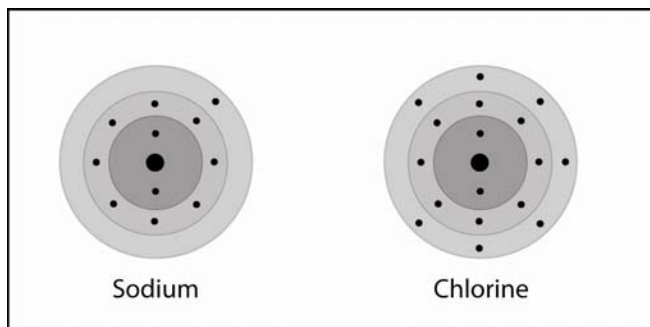


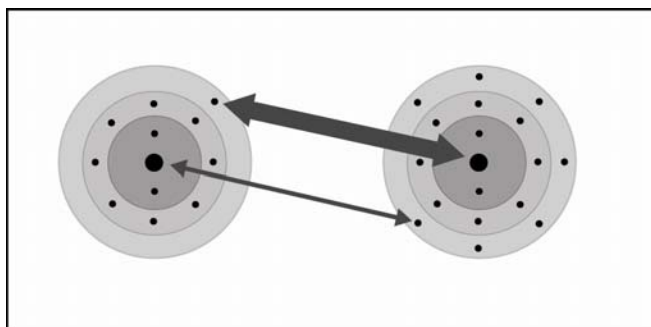
Chapter 4, Lesson 5 Activity Sheet Answers

1. In covalent bonding, each atom attracts the other atom's electrons and electrons from each atom end up being shared by both atoms. In ionic bonding, the attractions are less balanced and electrons are attracted by one atom significantly more than another. One or more electrons ends up being transferred to the atom with the stronger attraction. This creates a positive and a negative ion which attract and form an ionic bond.

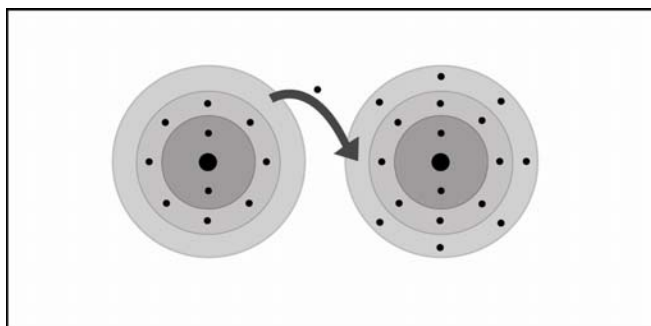
2.



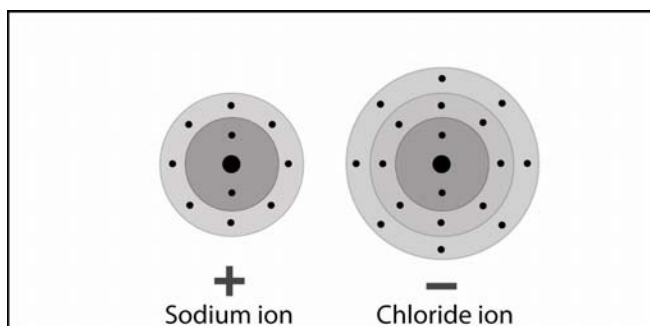
Sodium atoms and chlorine atoms are near each other.



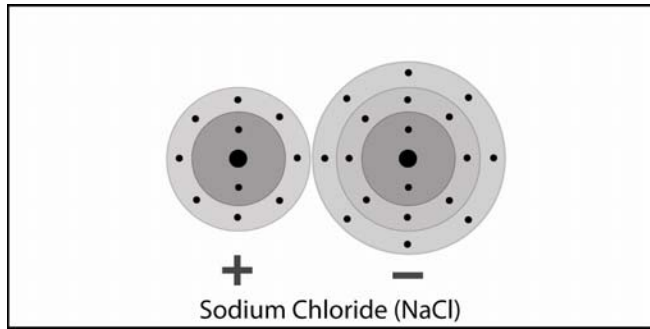
The chlorine attracts an electron from the sodium more strongly than the sodium attracts an electron from the chlorine.



