1. Which of the following best describes a solid? a) Particles move freely and spread out to fill a container
   b) Particles are tightly packed and vibrate in place
   c) Particles move randomly and take the shape of a container
   d) Particles move independently with large spaces between them

2. Which of the following is NOT a state of matter?
   a) Plasma
   b) Solid
   c) Gas
   d) Solution

3. What happens to the motion of particles when a substance is heated?
   a) The particles move slower
   b) The particles remain still
   c) The particles move faster and spread apart
   d) The particles become more tightly packed

4. The process of changing from a liquid to a gas is called:
   a) Condensation
   b) Sublimation
   c) Evaporation
   d) Freezing

5. Dry ice is an example of:
   a) Melting
   b) Condensation
   c) Sublimation
   d) Freezing

6. Which state of matter has a definite volume but no definite shape?
   a) Solid
   b) Liquid
   c) Gas
   d) Plasma

7. Which of the following is an example of a physical change?
   a) Burning wood
   b) Rusting iron
   c) Melting ice
   d) Cooking an egg

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8. In which state of matter do particles have the most energy?
   a) Solid
   b) Liquid
   c) Gas
   d) Plasma

9. What happens to the temperature of a substance during a phase change?
   a) It increases
   b) It decreases
   c) It remains the same
   d) It fluctuates randomly

10. Which of the following processes releases heat?
    a) Melting
    b) Evaporation
    c) Condensation
    d) Boiling

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11. Explain the difference between evaporation and boiling.

12. Describe what happens to the particles in a solid when it melts into a liquid.

13. Define sublimation and provide an example.

14. How does temperature affect the movement of particles in different states of matter?

15. Explain why gases are compressible while solids and liquids are not.

16. What is the difference between a chemical change and a physical change? Provide an example of each.

17. Name three factors that can affect the rate of evaporation.

18. Why do solids have a fixed shape while liquids do not?

19. What is the main difference between a gas and a plasma?

20. Give an example of a situation where condensation occurs in daily life.

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21. **(Calculation)** The boiling point of water is 100°C. If a sample of water is heated from 25°C to 100°C at a rate of 5°C per minute, how long will it take to reach its boiling point?

22. **(Diagram)** A particle diagram is given showing the arrangement of particles in a solid, liquid, and gas. Label the states of matter and describe the particle movement in each state.
23. **(Application)** A balloon is filled with air and then placed in a freezer. Describe what happens to the volume of the balloon and explain why this occurs.
24. **(Analysis)** A glass of ice water is left outside on a warm day. Describe all the phase changes that occur and explain why the glass becomes wet on the outside.

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26. A scientist observes that a certain substance changes from a gas to a solid without becoming a liquid. What is this process called? Provide an example.
27. Why do steam burns cause more damage than burns from boiling water at the same temperature?
28. In an experiment, a student notices that when a lid is placed over a hot cup of tea, water droplets form on the inside of the lid. Explain the scientific process responsible for this observation.
29. A can of soda is left in the sun, and bubbles form inside the liquid. Explain what is happening in terms of temperature and gas solubility.
30. In some places, roads are salted in winter to prevent ice formation. Explain how this works in terms of phase changes.

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