

STEM *Sims*™

Solutions



Solutions

**Do you need an idea for a scientific study?
Try out one of our ideas or make one of your own.**

Start learning right now about how people use various solutions in their daily lives. Take the following brief quiz to see how much you already know about how to make and use different solutions. See the bottom of page 4 to check your answers.

1. All of the following are solutions *except* a:
 - a. 14-ct. gold ring.
 - b. totally dissolved salt in water.
 - c. tossed salad.
 - d. brass cup.
2. A gold ring could be dissolved in which of the following solutions?
 - a. salt water
 - b. aqua regia
 - c. dilute sulfuric acid
 - d. none of these
3. Fog is best classified as a:
 - a. heterogeneous mixture.
 - b. colloid.
 - c. true solution.
 - d. suspension.
4. Which of the following is *not* a part of an unsaturated water solution of sodium chloride?
 - a. sodium ions
 - b. water
 - c. chloride ions
 - d. solid sodium chloride
5. Which of the following is a true solution?
 - a. muddy river water
 - b. milk
 - c. white gold
 - d. mayonnaise



Mixing It Up

On the line to the left of the description in column A write the letter of the correct term found in column B. Some letters in column B may be used more than once. Some letters will not be used. See the bottom of page 4 to check your answers.

- | | |
|--|--------------------------|
| __1. The substance that is dissolved to form a solution. | A. solvent |
| __2. Some solid remains undissolved in a water solution. | B. solute |
| __3. A water-based homogeneous mixture that is transparent to light. | C. solution |
| __4. A homogeneous mixture with large particles, like muddy water. | D. saturated solution |
| __5. Some water dissolves some salt. Water is said to be this. | E. unsaturated solution |
| __6. Milk is a good example of this homogeneous mixture. | F. suspension |
| __7. A small amount of solute in a large amount of solvent. | G. colloid |
| __8. Some water dissolves some sugar. The sugar is said to be this. | H. heterogeneous mixture |
| __9. Oil and water is best described as this. | I. dilute |
| | J. concentrated |
| | K. filtered |
| | L. supersaturated |
| | M. ionization |



Solutions

Solution Pollution

Many people think that “dilution is the solution” to the disposal of toxic and dangerous substances. Some people dump these chemicals into waterways and storm sewers believing that the substances will become less dangerous when diluted. While dilution does reduce the amount of solute dissolved in a given solvent, the same total amount of the material is still present. Even though the chemical is more spread out, the mass of the substance present remains unchanged.

So what should a person do who has old household chemicals that must be discarded? Most municipalities have collection sites for toxic materials. Specially trained workers at these sites dispose of the chemicals in an appropriate manner. Remember that dilution is not the solution when trying to dispose of toxic and dangerous chemicals. Leave it to a professional to properly dispose of your unwanted substances.



Please visit our site for more helpful information:
STEMsims.com

Answers: Page 2 Answers: (1) c, (2) b, (3) b, (4) d, (5) c, Page 3 Mixing It Up Answers: (1) b, (2) d, (3) c, (4) f, (5) a, (6) g, (7) i, (8) b, (9) h.

The Science Fair Kits project was funded in part under the Department of Homeland Security Science and Technology Directorate grant contract #N10PC20003. Its contents are solely the responsibilities of the authors and do not necessarily represent the official views of the Department of Homeland Security.

© 2024 STEM Sims. All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable, and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent or other industrial or intellectual property rights.