

Key

Vocabulary Practice

atom	adhesion	carbohydrate	bond energy
element	solution	lipid	equilibrium
compound	solvent	fatty acid	activation energy
ion	solute	protein	exothermic
ionic bond	acid	amino acid	endothermic
covalent bond	base	nucleic acid	catalyst
molecule	pH	chemical reaction	enzyme
hydrogen bond	monomer	reactant	substrate
cohesion	polymer	product	

A. Who Am I? Choose among these terms to answer the riddles below:

✓ activation energy	✓ enzyme	✓ nucleic acid
✓ bond energy	✓ fatty acid	✓ pH
✓ carbohydrate	✓ hydrogen bond	✓ protein
✓ compound	✓ ion	✓ solution
✓ endothermic	✓ molecule	✓ substrate

- I am a chemical reaction that absorbs more energy than I release; my products have a higher bond energy than my reactants.
- I am an attraction between a slightly positive hydrogen atom and a slightly negative atom, such as oxygen or nitrogen.
- I am the type of molecule that stores genetic information in living things; I include DNA and RNA.
- I am the amount of energy needed to break a chemical bond; I am also the amount of energy released when a bond forms.
- I am a certain type of mixture; I am formed when one substance, such as water, dissolves other substances.
- I allow chemical reactions to take place under the tightly controlled conditions in living things; in almost all cases I am a protein.

endothermic

hydrogen bond

nucleic acid

bond energy

solution

enzyme

VOCABULARY PRACTICE, CONTINUED

7. Chemical bonds hold me together; I always contain atoms of more than one element.

compound

8. I am a carbon chain found in many lipids; I can be either saturated or unsaturated.

fatty acid

9. I have a positive charge if I lose an electron, or I have a negative charge if I gain an electron.

ion

10. I am a reactant an enzyme acts on; I bind to an enzyme's active site.

substrate

11. Many different types of me have many different functions in living things; I am made of amino acids.

protein

12. I measure the hydrogen ion concentration in a solution; when I am low a solution is very acidic.

pH

13. I am the amount of energy that is needed for a chemical reaction to start; after I am added, the reaction can take place on its own.

activation energy

14. I am held together by covalent bonds; I can be made of atoms of just one element.

molecule

15. Carbon, hydrogen, and oxygen are my building blocks; sometimes I am broken down as a source of energy, and sometimes I make up plant cell walls.

carbohydrate

B. Same or Different? Each pair of words could either describe the same thing or different things. If they can describe the same thing write "same." If they cannot describe the same thing write "different."

same
(either)

1. catalyst/enzyme

different

2. atom/element (atoms make up elements)

different

3. cohesion/adhesion

different

4. monomer/polymer

same

5. exothermic/endothermic

different

6. substrate/reactant

different

7. solvent/solute

different

8. compound/element

same

9. acid/base

10. enzyme/protein

VOCABULARY PRACTICE, CONTINUED

C. Compound Word Puzzle Read the phrase and write the word that it most closely describes. Then write another phrase that describes the same word in a different way.

PHRASE 1	WORD	PHRASE 2
smallest basic unit of matter	Example atom	contains protons, neutrons, and electrons
enters a chemical reaction	1. reactants	$A + B \rightarrow AB$
atom that has gained or lost electrons	2. ion	H^+ ions measure how acidic or basic a solution is.
held together by covalent bonds	3. anything that is shared!	(not tested)
dissolves a solute	4. Solvent	<u>WATER</u> is the universal solvent!
releases a hydrogen ion into a solution	5. acid	the H^+ the more acidic
reactants have a greater bond energy than products	6. endothermic reaction	= absorbs energy feels colder
substance that decreases activation energy	7. enzyme or catalyst	= speeds up reactions
includes sugars and starches	8. carbohydrates	sugar

VOCABULARY PRACTICE, CONTINUED

D. Find the Odd Word Put a checkmark next to the word that does not belong. Put a checkmark next to the one that does not belong and explain why. There may be more than one correct way to answer for some of the word sets.

1. ☐ acid☒ hydrogen bond☐ base2. ☒ compound☒ atom☐ element3. ☐ covalent bond☒ solution☐ molecule4. ☒ equilibrium☐ bond energy☐ exothermic

Explanation Acid + base = pH scale
H bonds bond a + Hydrogen w/
a - Oxygen (WATER!)

Explanation either one: atoms make up elements
but elements make up compounds.

Explanation molecules use covalent bonds to
bind; solutions contain a solvent and
solute.

Explanation exothermic rxns RELEASE energy from
its bonds; equilibrium is (U) on both sides
(homeostasis)

E. Situational Vocabulary Circle the letter of the situation that most closely relates to each vocabulary word.

1. **activation energy** (a) kick-starting a motorcycle; b) eating sugary foods required to start / finish reaction

2. **solute** (a) getting lost in a crowd; b) answering a math problem dissolved by solvent

~~3. ionic bond~~: a) linking hands in a human chain; (b) passing a basketball - not tested

4. **lipid**: a) a car's gas tank; (b) a car's headlights either but...
protection + support
(gas = carbs = immediate energy)

5. **amino acid**: a) lemon juice in iced tea; (b) one of many beads on a string AAs = polypeptide chain

~~6. covalent bond~~: a) linking hands in a human chain; b) passing a basketball = shared / not tested

7. **equilibrium**: (a) evenly matched tug-of-war; b) sprinters ready to race

8. **atom**: a) multicellular organism; (b) unicellular organism

atoms are the building blocks of elements!