Chapter 1, Lesson 2 Activity Sheet Answers

1. In the cold water, the yellow and blue colors drifted and slowly swirled and spread a bit but were in streaks. The colors didn’t mix very much.

2. In the hot water, the colors spread more quickly and mixed together more than in the cold water. The water turned greener in the hot water than it did in the cold water.

3. Since the colors moved faster in the hot water, it means that the water molecules in the hot water move faster than the molecules in cold water.

4. The number of drops used needs to be kept the same for each cup. This is because you are trying to see how fast the color spreads in each cup so using different amounts would not be a fair test because the extra color might cause more spreading that has nothing to do with the temperature.

5. Heating a substance increases molecular motion.
   Cooling a substance decreases molecular motion.
   As molecular motion increases, the space between the molecules increases.
   As molecular motion decreases, the space between the molecules decreases.

6. Molecules in cold water are closer together and have fewer motion lines.
   Molecules in hot water are further apart and have more motion lines.

7. The volume of water increases when the water is heated because heating makes the water molecules move faster. The extra speed of the molecules competes with their attraction for one another and causes them to move slightly further apart. Since the molecules move further apart, the same amount of water takes up more room in the graduated cylinder.