Chapter 5, Lesson 3 Activity Sheet Answers

1. Because water molecules have areas of slight positive and negative charge (polar) they are attracted to ions which also have positive and negative charges. The areas of slight positive charge in water are attracted to negatively charged ions, and the areas of slight negative charge in water are attracted to the positively charged ions.
2. Areas of positive and negative charge on a water molecule are attracted to negative and positive ions that make up salt. As water molecules associate with the salt crystal, the attractions between water molecules and ions begin to overcome the attractions that the salt ions have for one another. The water pulls away the ions one by one, dissolving the salt.
3. Answers will vary by student, but might include amount of water and alcohol, amount of salt, time swirled, etc.
4. Alcohol does not dissolve salt as well as water does. The experiment conducted showed that more salt dissolved in water than dissolved in alcohol.
5. While both alcohol and water are polar molecules, water is better able to dissolve salt because it is more polar and is a smaller molecule which more easily associates with the positive and negative ions of the salt crystal. Though alcohol molecules also have a polar area, they have a large non-polar area that does not help in dissolving the salt.
6. No, all ionic substances do not dissolve in water. This was demonstrated in the activity. Calcium carbonate is an ionic substance but did not dissolve in water.