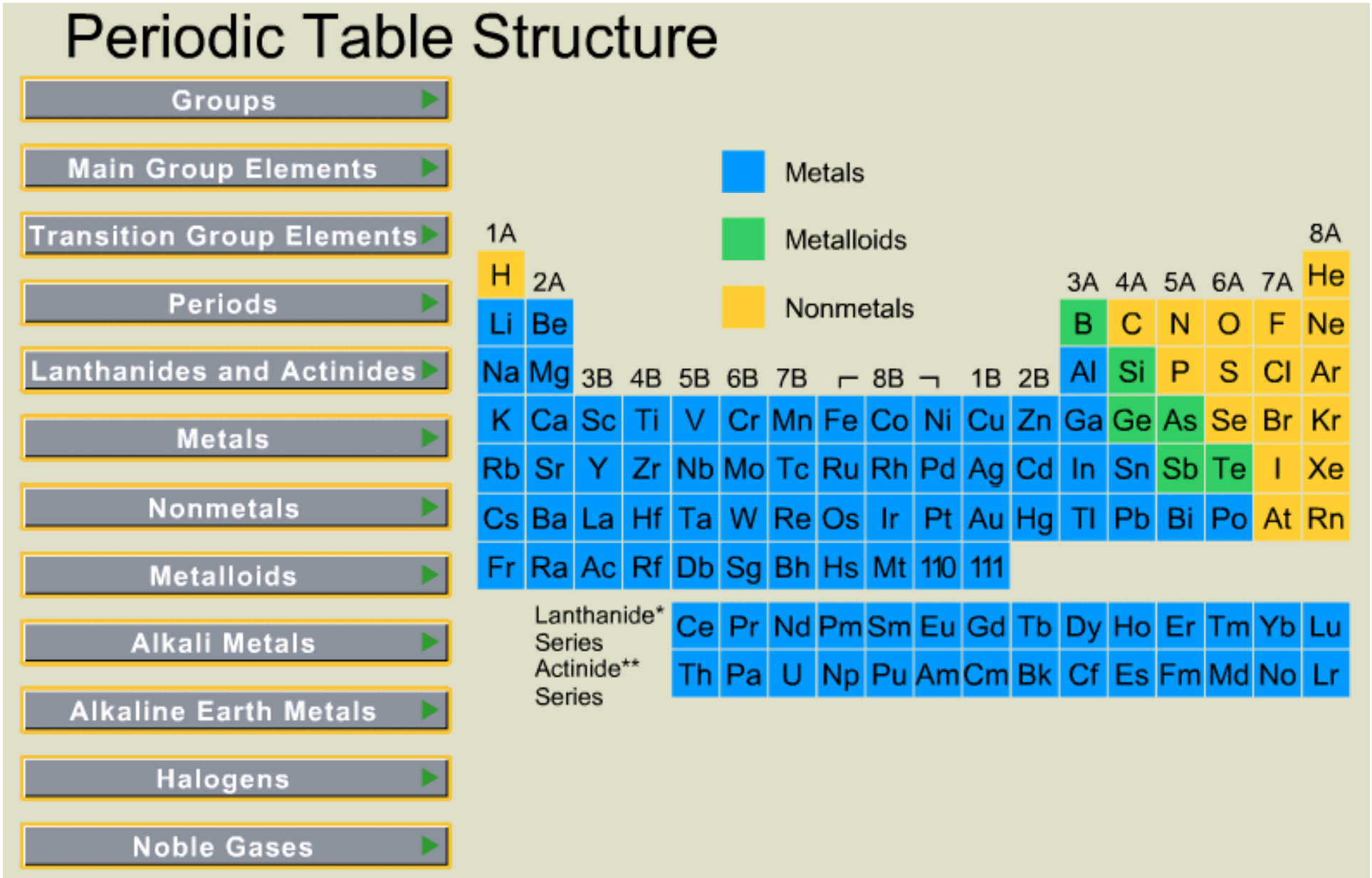
2.5 What Is the Periodic Table

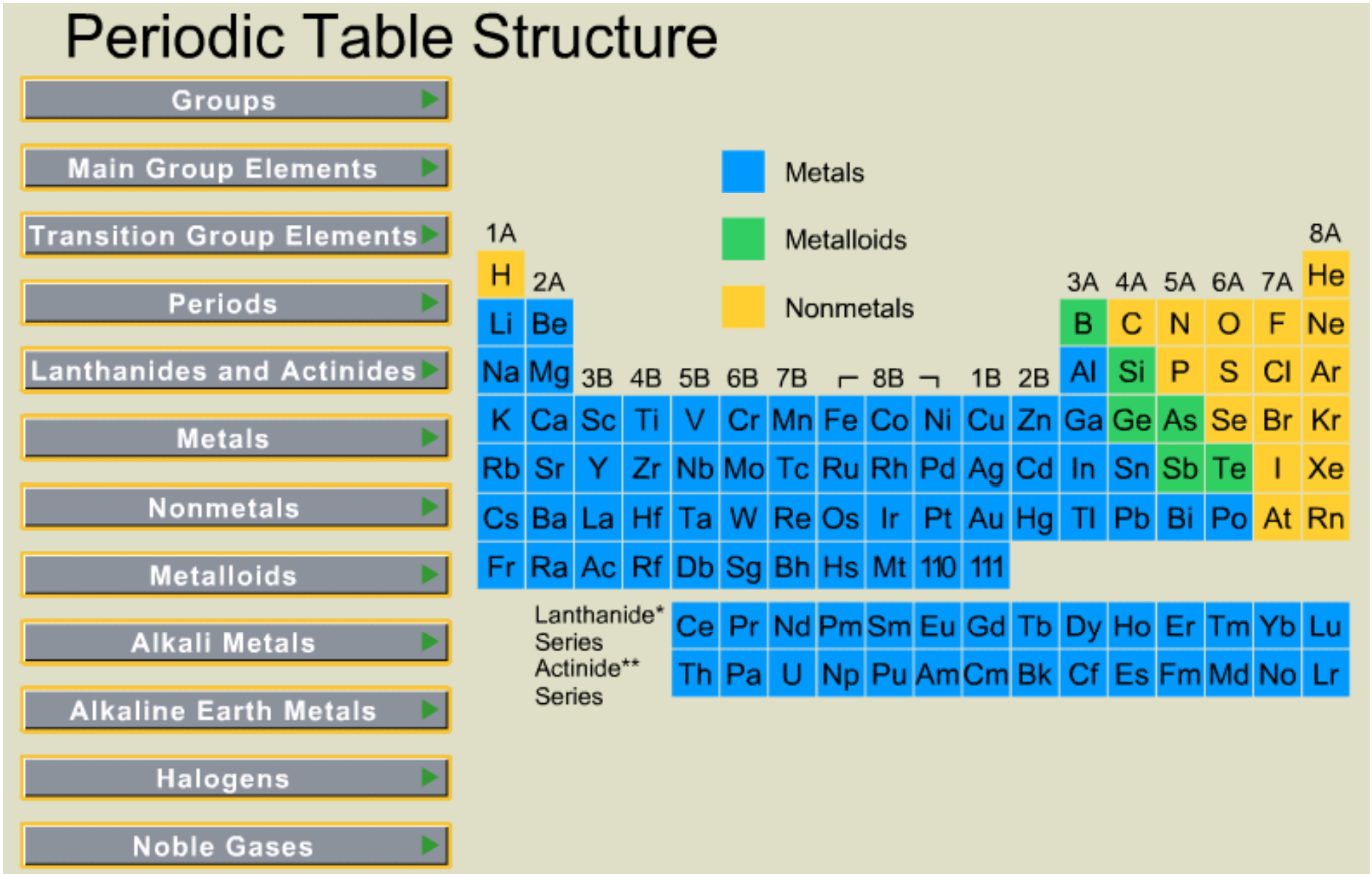
Groups – Periods – Main Group – Transition Metal – Lanthanide – Actinide

