**Chapter 12 Study Guide**

**Vocabulary: Match the definition with the vocabulary words.**

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<tbody>
<tr>
<td>1</td>
<td>Element</td>
<td>A. subatomic particle with no charge</td>
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<tr>
<td>2</td>
<td>Electron</td>
<td>B. Anything that has mass and takes up space</td>
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<tr>
<td>3</td>
<td>Neutron</td>
<td>C. mixture of charged atoms, uncharged atoms, and electrons</td>
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<tr>
<td>4</td>
<td>Proton</td>
<td>D. substance made of only one kind of atom</td>
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<tr>
<td>5</td>
<td>Atomic number</td>
<td>E. Center of an atom containing protons and neutrons</td>
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<tr>
<td>6</td>
<td>Nucleus</td>
<td>F. Chart containing all the elements arranged by atomic number</td>
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<tr>
<td>7</td>
<td>Plasma</td>
<td>G. Subatomic particle with a negative charge</td>
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<td>8</td>
<td>Matter</td>
<td>H. Number of protons in an atom</td>
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<tr>
<td>9</td>
<td>Atom</td>
<td>I. State of matter with no definite shape or volume</td>
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<tr>
<td>10</td>
<td>Compound</td>
<td>J. smallest unit of an element, that is still that element</td>
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**Match each process to its best description.**

11. ___ Freezing  
A* Process of a solid changing into a liquid.

12. ___ Melting  
B* Process of a solid changing into a gas without going through the liquid phase.

13. ___ Evaporation  
C* Process of a gas changing into a liquid.

14. ___ Condensation  
D* Process of a liquid changing into a solid.

15. ___ Sublimation  
E* Process of a liquid changing into a gas.

**Write T for True and F for False.**

16. _____ Solid particles are packed tightly together in fixed positions.

17. _____ Particles in a liquid move around just as freely as particles in a solid.

**Multiple Choice:**

18. A solid is a state of matter that has a(n)  
   a. indefinite volume and a definite shape  
   b. definite volume and an indefinite shape  
   c. definite volume and a definite shape  
   d. indefinite volume and definite shape

19. Which state of matter goes through changes in volume easiest?  
   a. frozen  
   b. liquid  
   c. solid  
   d. gas

20. The gaseous form of water is called  
   a. rain  
   b. water vapor  
   c. salt water  
   d. snow
21. When water evaporates, it is a
   a. solid    b. liquid
   c. gas      d. solvent

22. The elements in a column of the periodic table
   a. Are the same average atomic mass
   b. Have the same or nearly the same properties
c. are in the same family  d. have properties that change in a pattern

23. Each family in the periodic table has its own characteristic properties based on the number of
   a. Neutrons
   b. ions
   c. Valence electrons
   d. protons

24. The smallest particle of an element is called a
   a. compound
   b. atom
   c. mixture
   d. molecule

25. Which particles in an atom are in the nucleus?
   a. protons and ions
   b. protons and neutrons
   c. protons and electrons
   d. Protons and nucleus

26. How do compounds and elements differ?
   a. Elements are metals, compounds are nonmetals
   b. Elements exist as solids, liquids, and gases, compounds are only solids
   c. Elements are pure substances, compounds are not
   d. Elements have different kinds of atoms, compounds have one kind of atom

Label the parts of the atom on the diagram below.

27. 

28. 

29. 

30. 
**Matter**

***Chapter 12 Test***

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Match each process to its best description.

11. **Freezing**  *  Process of a solid changing into a liquid.

12. **Melting**  *  Process of a solid changing into a gas without going through the liquid phase.


14. **Condensation**  *  Process of a liquid changing into a solid.

15. **Sublimation**  *  Process of a liquid changing into a gas.

Write T for True and F for False.

16. _______ Solid particles are packed tightly together in fixed (not moving) positions.

17. _______ Particles in a liquid move around just as freely (just as much) as particles in a solid.

18. _______ Elements in a **row** of the periodic table have properties that are the same or nearly the same.

19. _______ A **row** across the periodic table is called a **period**.

20. _______ Elements in a compound share or transfer **protons**.

**Multiple Choice:**

21. A solid is a state of matter that has a(n)
   a. indefinite volume and a definite shape
   c. definite volume and a definite shape

22. Which state of matter goes through changes in volume easiest?
   b. liquid
   d. gas
23. The gaseous form of water is called 
   b. water vapor  
   c. salt water 

24. When water evaporates, it is a 
   a. solid  
   c. gas 

25. The elements in a column of the periodic table 
   a. Are the same average atomic mass  
   b. Have the same or nearly the same properties  
   c. are in the same family 

26. Each family in the periodic table has its own characteristic properties based on the number of 
   a. Neutrons  
   c. Valence electrons 

27. The smallest particle of an element is called a 
   b. atom  
   d. molecule 

28. Which particles in an atom are in the nucleus? 
   a. protons and ions  
   b. protons and neutrons 

29. How do compounds and elements differ? 
   a. Elements are metals, compounds are nonmetals  
   c. Elements are pure substances, compounds are not  
   d. Elements have different kinds of atoms, compounds have one kind of atom

Label: 
In the picture of the atom below, please label these parts of the atom: nucleus, proton, electron, neutron

30. 
31. 
32. 
33.

Fill in the answers

34. Describe what is happening to the particles (motion and spacing) in all three states of matter (solid, liquid, gas) in the questions below.

   - How do the GAS molecules move (fast, medium, slow, vibrate)? Circle one
   - Are the GAS molecules close together or far apart?

   - How do the LIQUID molecules move (fast, medium, slow, or vibrate)? Circle one
   - Are the LIQUID molecules very close together, far apart, or have some space?

   - How do the SOLID molecules move (fast, medium, slow, or vibrate)? Circle one
   - Are the SOLID molecules very close together, far apart, or have some space?