

Unit 2 Test Study Guide: Chapter numbers are indicated in parentheses

1. What is activation energy? (9)

The minimum amount of energy needed for a chemical reaction to begin

2. What is the difference between a polar molecule and nonpolar molecule? (8)

~~Nonpolar~~ ^{Polar} molecules have a slight negative charge on one end and a slight positive charge on the other.

3. How do you know a chemical equation is balanced? (9)

A chemical equation is balanced when it contains the same number of atoms of each element on both sides of the equation.

4. Describe an endothermic reaction. (9)

A chemical reaction where more energy is absorbed than released is endothermic. It cools down.

5. Atoms of different elements have different numbers of protons. (8)

- a. True
b. False

6. What is the difference between a chemical change and a physical change? (9)

A chemical change causes a new substance to form. A physical change does not create a new substance.

7. Where are electrons located in an atom? (8)

Outside the nucleus, in the electron cloud, in energy levels

8. What is a compound? (8)

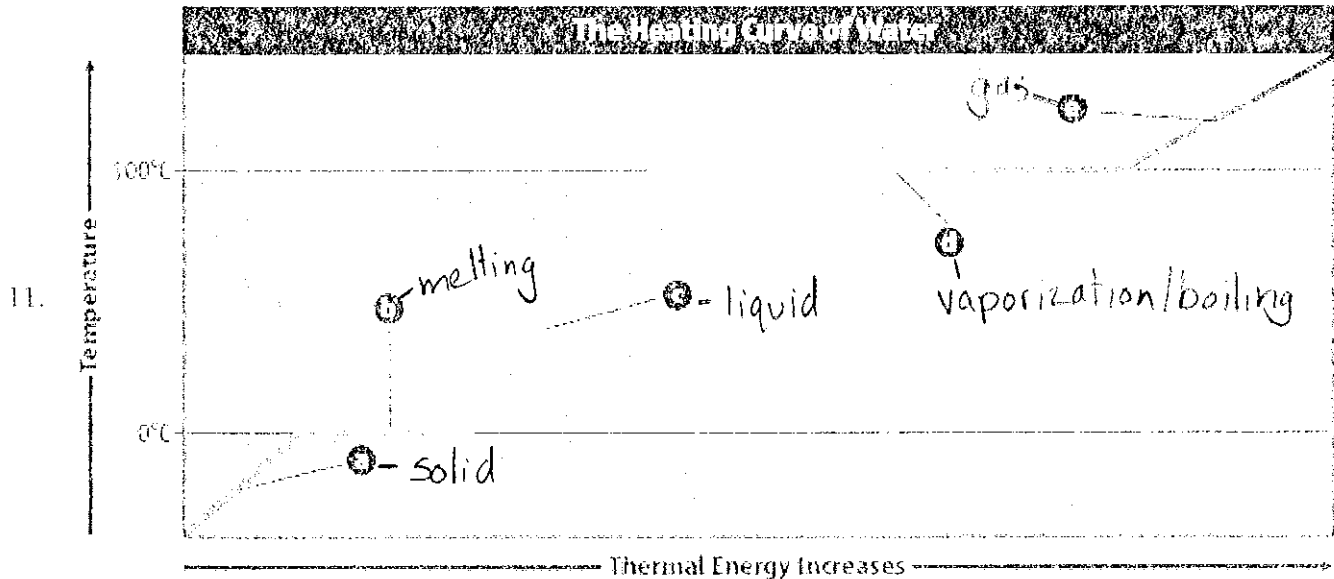
Matter made up of two or more different kinds of atoms joined by chemical bonds.

9. Particles move faster at (higher, lower) temperatures. (Circle one) (6)

Unit 2 Test Study Guide: Chapter numbers are indicated in parentheses

10. What is heat? (5)

Heat is thermal energy that is transferred from one object at a certain temperature to another at a different temperature.



Label each letter in the graph above with the state of matter or the change in state being shown. (6)

12. What are some properties of metals? (8)

- Shiny
- Malleable
- Good conductor of heat
- Good conductor of electricity

13. Describe an insulator. (5)

A material that does not allow heat to move through it easily is an insulator.

14. The addition of what causes snow to melt? (5)

Thermal Energy

15. Water vapor fogs up the cooler mirror when it turns to water. This is an example of _____. (6)

Condensation

Unit 2 Test Study Guide: Chapter numbers are indicated in parentheses

16. Snow forms in clouds because water vapor changes directly to ice. This is an example of _____. (6)

Deposition

17. Atoms are considered stable when they have how many electrons in their outer shell? (8)

8

18. Define each and give an example (5):

	Definition	Example
Conduction	Transfer of energy by direct contact of particles	Metal spoon in hot soup
Convection	Transfer of energy by the motion of heated particles in a liquid or gas	Boiling water
Radiation	Transfer of energy through electromagnetic waves	Sun rays

19. Heat transfers because of a difference in what? (5)

Temperature

20. What is temperature? (5)

Temperature is a measure of the average kinetic energy of the particles in an object.