An electron is transferred from the sodium to the chlorine.

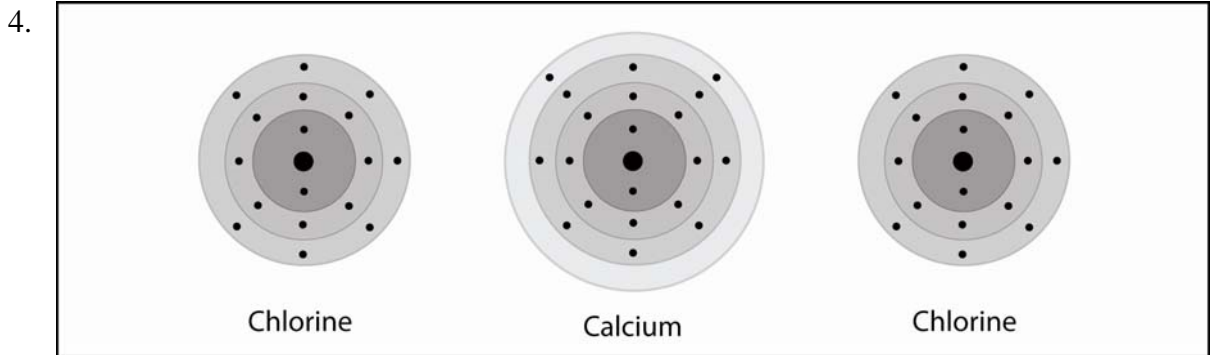


Since the sodium loses an electron, it has one more proton than electrons and becomes a positive ion. Since the chlorine gains an electron, it has one more electron than protons and becomes a negative ion.

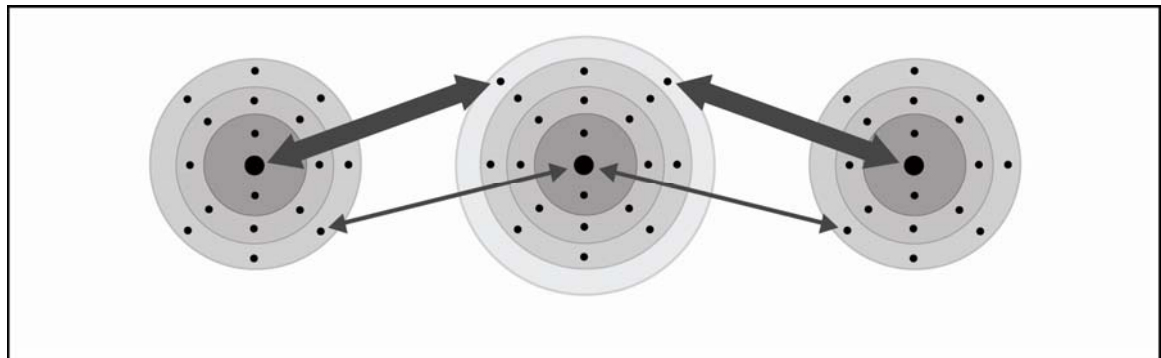


The oppositely charged ions attract and form an ionic bond to make sodium chloride.

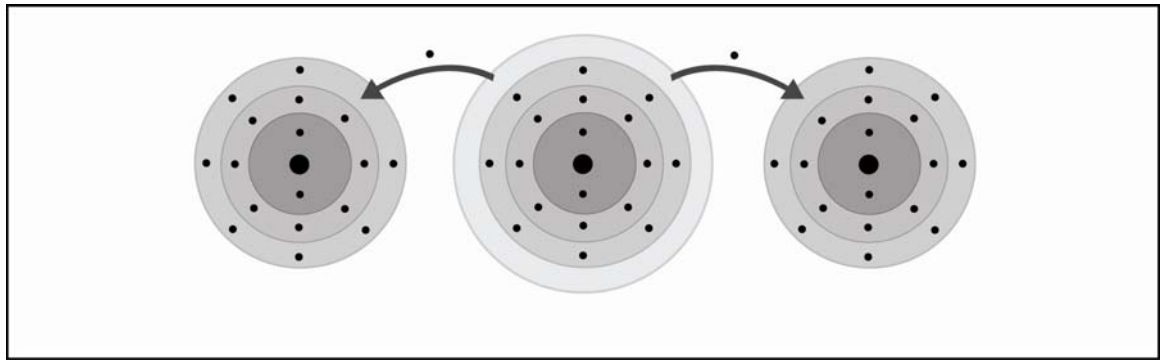
3. Salt crystals are cube-shaped because the sodium and chloride ions bond together in an alternating pattern in three dimensions.



