7

Science

Quarter 1 – Module 4:
I Have Less, She Has Ample, He Has More, Let Us See What's In Store!

CO_Q1_Science7_Module4

Science – Grade 7
Alternative Delivery Mode
Quarter 1 – Module 4: I Have Less, She Has Ample, He Has More, Let Us See What's In Store!
First Edition, 2020

Published by the Department of Education
Secretary: Leonor Magtolis Briones
Undersecretary: Diosdado M. San Antonio

Development Team of the Module

Writers:	Ma. Sheila S. Manila, Myrna V. Deneiga, Cherry Joy F. Anga-angan
Editors:	Miraflor A. Albios, Cynthia S. Bustillo
Reviewers:	Maryjoy D. Bautista, Agabai S. Kandalayang, Yusof A. Aliudin, Mary Anne A. Barrientos
Layout Artist:	Jaypee Kadalem Balera, Analyn J. Madera, Glen D. Napoles
Management Team:	Allan G. Farnazo, Isagani S. Dela Cruz, Gilbert B. Barrera, Arturo D. Tingson, Jr., Peter Van C. Ang-ug, Elpidio B. Daquipil , Juvy B. Nitura, Lenie G. Forro

Printed in the Philippines by _____

Department of Education – SOCCSKSARGEN
Office Address: Regional Center, Brgy. Carpenter Hill, City of Koronadal
Telefax: (083) 2288825/ (083) 2281893
E-mail Address: region12@deped.gov.ph

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners can continue your studies and learn while at home. Activities, questions, directions, exercise, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on the lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text. Note to the teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put necessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module do not hesitate to consult your teacher or facilitator.

Thank you.

Lesson 1 SATURATED and UNSATURATED SOLUTION

What I Need to Know

In Module 2, you found out that a solution is formed when a solute dissolves in a solvent to form a single phase that appears uniform throughout. A solution is clear and the particles are too small that they cannot be seen by the unaided eye. The particles in solution are smaller than the pores of the filter paper or the cheesecloth and so these can pass through the filter.

In Module 3, you will find out how much solute can dissolve in a given amount of solvent and find out the type of solution based on whether there is excess solute or not.

After going through this module, you are expected to:

1. describe saturated and unsaturated solution;
2. determine how much solid solute dissolves in each volume of water; and
3. describe the appearance of a saturated solution.

What I Know

Directions: Read each item carefully. Write only the letter of the correct answer for each question. Use a separate sheet for your answers.

1. In a salt water solution, what substance is considered the solvent?
   a. salt
   b. water
   c. both are solvents
   d. neither substance is a solvent

2. What substance can dissolve other substance in a solution?
   a. solute
   b. mixture
   c. solvent
   d. all of the above

3. What is the substance called that is being dissolved in a solution?
    a. solute
    b. mixture
    c. solvent
    d. all of the above

4. Which of the following refers to the solution that contains as much solute as can dissolve at a given temperature?
    a. solubility
    b. dilute solution
    c. saturated solution
    d. unsaturated solution

5. Which of the following refers to the solution that contains less solute than can dissolve at a given temperature?
    a. solubility
    b. dilute solution
    c. saturated solution
    d. unsaturated solution

6. You are given a 40 mL solution in a beaker. You add solute to the beaker and it dissolves completely. The solutions was_____
    a. saturated
    b. unsaturated
    c. concentrated
    d. supersaturated

7. Something that can be dissolved in a solution is called_____
    a. colloid
    b. soluble
    c. insoluble
    d. suspension

8. Substance dissolved in a solution is called____
    a. solute
    b. solvent
    c. solution
    d. concentration

9. Jessica made a pitcher of lemonade. What can she do to dilute if she thinks it doesn't taste right?
    a. Add water
    b. Add sugar
    c. Boil the lemonade
    d. Put it in the refrigerator

10. When a solution is saturated?
    a. Crystals form
    b. You need to stir it more
    c. No additional material will dissolve in it
    d. Two materials have combined to create a clear liquid

What's In

In Grade 6, you have learned about different mixtures and their characteristics. You have done activities where you mixed a solid and a liquid or combined two different liquids. In the process of mixing, you have observed that these mixtures either form homogeneous or heterogeneous mixtures. You have seen that when all parts of the mixture have the same uniform appearance and properties, it is homogeneous.

Look at the given substances below and guess where each of the substances belongs. Answer the table below by putting a check inside the table 1 if it is homogeneous or heterogeneous mixture.

Table 1: Activity 1: Where Do I belong?

Substance	Homogeneous	Heterogeneous
1.  Gelatin		
2.  Cup of milk		
3.  Candies		
4.  Cup of coffee		
5.  Vegie Salad		

Activity 2: "Finding Solutions at Home"

List down some common solutions found at home and do the activity below

Products or Solutions Found at Home or in Stores	Characteristics
1	
2	
3	
4	
5	

Guide Questions:

1. Describe the observable characteristics of listed solutions
2. As you observe each product was described in terms of color and appearance, odor, feel, taste, and number of phases
3. Which of these products are solutions?

