

5-1 What is a solution?

Lesson Review

Write *true* if the statement is true. If the statement is false, change the underlined term to make the statement true. Write your answers in the spaces provided.

- _____ 1. A mixture in which the particles of one substance are evenly mixed with the particles of another substance is a solution.
- _____ 2. Club soda is a solution of hydrogen dissolved in water.
- _____ 3. Sand dissolves in water.
- _____ 4. A saltwater solution is formed when a solid dissolves in a gas.
- _____ 5. A solution can be formed when a gas dissolves in a gas.
- _____ 6. When a substance goes into solution, it dissolves.
- _____ 7. A solution of alcohol dissolved in water is an example of a liquid dissolved in a solid.
- _____ 8. A solution of water droplets in air is an example of a liquid dissolved in a gas.
- _____ 9. Sand mixes evenly with water.
- _____ 10. In a sugar-water solution, particles of sugar are evenly mixed with molecules of water.

Skill Challenge

Skills: identifying, relating

Write *yes* if the substance is a solution or *no* if it is not a solution. Then, identify the state of substances being mixed in each solution.

Substance	Solution? (yes or no)	State of Substances Mixed
1. Salt water		
2. Air		
3. Balloon filled with hydrogen		
4. Ink on paper		
5. Soda water		
6. Water droplets in air		

Solutions

Solutions are homogeneous mixtures of two or more substances. The **solute** is the substance that is dissolved. The **solvent** is the substance in which the solute is dissolved.

Most solutions contain more solvent than solute. The rate at which a solute dissolves in a given solvent usually can be increased by

- stirring or shaking the mixture.
- breaking or crushing the solute into smaller particles.
- heating the solution.

As a general rule, a solvent will dissolve a solute that is chemically like itself.

The **solubility** of a substance is the amount of solute that can be dissolved in a certain amount of solvent at a given temperature. If a substance is **insoluble** in a solvent, it will not dissolve in the solvent.

A solution can be described as either concentrated or dilute. A **concentrated** solution contains a large amount of solute compared to the amount of solvent. It is a strong solution. A **dilute** solution has a small amount of solute compared to the amount of solvent. It is a weak solution.

When a solution has dissolved all of the solute that it can dissolve, the solution is described as **saturated**. If more solute can be dissolved in a solution, the solution is described as **unsaturated**. When a solution has dissolved more solute at a particular temperature than it normally does, the solution is said to be **supersaturated**.

Unscramble each term below. Write its correct spelling in the first blank. Next, match each term with its definition. Write the definition's letter in the second blank.

1. NIOTLOSU _____

2. UILETD _____

3. ECNNTAECORTD _____

4. EUAUATRSRESPTD _____

5. VSOIELDS _____

6. ASURETTDNUA _____

7. NLBLOISUE _____

8. STLUOE _____

9. STNVLOE _____

10. DTUTARASE _____

A. cannot dissolve more solute

B. weak

C. homogeneous mixture

D. to go into solution

E. substance that is dissolved

F. substance that does the dissolving

G. will not dissolve

H. strong

I. contains more solute than normal

J. can dissolve more solute