

# Concept Review

## Section: What Is Chemistry?

Complete each statement below by underlining the correct word or phrase in brackets.

1. A chemical is any substance that has [definite, indefinite] composition.  
Changes in chemicals, or chemical reactions, take place [only in test tubes, all around us].
2. The type and arrangement of [particles, crystals] in a sample of matter determine the properties of the matter. Most of the matter you encounter is in one of [numerous, three] states of matter.
3. The characteristics of a solid include [fixed, variable] volume and shape. Particles that make up solids are held [loosely, tightly] in a [flexible, rigid] structure, so the particles can [vibrate only slightly, flow past each other].
4. Liquids have a [fixed, variable] volume but a [fixed, variable] shape. This situation occurs because particles in a liquid are held [tightly, loosely] and [can, cannot] slip past each other.
5. Gases have [fixed, variable] volume and [fixed, variable] shape. Gas particles may move apart to fill any container they occupy. This behavior occurs because gas particles are [close together, far apart] and are [attracted, not strongly attracted] to one another.
6. [Physical, Chemical] changes are changes in which the identity of a substance does not change. Thus the changes of state are [physical, chemical] changes.
7. In a [physical, chemical] change, the identities of substances change and new substances form.
8. In the word equation  $hydrogen + oxygen + heat \rightarrow water$ , hydrogen is a [reactant, product], and water is a [reactant, product]. This is an example of a [physical, chemical] change.
9. A [physical, chemical] reaction rearranges the atoms that make up the reactant or reactants. After a chemical reaction, [the same, different] atoms are present in the product or products. Atoms [are, are not] destroyed or created, so mass [does, does not] change during a chemical reaction.
10. Chemical changes sometimes produce a gas, which you can detect by observing [bubbles, a precipitate] or by a change in [color, odor].
11. When two clear solutions mix and a precipitate forms, the mixture becomes [clear, cloudy].
12. When energy is released during a chemical reaction, temperature [increases, decreases]. Chemical reactions may also absorb energy, which is indicated by a(n) [increase, decrease] in temperature.
13. A color change in a reaction system, such as when an indicator changes color, may indicate that a [chemical, physical] reaction has occurred and [new, no new] substances have formed.

**Concept Review** *continued*

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Mark each change below **P** if it is physical and **C** if it is chemical.

- \_\_\_\_\_ 14. milk souring
- \_\_\_\_\_ 15. gasoline burning
- \_\_\_\_\_ 16. ice melting
- \_\_\_\_\_ 17. lighting a match
- \_\_\_\_\_ 18. water evaporating
- \_\_\_\_\_ 19. chopping wood
- \_\_\_\_\_ 20. burning wood
- \_\_\_\_\_ 21. breath fogging a mirror
- \_\_\_\_\_ 22. cooking an egg
- \_\_\_\_\_ 23. bleaching a stain

Answer the following questions in the space provided.

24. Explain how chemicals and chemical reactions are an important part of your life.

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25. In the spaces below draw and label a microscopic view showing the particles in a solid, a liquid, and a gas.

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