Announcements – Lecture IV– Thursday, Sep 11th

1. **iClicker for credit starts today , September 11th**

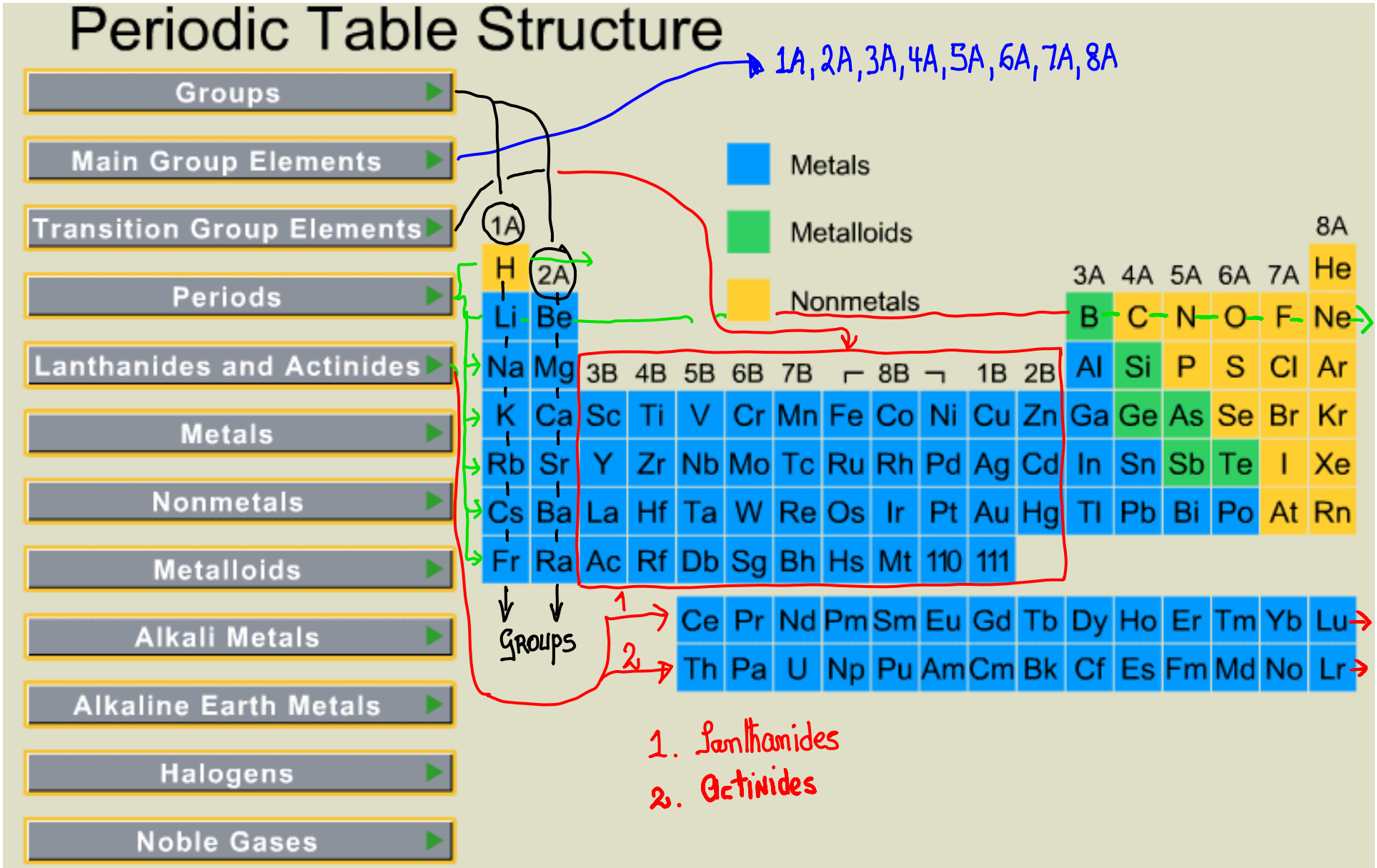
   a) iClicker Grading – participative in 75% of questions posed – graded on responding and not whether the answer is right or wrong.

   b) Two absences allowed for the entire semester. Forgetting to bring your iClicker corresponds to an absence.

