

Name:
Period:

8th Grade Study Guide Unit 2

1. What is an atom? _____
2. What is a molecule? _____
3. Determine whether the following is an atom or a molecule.
He _____ O₆ _____ H₂ _____ N _____
4. Count the atoms in the following:
NaCl _____ C₆H₁₂O₆ _____ CH₃O _____ HNO₃ _____
5. Fill in the chart with the information for the subatomic particles.

Particle	Electrical Charge	Location in the atom

6. Fill in the element box and the table with the information obtained from the periodic table of elements.

_____	→	6
_____	→	Carbon
_____	→	C
_____	→	12

7. True or False:

- _____ a. The number of protons and electrons are equal.
 - _____ b. The number of neutrons always equal the number of protons.
 - _____ c. The atomic mass equals the number of protons and neutrons.
 - _____ d. Atoms are the building blocks of matter.
 - _____ e. The center of the atom is called the neutron.
 - _____ f. The atomic number equals the number of protons.
8. Describe the difference between pure substances and mixtures. _____
 9. How are elements and molecules related? _____
 10. What is a compound? _____
 11. What do elements and compounds have in common? _____
 12. What is mixture? What is the difference between a homogeneous and heterogeneous mixture?
 13. Three types of mixtures are solutions, colloids, and suspensions. Define each and give an example.
 14. How do elements and compounds differ from mixtures? _____
 15. Identify the following as a compound, element, or mixture:
Oxygen: _____ Table Salt: _____ Salad Dressing: _____
Water: _____ Nitrogen: _____ Gold: _____
Orange Juice: _____ Blood: _____ Baking Soda: _____
 16. What is a solute and a solvent? Give an example for each. _____
 17. Describe the movement of particles in solids, liquids, gases, and plasma states.
 18. Adding energy (heat) to a substance = the molecules _____ up and spread out
Removing energy (heat) from a substance = the molecules _____ down and get closer together.
 19. Compare and contrast endothermic and exothermic reactions. _____
 20. Identify the 6 phase changes. Include the state at the beginning and the end.
 - a. Melting= solid → liquid
 - b. _____
 - c. _____
 - d. _____
 - e. _____
 - f. _____
 21. Identify and discuss physical and chemical properties of matter...physical (i.e., density, melting point, boiling point) chemical (i.e., reactivity, combustibility) _____

22. What does sinking and floating reveal about the density of a substance? What is density's formula? SI Unit?

23. Identify and discuss changes in matter as physical (i.e., physical change) or chemical (development of gas, formation of precipitate, and change in color). _____

24. Identify the following changes as physical or chemical.

- a. Ripping a sheet of paper _____ d. Burning a sheet of paper _____
 b. Evaporation of a liquid _____ e. Deposition of frost _____
 c. Decomposing vegetables _____ f. Rusting iron _____

25. List 4 clues for a physical change and 4 clues for a chemical change.

26. How is the Periodic Table of Elements arranged? _____

27. What are 2 differences between a family and a period (think about location and properties)? _____

28. Where the noble gases on the periodic table? Why are they inert? _____

29. Name 3 properties of a metal, nonmetal, and metalloid and give an example.

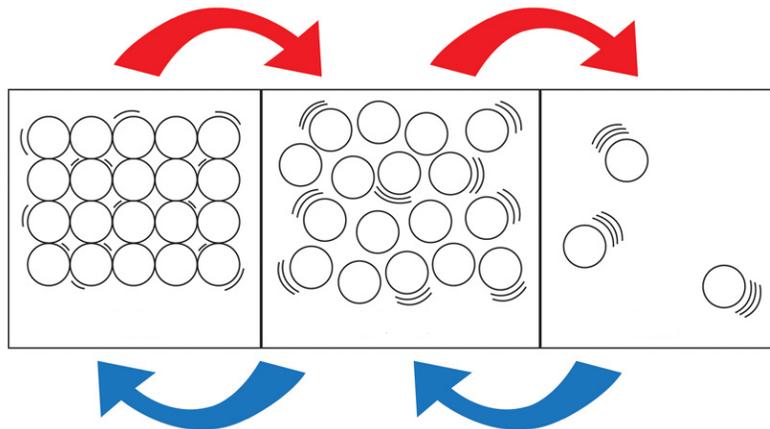
30. What is the Law of Conservation of Matter? _____

31. What is a covalent bond? Give an example.

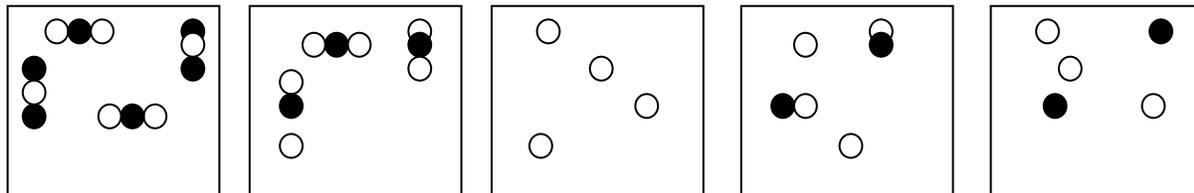
32. What is an ionic bond? Give an example.

33. Explain the bond between Sodium and Chlorine. Draw the atomic model for each element, give the symbols, would they join via a covalent or ionic bond, and explain the relationship the valence electrons have with each other (do they share, does one of them take, do they need more electrons, etc...)

34. Which box represents a solid, liquid, and gas. Then, identify what both arrows represent



35. Match each diagram with its correct description. Diagrams will be used once.



- A. Pure Element – only one type of atom present.
 B. Mixture of two elements – two types of uncombined atoms present.
 C. Pure compound – only one type of compound present.
 D. Mixture of two compounds – two types of compounds present.
 E. Mixture of a compound and an element.