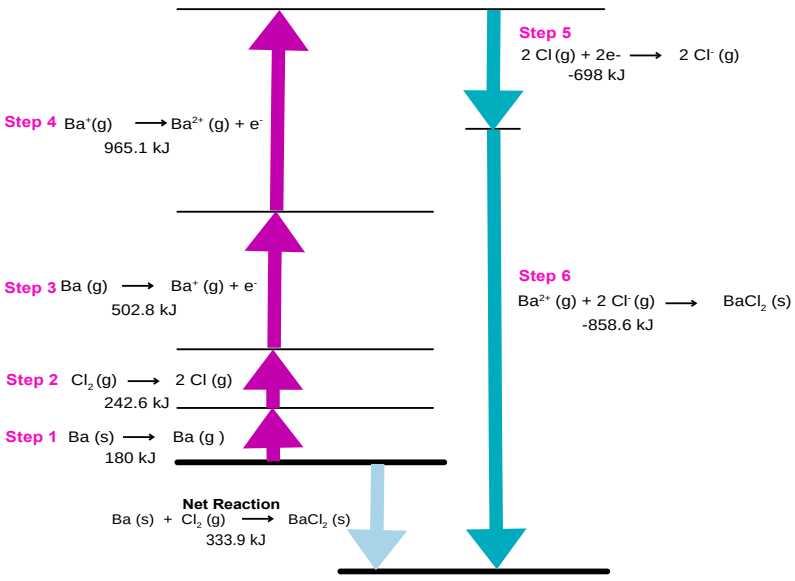
Ionic Compounds, Born-Haber Cycle, and Lattice Energy

1. Draw a Born-Haber Cycle for the formation of $BaCl_2$. Calculate the net energy change: $Ba\ (s) + Cl_2\ (g) \rightarrow BaCl_2\ (s)$

   Some useful information: (All of this information can be found in the textbook)

   $E_{sublimation}$ = 180 kJ/mol
   Bond Dissociation Energy, D, (Cl_2 (g)) = 242.6 kJ/mol
   E_{i1} = 502.8 kJ/mol
   E_{i2} = 965.1 kJ/mol
   E_{ea} = -349 kJ/mol
   Formation of $BaCl_2$; $Ba^{2+}\ (g) + 2\ Cl^-\ (g) \rightarrow BaCl_2\ (s)$ -858.6 kJ/mol



2. What is the lattice energy for $BaCl_2$?

   +858.6 kJ

3. Which of the following has the greatest lattice energy?
   $BaCl_2$ BaO BaS

   BaO_2