2. **First Lab – Saturday, September 20th … 1-4pm … ISB 155 /160 (A-E)**

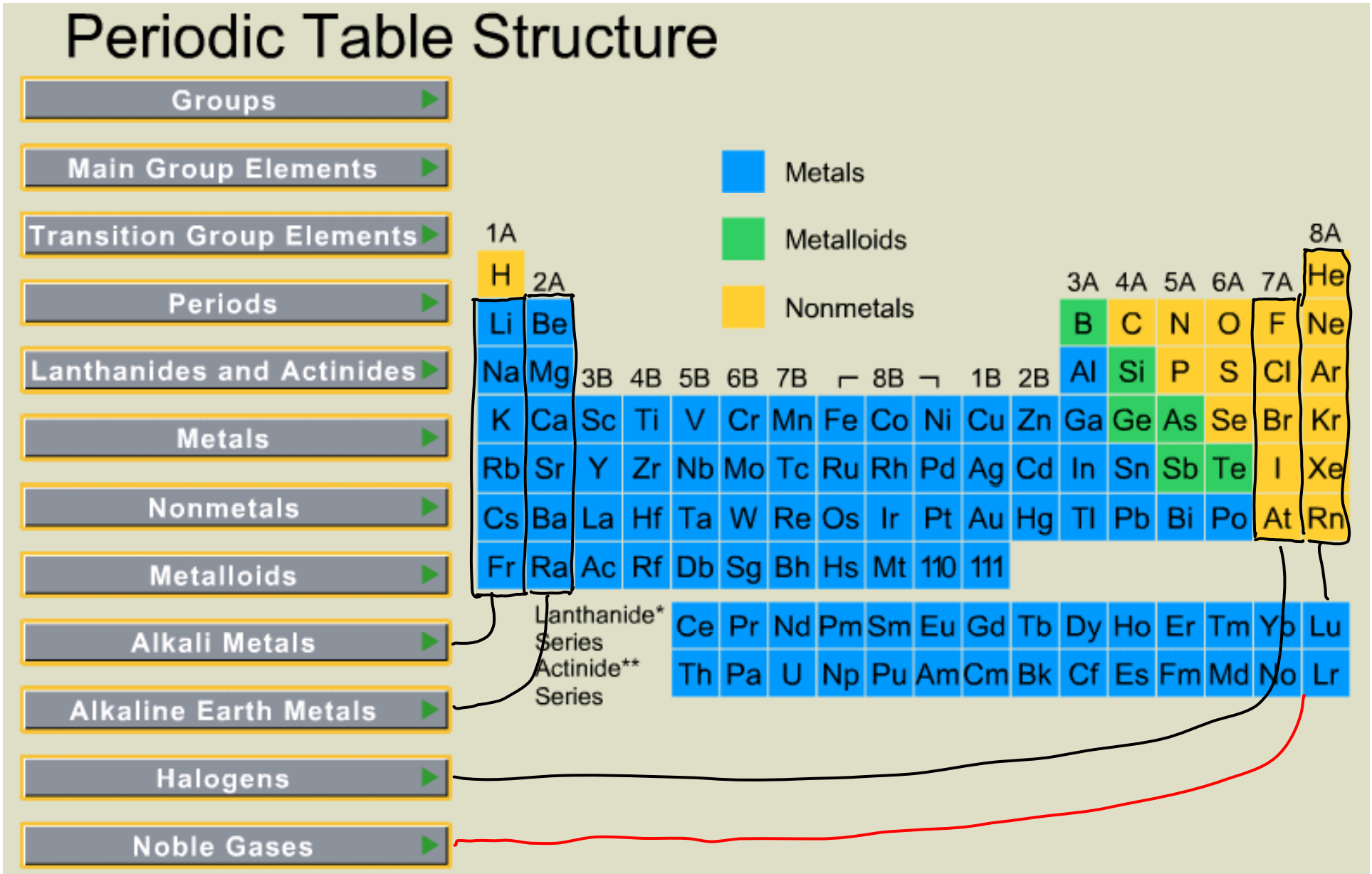
