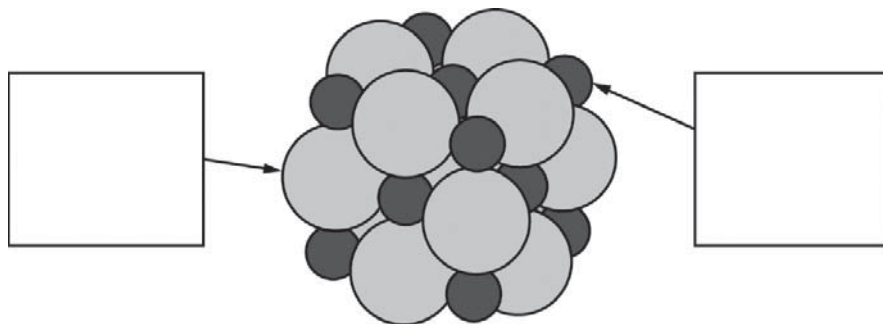


2016 AP[®] CHEMISTRY FREE-RESPONSE QUESTIONS

- (b) Write the complete electron configuration for the Na^+ ion in the ground state.
- (c) Using principles of atomic structure, explain why the Na^+ ion is larger than the Li^+ ion.
- (d) Which salt, LiCl or NaCl , has the greater lattice enthalpy? Justify your answer.
- (e) Below is a representation of a portion of a crystal of LiCl . Identify the ions in the representation by writing the appropriate formulas (Li^+ or Cl^-) in the boxes below.



- (f) The lattice enthalpy of LiCl is positive, indicating that it takes energy to break the ions apart in LiCl . However, the dissolution of LiCl in water is an exothermic process. Identify all particle-particle interactions that contribute significantly to the dissolution process being exothermic. For each interaction, include the particles that interact and the specific type of intermolecular force between those particles.