



Connected Chemistry Reminder

- Many questions will ask you “what you think” or “to make predictions.” The only answer that is wrong is the answer that is left blank.
- Prefixes and suffixes on words can help you discover the meaning of a word.
- Use the vocabulary section and note section to take good notes so that studying for tests and quizzes will be easier.
- Supporting claims with evidence is not only a skill that scientists use, but a skill that will help you in other classes and everyday life.
- Draw a key when you are sketching. Symbolic keys can help you and others decode your sketches at a later time.
- Dissolving and dissociating are different ways of forming a solution. Dissolving involves molecular compounds. Dissociating involves the breaking apart of ionic compounds into ions. Ions will have halos in solutions.

Notes

Homework

Upcoming Quizzes/ Tests



Activity 1: Connecting

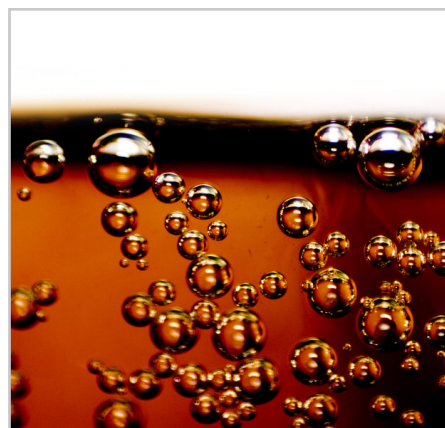
1. What do you think are three factors that could affect solubility?

2. Consider the following statement about polarity: "Like dissolves like." How could you use this statement to select solvents and solutes when making solutions?

3. Do you think there is a relationship between the polarity of a molecule and how substances dissolve or dissociate at the submicroscopic level?

The most common way to create a solution is to use a liquid solvent and a solid solute. Water is used as a solvent to create aqueous solutions. However, this is not the only way to create solutions. Some liquids can be dissolved into other liquids. Mouthwash is an example of a solution of water and many other liquid ingredients, including mint flavoring and fluoride. The combination of these substances in mouthwash helps to create a flavor to mask the other strong ingredients used to protect your teeth. Similarly, gases can also be dissolved into other gases. For example, the air we breathe is actually a solution of oxygen, water, nitrogen, and other gases.

Gases can also be dissolved into liquids. Most "fizzy" drinks get their bubbles from carbon dioxide that has been dissolved in the liquid to form a solution. This is called a **multiphase solution** because the solution is created from a liquid and gas phase of matter. A solvent's ability to dissolve a solute can be affected by internal and external factors. Some solvents are better than others at dissolving solutes. For example, recall that the polarity of a solvent can affect how well solutes dissolve.





Activity 2: Teacher Facilitated Discussion

4. Consider the following statement. *“All solutions are mixtures, but not all mixtures are solutions.”* Is the statement true or false? *Provide evidence for your claim. Use real-life examples as part of your evidence.*

Below is a table of some of ingredients in regular Coca Cola®. Please fill out the table. In order to complete the table, use the Internet to research and gather the pieces that you do not know.

Substance	Chemical Formula	Phase of matter prior to adding to mixture	Ionic or Molecular Compound?
Water			
Carbon dioxide			
Fructose			
Sucrose			
Phosphoric acid			
Vanillin			
Caffeine			
Sodium chloride			

5. Is Coca-Cola® a solution or a mixture? *Support your claim with evidence.*

6. Is Coca-Cola® a multiphase solution? *Support your claim with evidence.*

7. What makes Coca-Cola® similar to Kool-Aid® on the submicroscopic level?



8. What makes Coca Cola® different than Kool Aid® at the submicroscopic level?

9. Consider the following statement, "Carbonated water is a solution." *Explain why this statement is true.*

10. Based on your table of Coca-Cola® ingredients, what combination of phases are used to make Coca-Cola®?

11. If you removed water from the Coca-Cola®, would you still have a solution? *Support your claim with evidence.*

12. A student who has not taken chemistry claims that water is the only solvent. *Explain whether that student is correct or incorrect and why.*

Lesson Reflection Questions

13. Why do you think water is a universal solvent? Be sure to discuss the physical properties of water in your response..

14. What substances will not dissolve in water and in what solvent would they dissolve?



Activity 3: Putting It All Together

Determine if the following scenarios are true or false. Support your answer with evidence from researching each of the given scenarios. If you decide that the statement is true, make sure to clearly identify the solvent and solute. In addition, identify the phases of the solvent and solute. Be prepared to discuss your answers and evidence in class.

15. Maple syrup is a solution. Circle **True** or **False**. *Explain with evidence.*

16. Vinegar is a solution. Circle **True** or **False**. *Explain with evidence.*

17. Air is a solution. Circle **True** or **False**. *Explain with evidence.*

18. Brass, an alloy metal, is a solution. Circle **True** or **False**. *Explain with evidence.*
