

Chapter 5, Lesson 2 Activity Sheet Answers

1. The paperclip was able to stay on the surface of the water because of water's very high surface tension.
2. Water formed a dome or a "hill" above the surface of the penny and the test tube.
3. Water has a high surface tension because the water molecules at the surface only feel an attraction for the other molecules that are next to them and beneath them. The surface molecules are pulled together and inward by these attractions.
4. Answers will vary, but more drops of water than alcohol should be able to be added to the penny without overflowing.
5. Water has a greater surface tension than alcohol because it is able to attract other water molecules more strongly than alcohol molecules do. This was demonstrated in the activity when more water was able to be added to the penny because water has a greater attraction for itself, or greater surface tension.
6. Because water molecules are more polar and smaller than alcohol molecules, they are held more tightly and closer together than alcohol molecules giving water the stronger surface tension.
7. When you add detergent to a large drop of water, the water spreads out. It does this because the detergent interferes with the attractions that water molecules have for one another and therefore decreases its surface tension.
8. Detergent interferes with water's surface tension by competing for water's attraction with itself. Rather than water molecules at the surface being attracted to only those water molecules adjacent or below them, water molecules at the surface become attracted to the detergent molecules, and the water molecules no longer experience the inward pull of surface tension.
9. Water soaks into a paper towel because the molecules that compose a paper towel are also polar molecules. Water beads up on wax paper because the wax molecules are non-polar.