

## Diffusion - Multiple Choice Worksheet

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

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

**Instructions:** Choose the correct answer from the options provided.

- What is diffusion?**
  - The movement of water across a membrane
  - The movement of particles from an area of high concentration to low concentration
  - The absorption of nutrients in the stomach
  - The active transport of molecules into a cell
- Which of the following best describes simple diffusion?**
  - Movement of particles against a concentration gradient
  - Movement of particles without the use of energy
  - Movement of water molecules across a membrane
  - Movement of particles using carrier proteins
- In diffusion, particles move from an area of:**
  - Low concentration to high concentration
  - High concentration to low concentration
  - High temperature to low temperature
  - Low temperature to high temperature
- Which of the following is an example of diffusion?**
  - Movement of oxygen from the lungs to the bloodstream
  - Movement of water into a plant root
  - Movement of ions through a protein pump
  - Movement of glucose into a cell using ATP
- What type of transport is diffusion?**
  - Active transport
  - Passive transport
  - Bulk transport
  - Facilitated diffusion
- Diffusion occurs most rapidly when particles are in which state?**
  - Solid
  - Liquid
  - Gas
  - Plasma
- Which factor does NOT affect the rate of diffusion?**
  - Temperature
  - Concentration gradient
  - Size of the particles
  - Color of the particles
- What happens to the rate of diffusion as temperature increases?**
  - The rate increases
  - The rate decreases
  - The rate remains constant
  - The rate stops completely
- Which of the following is NOT an example of diffusion?**
  - Perfume scent spreading in a room
  - Sugar dissolving in water
  - Oxygen moving from the alveoli into the bloodstream
  - Water moving from an area of low to high concentration across a membrane
- What is facilitated diffusion?**
  - Movement of particles with the use of energy
  - Diffusion of particles through a cell membrane using protein channels
  - Diffusion of water across a semi-permeable membrane
  - Movement of particles against a concentration gradient
- Which process allows oxygen to move into cells from the bloodstream?**
  - Osmosis
  - Active transport
  - Diffusion
  - Endocytosis
- What is the difference between simple diffusion and facilitated diffusion?**
  - Simple diffusion requires ATP; facilitated diffusion does not
  - Simple diffusion uses protein channels; facilitated diffusion does not
  - Simple diffusion occurs without the help of transport proteins, while facilitated diffusion requires them
  - Simple diffusion only occurs in water, while facilitated diffusion occurs in solids

13. **In which direction do particles move in diffusion?**
- From an area of lower to higher concentration
  - From an area of higher to lower concentration
  - From the outside to the inside of a cell only
  - From the inside to the outside of a cell only
14. **What is dynamic equilibrium in diffusion?**
- When particles stop moving entirely
  - When particles continue to move but there is no net change in concentration
  - When all particles move to one side of a membrane
  - When energy is required to move particles
15. **Which molecule is most likely to pass through a cell membrane by simple diffusion?**
- Glucose
  - Sodium ions
  - Oxygen
  - Protein
16. **What is the relationship between diffusion and the concentration gradient?**
- Diffusion moves particles up the concentration gradient
  - Diffusion only occurs when there is no concentration gradient
  - Diffusion moves particles down the concentration gradient
  - Diffusion creates a concentration gradient
17. **Which type of diffusion specifically refers to the movement of water molecules?**
- Active transport
  - Simple diffusion
  - Osmosis
  - Facilitated diffusion
18. **Which of the following conditions would slow down the rate of diffusion?**
- Increased temperature
  - Increased concentration gradient
  - Increased particle size
  - Increased surface area
19. **Which of the following processes is diffusion important for in living organisms?**
- Protein synthesis
  - Gas exchange in the lungs
  - Cell division
  - DNA replication
20. **Why is diffusion important for cells?**
- It allows for the efficient transport of nutrients and waste
  - It allows cells to produce energy
  - It prevents cells from shrinking
  - It requires energy for all cellular activities

## Answer Key

1. b) The movement of particles from an area of high concentration to low concentration
2. b) Movement of particles without the use of energy
3. b) High concentration to low concentration
4. a) Movement of oxygen from the lungs to the bloodstream
5. b) Passive transport
6. c) Gas
7. d) Color of the particles
8. a) The rate increases
9. d) Water moving from an area of low to high concentration across a membrane
10. b) Diffusion of particles through a cell membrane using protein channels
11. c) Diffusion
12. c) Simple diffusion occurs without the help of transport proteins, while facilitated diffusion requires them
13. b) From an area of higher to lower concentration
14. b) When particles continue to move but there is no net change in concentration
15. c) Oxygen
16. c) Diffusion moves particles down the concentration gradient
17. c) Osmosis
18. c) Increased particle size
19. b) Gas exchange in the lungs
20. a) It allows for the efficient transport of nutrients and waste