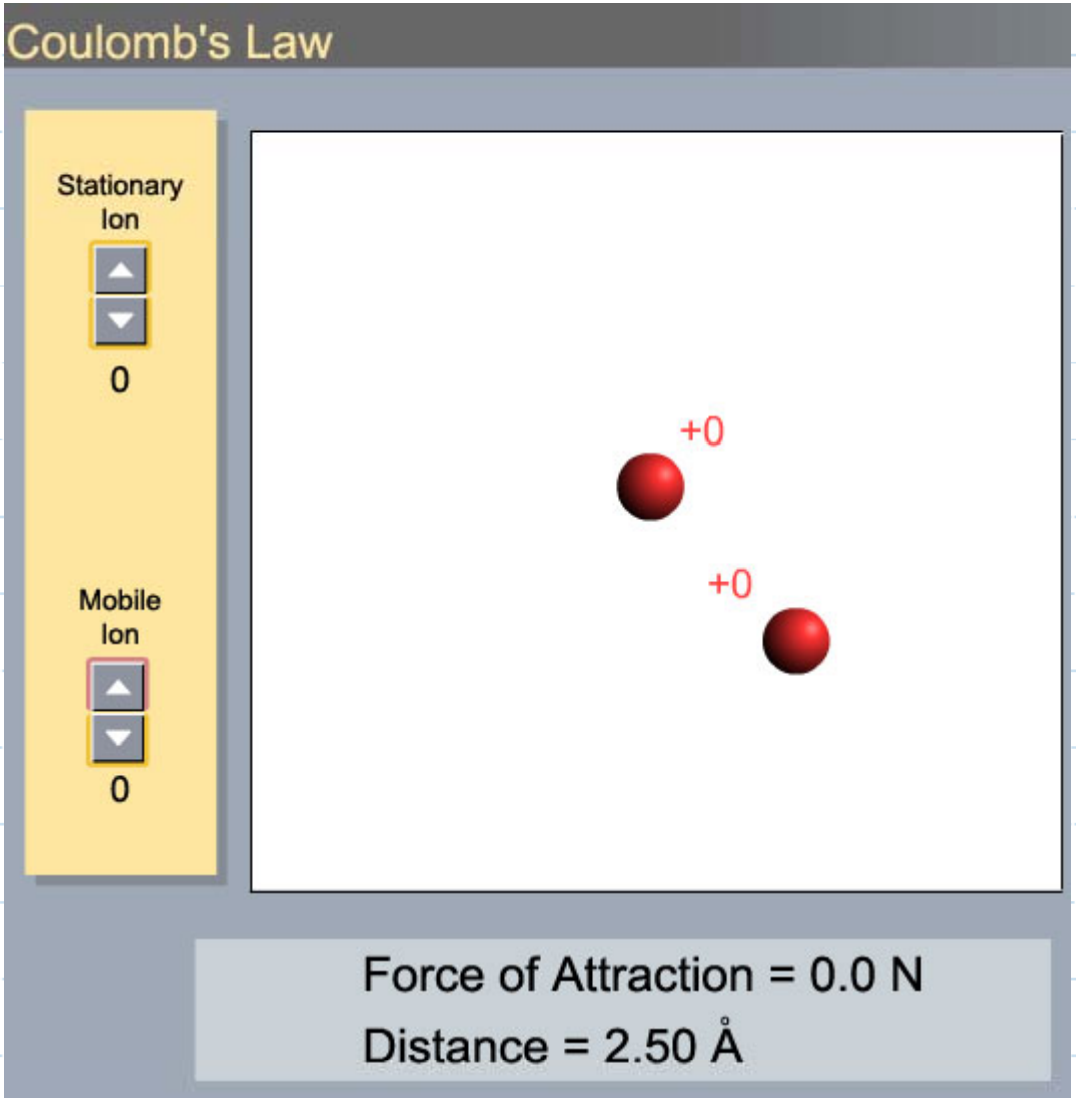


2.5 What Is the Periodic Table

Alkali Metals – Alkaline Earth Metals – Halogens – Noble Gases




Periodic Table Structure
Groups
Main Group Elements
Transition Group Elements
Periods
Lanthanides and Actinides
Metals
Nonmetals
Metalloids
Alkali Metals
Alkaline Earth Metals
Halogens
Noble Gases
Metals
Metalloids
Nonmetals
1A 2A 3A 4A 5A 6A 7A 8A
H He
Li Be B C N O F Ne
Na Mg 3B 4B 5B 6B 7B 8B 1B 2B Al Si P S Cl Ar
K Ca Sc Ti V Cr Mn Fe Co Ni Cu Zn Ga Ge As Se Br Kr
Rb Sr Y Zr Nb Mo Tc Ru Rh Pd Ag Cd In Sn Sb Te I Xe
Cs Ba La Hf Ta W Re Os Ir Pt Au Hg Tl Pb Bi Po At Rn
Fr Ra Ac Rf Db Sg Bh Hs Mt 110 111
Lanthanide* Series
Actinide** Series
Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tm Yb Lu
Th Pa U Np Pu Am Cm Bk Cf Es Fm Md No Lr


Coulomb's Law
Stationary Ion
0
Mobile Ion
0
+0
+0
Force of Attraction = 0.0 N
Distance = 2.50 Å

3.5 What Is an Ionic Bond and What Holds It Together

Which of the following three salts have the greatest force of attraction?
(*Assume that the distance is constant*)

a) AlP b) NaI c) CaO

3.5 What Is an Ionic Bond and What Holds It Together

Which of the following salts would you expect to be soluble in water?
(*Assume that the distance is constant*)

a) AlP b) NaI c) CaO

3.6 How Do We Predict Formulas and Name Ionic Compounds.

A *Binary Compounds*

What is the formula and name of the ionic compound produced by Magnesium and Oxygen?

Formula and name for the ionic compound produced by Oxygen and Aluminum?

3.6 How Do We Predict Formulas and Name Ionic Compounds.

A *Binary Compounds*

Metals lose electrons. Nonmetals gain electrons.

To get same number as nearest inert gas.

Metals: charge equals the group number.
Nonmetals: charge equals group number minus 8.

Overall no charge (positives and negatives are equal)

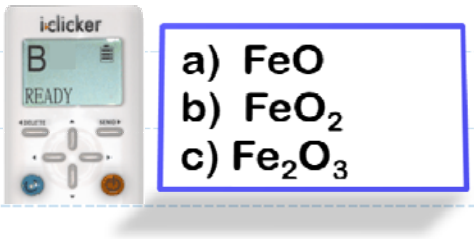
Formula and name for the ionic compound produced by Oxygen and Aluminum?

3.6 How Do We Predict Formulas and Name Ionic Compounds.

B *Transition Metals*

What is the correct chemical formula for the ionic compound Iron oxide?

Transition metals: non easily predictable pattern (form cations)



3.6 How Do We Predict Formulas and Name Ionic Compounds.

B *Transition Metals*

What is the correct name for the ionic compound $Cu(NO_3)_2$

Write metal (or cation) first. To this slide on Thursday 9/12

What is the correct name for the ionic compound $CuSO_4$

a) Copper(I) sulfate
b) Copper(I) sulfite
c) Copper(II) sulfate
d) Copper(II) sulfite