

Interactions of Matter Unit Study Guide

1. What do atoms gain, lose, or share when they bond? _____
2. How many electrons fill the outermost energy level of an atom? _____
3. What is the most important factor in determining how an atom will bond? _____
4. On the periodic table, atoms in the same _____ have the same number of valence electrons.
5. An electron in the outermost level of an atom is a _____.
6. What are the charged particles that form when atoms gain or lose electrons? _____
7. What do you call a bond that forms when electrons are transferred? _____
8. How are ionic compounds different from covalent compounds? _____

9. What term describes the number of protons in an atom? _____
10. Gold can be hammered into a thin foil. This property is called _____.
11. What is formed during a chemical change? _____
12. A solid _____ forming is a sign of a chemical reaction. _____
13. What is the law of conservation of mass? _____
14. How many carbon atoms are in this glucose molecule? $C_5H_{11}O_5$ _____
15. How many atoms of nitrogen are in NH_3 ? _____
16. The minimum amount of energy needed to start a chemical reaction is the _____.
17. What is the source of activation energy that ignites a strike-anywhere match? _____
18. What happens to atoms in a chemical change? _____
19. What must be done for a chemical equation to be balanced? _____
20. What is the product for the following formula? $N_2 + 3H_2 \longrightarrow 2NH_3$ _____
21. Rewrite and balance the following equation: $Na + Cl_2 \longrightarrow NaCl$ _____
22. What happens in an endothermic reaction? _____
23. Write a chemical equation that shows an endothermic reaction. _____
24. What decreases the rate of a chemical reaction? _____
25. Chemicals that act as biological catalysts by speeding up reactions in living things are called _____.

26. A liquid mixture in which particles can be easily separated by settling is a _____.
27. When a few spoonfuls of sugar are mixed in a cup of water, sugar is a _____.
28. What substance has a bitter taste and a slippery feel? _____
29. What do foods that taste sour usually contain? _____
30. Why should you never taste or touch an unknown acid? _____
31. When a base is added to red litmus paper, the indicator turns _____.
32. If a cleaning product has ammonia as an ingredient, it probably is a _____.
33. What happens when acids and bases come in contact with each other? _____
34. One way to test pH is to use a strip of paper that has several _____.
35. A substance with a pH of 7 is considered _____.
36. Would you expect the pH of a sample of acid rain to be a 4 or 9? Why? _____
37. Which would have a lower pH: a strong acid or a strong base? _____
38. Draw the electron dot diagram for oxygen. How many electrons are needed for a full outer level?
39. Draw the electron dot diagram for carbon. How many valence electrons does it have? _____
- How many electrons are needed to fill the outer level? _____
40. Draw the electron shell diagram for Sulfur. How many valence electrons does it have? _____
- How can it complete its outer energy level? _____
41. Draw the electron shell diagram for Neon with an atomic number of 10.
42. Draw the electron shell diagram for Sodium with an atomic number of 11.
43. Draw the electron dot diagram for Boron. Boron is in group 13.
44. Draw the electron dot diagram for Chlorine. Chlorine is in group 17.
45. Write examples of synthesis, decomposition, and replacement reactions.