

IONIC RADII AND IONIC BONDS

NAME _____

SECTION _____

1. Complete the following table:

Element	Nuclear Charge	Complete Electron Configuration	Total Number of Electrons	Number of Inner Core Electrons	Number of Valence Electrons	Effective Nuclear Charge
Na						
Cl						
Na ⁺						
Cl ⁻						
Mg						
Mg ⁺						
Mg ²⁺						
S						
S ²⁻						

2. Why is the 2nd ionization energy in Na significantly greater than the first ionization energy for Na? Explain in terms of ENC.

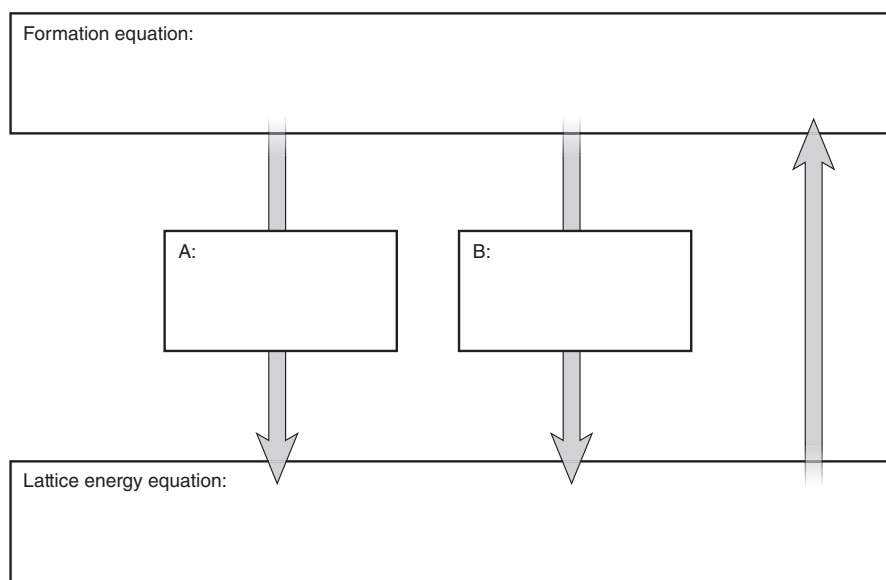
3. Why is the 2nd ionization energy in Mg a little larger compared to the first ionization energy for Mg? Explain in terms of ENC.

4. Which is larger, a sulfur atom or a sulfide ion? Explain in terms of ENC.

- Write the chemical equation (lattice energy) that is used to determine the strength of an ionic bond in an ionic compound such as NaBr.

- Write the chemical equation that describes the formation reaction for NaBr.

- In the diagram below, first write the formation equation in the designated space, then write the lattice energy equation (exothermic form). Complete box A and box B with a chemical species that converts the reactant in the formation equation to the reactant in the lattice energy equation.



- Write the six chemical equations and indicate how Hess's Law can be used to calculate the lattice energy (U) for the ionic compound NaBr.