

Review for Chemistry Quiz 3

KEY

Quiz Date: _____

This quiz will cover information from the material we've covered on states of matter and the energy involved in chemistry. It will consist of some multiple choice, fill-in-the-blank, and short answer questions. To prepare you should review your DQs, your notes (Energy mindmap), and any handouts we've used. Be able to hit the following targets:

- I can demonstrate understanding of the key vocabulary terms in this unit.
- I can name, draw, and describe states of matter.
- I can explain the effect of thermal energy on matter.

1. Temperature is a measure of the average _____ of the particles in an object.

- A. speed or kinetic energy C. heat
B. potential energy D. radiation

2. The following is the best example of a conductor:

- A. plastic C. metal
B. wood D. rubber

3. When an object is heated, it generally _____.

- A. contracts C. changes
B. expands D. none of the above, depends on the object

4. When all of a liquid is changing state to a gas, it is called this.

- A. vaporization C. boiling
B. evaporation D. condensation

5. All atoms and molecules are vibrating because of the internal energy they have. This is called:

- A. Elastic potential C. Chemical energy
B. Thermal energy D. Nuclear energy

Compare and Contrast – Record what these terms have in common and how they are different.

6. Kinetic Energy and Potential Energy

Sample answer: kinetic energy is energy in motion, while potential energy is stored energy.

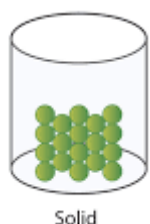
7. Melting and Freezing

Sample answer: both are a change between the states of solid and liquid. Melting is when the temperature increases, and you go from solid to liquid, but freezing is when the temperature decreases and you go from liquid to solid.

8. Plasma and Gas ← don't worry about this one

9. Conductor and Insulator – **Sample answer:** both are materials – conductors transfer thermal energy effectively, while insulators do not

10. Draw a model showing what a solid looks like at the molecular level. Be sure to describe the motion and arrangement of the molecules.



Sample Answer: The molecules are moving, but not very fast or far, so they are able to bond to each other as a solid structure.

11. What would increasing the thermal energy do to this solid? Draw a new model showing the motion and arrangement of the molecules. What is this state of matter called now?

Sample Answer: Increasing the thermal energy would mean an increase in molecular movement, which would break the bonds between the molecules, allowing them to flow side-to-side to fill their container. This flowing state of matter is called a liquid.



12. How does the arrangement of molecules in solid water differ from almost all other solids? Why is this important?

Sample Answer: Most materials are more dense (more tightly packed together) in their solid form. Water, however, forms bonds that hold the molecules apart from each other, making it less dense. This is what allows ice (solid water) to float, which is vital to the functions of the earth as we know them.

13. Thermal energy will always flow from higher temperature to lower temperature. How does this explain why certain objects feel “cold” to us when we touch them?

Sample Answer: Because the thermal energy that was in our body leaves to flow into the lower temperature object, leaving us the sensation of cold.

14. Fill in the blanks with the state of matter. Label the arrows with the process occurring.