2.5 What Is the Periodic Table

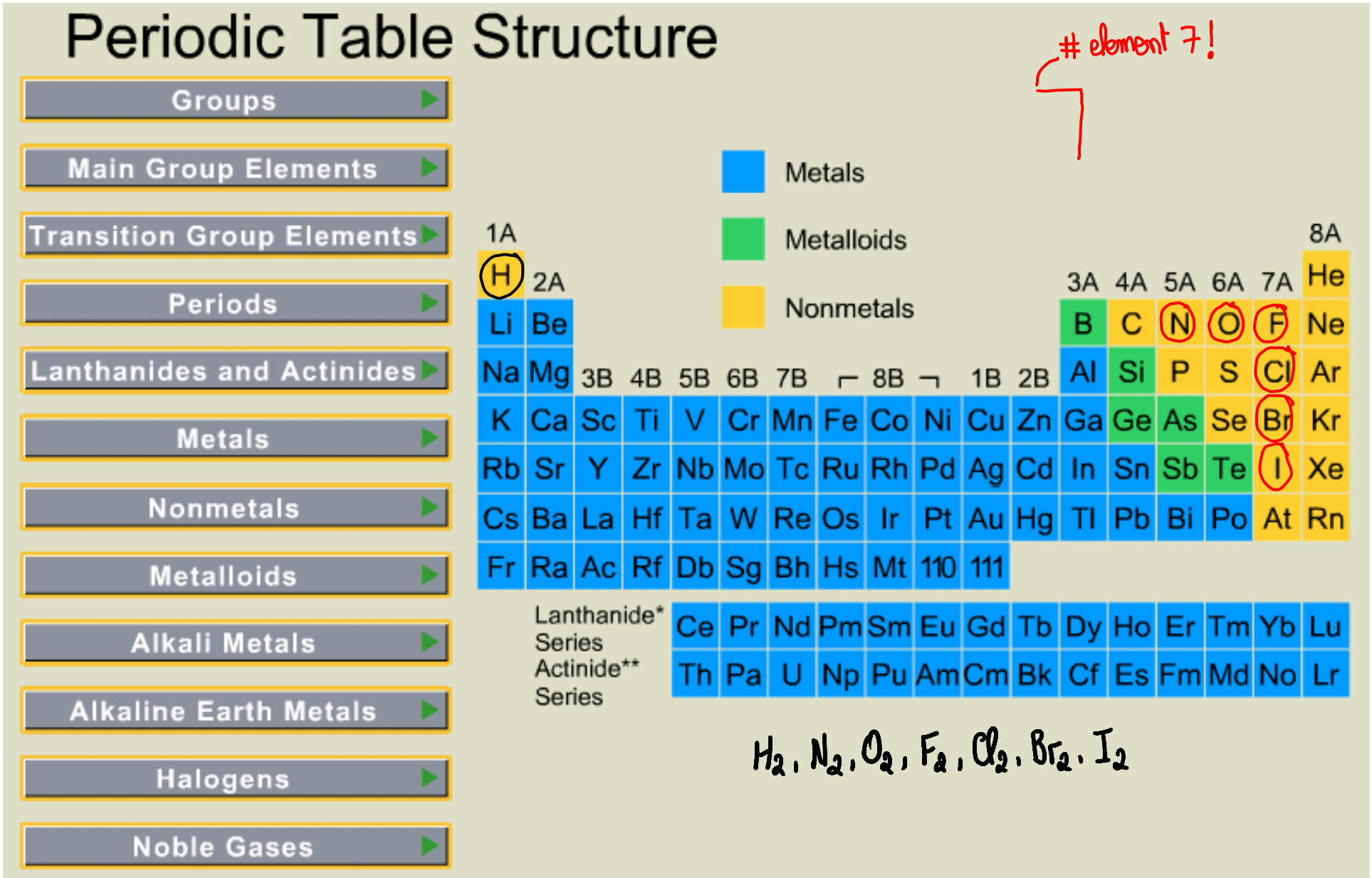
Groups – Periods – Main Group – Transition Metal – Lanthanide – Actinide