21. What are some signs that a chemical reaction is taking place? (9)

- Gas formation
- Precipitate formation
- Color Change
- Temperature change
- Change in Odor
- Light Given off

Unit 2 Test Study Guide: Chapter numbers are indicated in parentheses

22. Define thermal energy. (5)

Thermal energy is the sum of the kinetic energy and potential energy of an object

23. Define and give an example of each: (6)

	Definition	Example
Freezing	Liquid → Solid	Ice
Melting	Solid → Liquid	Melting butter
Condensation	Gas → Liquid	Foggy mirror
Vaporization	Liquid → Gas	Boiling water
Sublimation	Solid → Gas	Dry Ice
Deposition	Gas → Solid	Snow formation

24. A catalyst is which of the following? (9)

- a. a reactant
- b. a product
- c. both a and b
- d. neither a nor b

25. Define kinetic and potential energy. (5)

Kinetic energy is the energy of motion.
 Potential energy is the stored energy due to position.

26. Dot diagrams are used to represent _____. (8)

Valence electrons

Unit 2 Test Study Guide: Chapter numbers are indicated in parentheses

27. Where are the noble gases found on the periodic table? (8)
 Far right
28. What substances are found on the right of an arrow in a chemical reaction? (9)
 Products

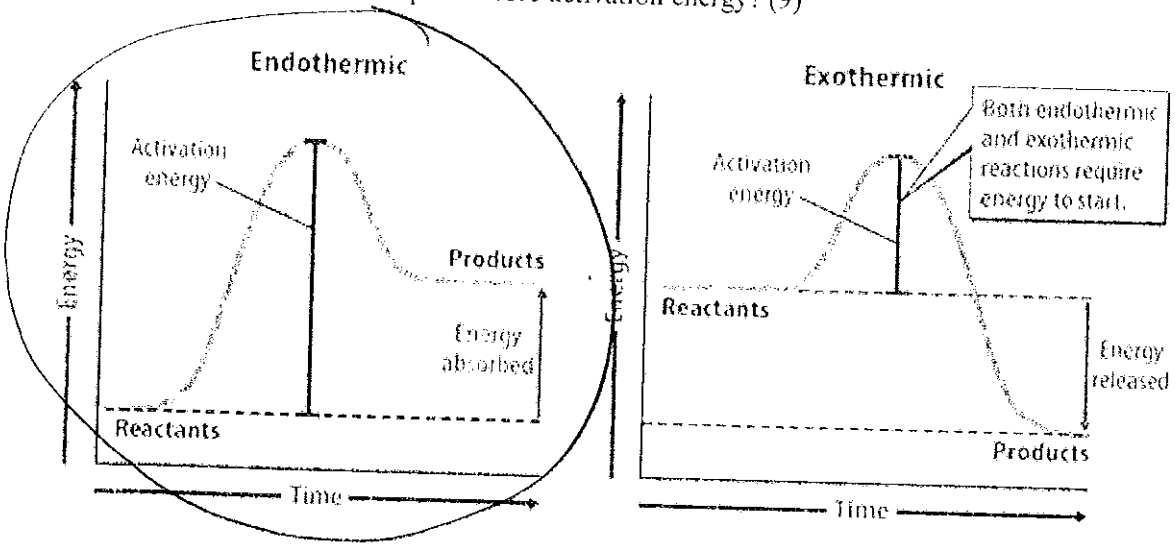
29. What is the law of conservation of mass? (9)
 The mass of the reactants must equal the mass of the products.

30. Define exothermic reaction. (9)
 A exothermic reaction is one that releases thermal energy.

31. The sum of all the potential energy and kinetic energy in an object is equal to its _____. (5)
 a. thermal energy b. kinetic energy
 c. potential energy d. force

32. What is surface tension? (6)
 The uneven forces acting on the particles of the surface of a liquid. Allows spiders to walk on water.

33. Which type of reaction requires more activation energy? (9)



34. Why is water a covalent bond? (8)
 Water is two nonmetal atoms which share electrons forming a molecule.

Unit 2 Test Study Guide: Chapter numbers are indicated in parentheses

35. What is a covalent bond? (8)

a chemical bond that occurs when atoms share electrons.

36. Which of the following is a compound? (8)

- a. gold
- b. oxygen
- c. neon
- d. water

37. Which is the correct chemical formula for methane? (8)



Methane



1 carbon atom
4 hydrogen atoms

CH₄

38. Define inhibitor. (9)

A substance that stops or slows a chemical reaction.

39. What are the three particles that make up an atom? (8)

Protons, Neutrons, and electrons

40. Heat always moves from warmer objects to cooler objects. (5)