

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class: \_\_\_\_\_

**1. Diffusion is the natural movement of molecules from:**

- a. Areas of low concentration to areas of high concentration
- b. Areas of high concentration to areas of low concentration
- c. Cold to hot environments
- d. Gaseous to liquid environments

**2. Which of the following describes molecules moving down a concentration gradient?**

- a. Sugar settling at the bottom of a water glass
- b. A cell with lots of water in it absorbing even more water
- c. A bottle of soda in which bubbles of carbon dioxide are evenly distributed
- d. Warm air moving from a radiator to fill up a room

**3. Which of the following describes a state of equilibrium?**

- a. A group of molecules that have stopped moving completely
- b. A room whose temperature is consistent throughout
- c. Carbon dioxide bubbles escaping from a soda bottle when it's opened
- d. A tree's roots absorbing nutrients from the soil

**4. When do molecules stop moving or vibrating?**

- a. When equilibrium is reached
- b. Never
- c. When the temperature is below 0 degrees Celsius
- d. When the substance they are part of becomes a solid

**5. What causes diffusion?**

- a. The constant, random motion of molecules
- b. Magnetic attraction between atoms
- c. The nuclear forces that hold atoms together
- d. The tendency of atoms to form chemical bonds with one another

**6. From fastest to slowest rate of diffusion, which of the following is in the correct sequence?**

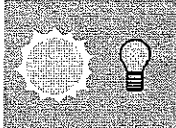
- a. Solids, liquids, gases
- b. Liquids, gases, solids
- c. Gases, liquids, solids
- d. Gases, solids, liquids

**7. Which of the following will diffuse the fastest?**

- a. A tablespoon of sugar in a glass of water
- b. Heat through a solid piece of steel
- c. A pinch of salt in a glass of water
- d. The smell of bacon cooking throughout a room

**8. Why is diffusion so important in biology?**

- a. It's the basic power source for most types of cells
- b. It allows substances to move across cell membranes
- c. It prevents toxins from entering our bodies
- d. Without diffusion, cell division could not take place

**9.  What do the sun and a lightbulb have in common?**

- a. They both generate electricity
- b. They both emit thermal radiation
- c. Their molecules are both in a state of equilibrium
- d. They both absorb thermal energy

**10. What causes an electric current to move through a wire?**

- a. Electrons diffusing from the charged part of the wire to the uncharged part
- b. Positrons diffusing from the hot part of the wire to the cooler part
- c. Protons diffusing from the power source to the load
- d. Neutrons diffusing up a concentration gradient