

Date: _____

Name: _____

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