Year 11 Science: Particles and forces in the five types of material

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. Iodine crystals are used to make an antiseptic. A student warms iodine and salt crystals side by side in a warm water bath. The iodine slowly gives off a purple vapour, but the salt crystals do not change. (a) Name the type of material iodine is and the type salt is. (b) Describe the particles and the forces between them in each substance. (c) Explain why the iodine turns to vapour at this temperature but the salt does not change.

2. Name the particles in copper wire and the force that holds them together.

3. A white solid does not conduct electricity, but it conducts once dissolved in water. What type of material is it, and why does dissolving change things?

4. Diamond and graphite are both pure carbon. Why does graphite conduct electricity when diamond does not?

5. Why is low-density polyethylene less dense than high-density polyethylene?

6. Carbon dioxide is a gas at room temperature. Which forces are weak in carbon dioxide, and which are strong?

Fix the mistake

7. Correct this statement: "When water boils, the covalent bonds in the water molecules break."

8. Correct this statement: "Salt is made of sodium and chlorine molecules."

9. Correct this statement: "Graphite conducts because its layers slide."

10. Correct this statement: "Polymers are held together by weak forces, so they are weak."