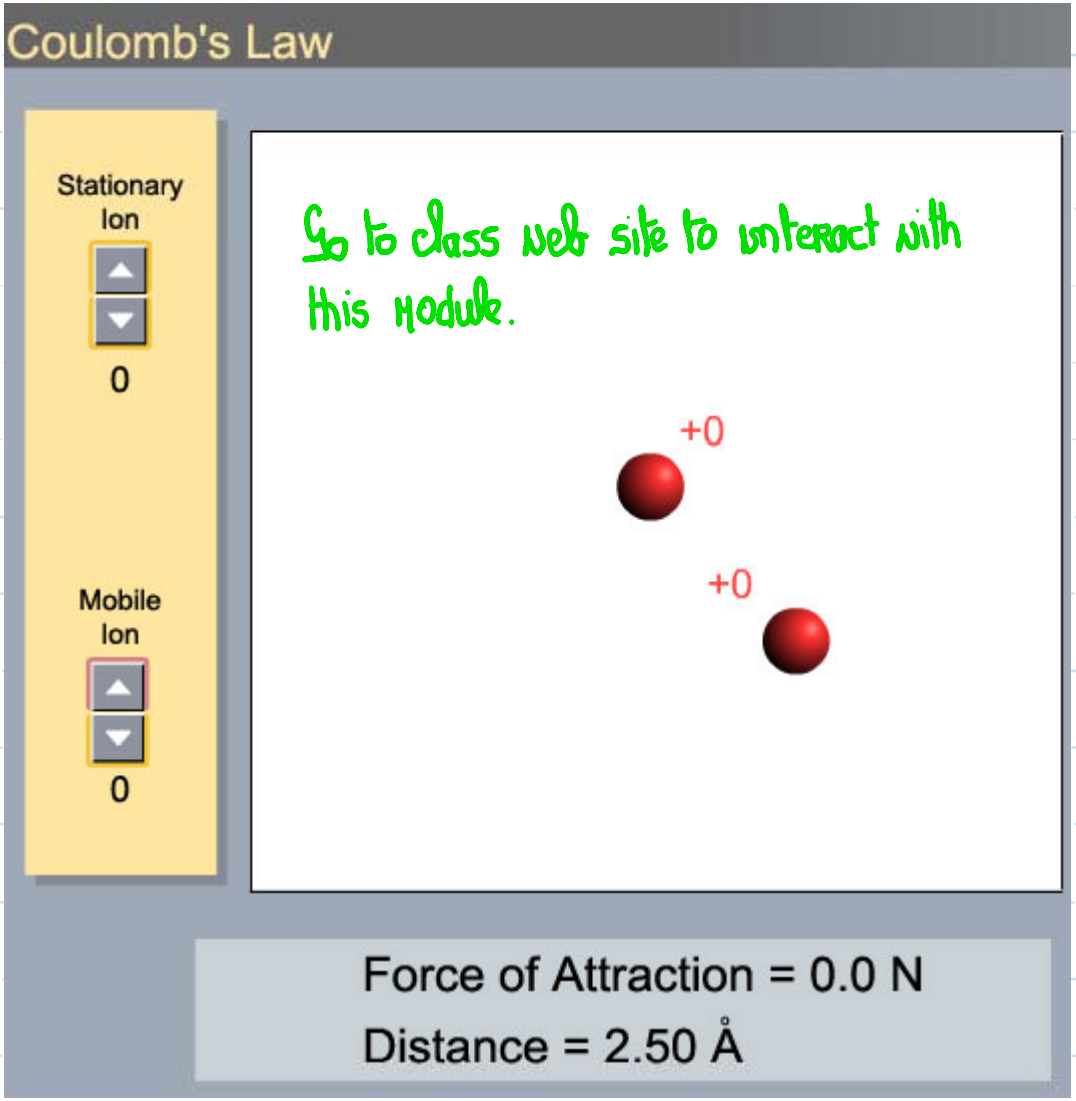


2.5 What Is the Periodic Table

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
element 7!
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
H2, N2, O2, F2, Cl2, Br2, I2



FA : Force of Attraction

a) Magnitude of the charges.

b) Distance between them.

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**

AlP
Al : Gp 3A, +3
P : Gp 5A, -3

NaI
Na : Gp 1A, +1
I : Gp 7A, -1

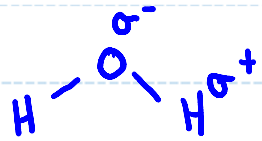
CaO
Ca : Gp 2A, +2
O : Gp 6A, -2

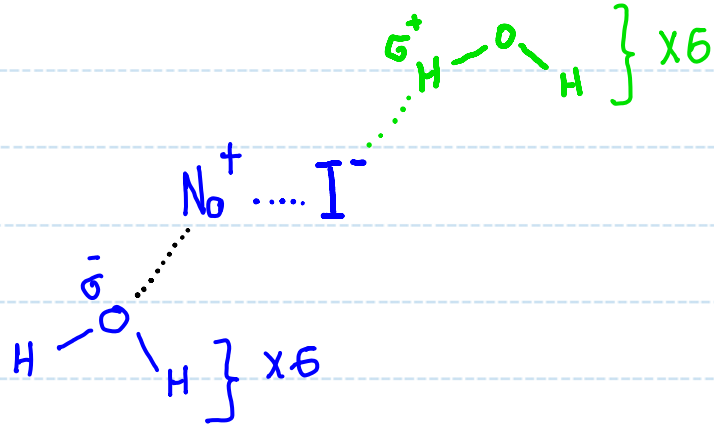
3.5 What Is an Ionic Bond and What Holds It Together

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

↳ The salt with the smallest FA





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?

Mg : Group 2A ... +2
O : Group 6A ... -2

Cation named first

Magnesium oxide

MgO

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

Al : Group 3A ... +3
O : Group 6A ... -2

Al_2O_3

Aluminum oxide

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?

a) FeO
b) FeO_2
c) Fe_2O_3

?

The name given is ambigious ... you have no way to determine the charge on the metal (Transition Metal) based on the name

FeO : $? + (-2) = 0$, $? = +2$ Iron (II) oxide

FeO_2 : $? + 2(-2) = 0$, $? = +4$ Iron (IV) oxide

Fe_2O_3 : $2? + 3(-2) = 0$, $? = +3$ Iron (III) oxide

Use Roman Numerals to indicate the charge the Transition Metal.