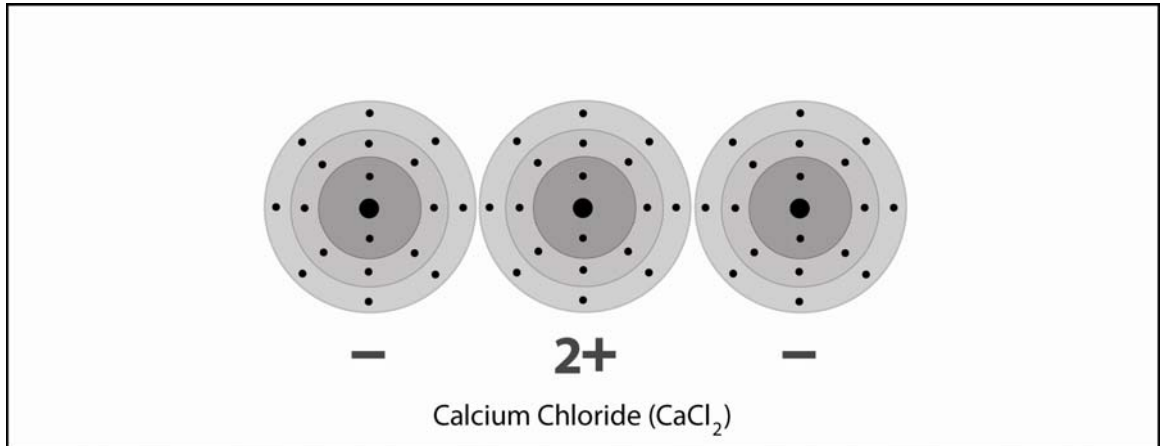
One calcium atom and two chlorine atoms are near each other.



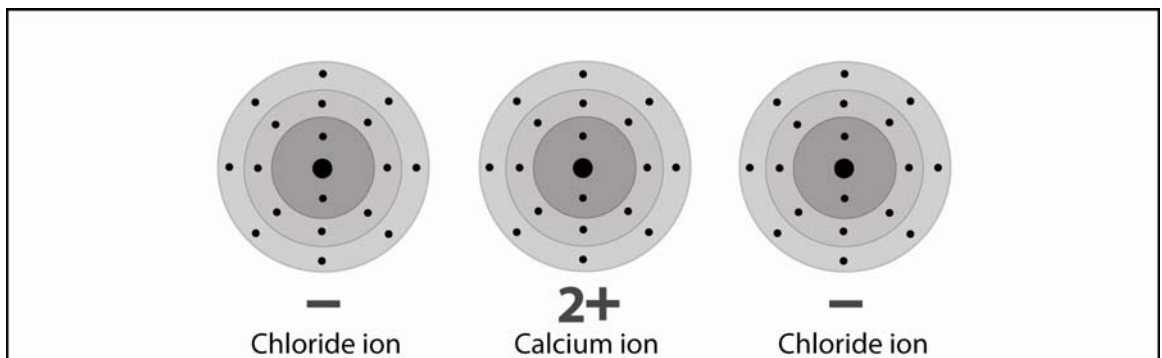
Each chlorine atom attracts an electron from the calcium more strongly than the calcium attracts the electron from the chlorine.



Each chlorine atom receives an electron donated from calcium. This forms three ions.



Each chlorine atom gains an electron and becomes a negatively charged chloride ion. The calcium loses two electrons and becomes a +2 calcium ion.



The positive and negative ions attract each other and form an ionic bond to make calcium chloride.