What's New

Activity 3: What is the Evidence that a Solution is saturated?

Perform the activity below

Materials Needed

- 6 teaspoons sugar
- 1 cup of water
- 1 measuring cup (1cup capacity)
- 1 measuring spoon (½ tsp capacity)
- 2 small clear, transparent bottle
- 2 stirrers /spoon
- 1 thermometer

CAUTION: Use carefully the following laboratory instruments/kitchen materials to avoid damage and accident during the conduct of activity.

Procedure:

1. Put 20 mL (approximately 2 tablespoons) of water in a small clear transparent bottle. Add ½ teaspoon of sugar and stir.

   Q1. What is the appearance of the solutions? Write your observations.

2. To the sugar solution in step #1, add ½ teaspoon sugar, a small portion at a time and stir the solution to dissolve the sugar. At this point, you have added 1 teaspoon sugar.

3. Add ½ teaspoon of sugar to the sugar solution in step #2 and stir the solution. At this point, you have added one and ½ teaspoons of sugar.
4. Continue adding ½ teaspoon sugar to the same cup until the added sugar no longer dissolves.

   Q2. How many teaspoons of sugar have you added until the sugar no longer dissolves? _____ Teaspoons

   Note: In this step, you will observe that there is already excess sugar which did not dissolve.

   Q3. So, how many teaspoons of sugar dissolved completely in 20 mL of water? _____ Teaspoons

   Note: This is now the maximum amount of sugar that will completely dissolve in 20 mL of water.

What is It

The substances that make up a homogeneous solution are called components of the solution. These components are called solvent and a solute. What is solvent? What is solute?

Solvent it is a component of a solution which dissolves the other component in itself. It institutes the larger component of the solution. For example, water is a solvent that dissolves solid substance like sugar.

Solute it is the component of the solution which dissolves in the solvent. It has the lesser component of the solution. For example, sugar is a solute that dissolves in water.

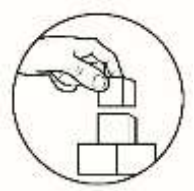
In Activity 3, you observed that the appearance of solution containing less amount of solute (sugar) was clear or transparent. When sugar is dissolved in water, the particles of sugar gets between the spaces of the particles of water and creates a single phase of solution. However, when you slowly add more amount of sugar into a solution and stir it, you will observe that the solution reaches already the point at which it cannot dissolve more solute and the sugar you add sinks to the bottom in solid form.

You have observed that there is a maximum amount of solute like sugar that can dissolve in a given amount of solvent like water at a certain temperature. The process took place between sugar and water is called the **solubility** of the solute.

The solution that contains the maximum amount of solute dissolved by a given amount of solvent is called a **saturated solution.** The presence of an excess solid which can no longer dissolve is evidence that the solution is saturated. A solution is **unsaturated** when it contains less solute than the maximum amount it can dissolve at a given temperature.

Guide Question:

1. What is the difference between the Unsaturated and saturated solutions?
2. How do you know a solution is saturated?
3. What happens when a solution becomes saturated?
4. How many grams or teaspoons of sugar dissolved in 20 ml of water to form saturated solution?



What's More

Study the table below and answer the following questions.

Note: The 35 grams of table salt will form saturated solution in 100 ml of water.

Amount of Table salt in grams (g)	Amount of water in milliliter (ml)
1. 20	100
2. 35	100
3. 70	100

Guide Questions:

1. In which amount of table salt and water will form an unsaturated solution?
2. How many grams of table salt will dissolve to water to form a saturated solution?
3. Which of the following will form a supersaturated solution?

What I Have Learned

Complete the statements below to express what you had learned from the lesson.

1. A maximum amount of solute that can dissolve in a given amount of solvent at a certain temperature is called the _____of the solute.
2. The solution that contains the maximum amount of solute dissolved by a given amount of solvent is called a _____.
3. The presence of an excess solid which can no longer dissolve is evidence that the solution is _____.
4. A solution _____when it contains less solute than the maximum amount it can dissolve at a given temperature.

What I Can Do

List down some examples of solutions that we need to prepare/make in the form of Unsaturated and Saturated solution.

Unsaturated	Saturated

Assessment

Directions: Read each item carefully. Write only the letter of the correct answer for each question. Use a separate sheet for your answers.

1. You are given a 40 mL solution in a beaker. You add solute to the beaker and you observed some particles did not dissolve. What solutions is it?
   a. saturated
   b. unsaturated
   c. concentrated
   d. supersaturated

2. What do you call a substance that dissolved in another substance which is in greater amount?
   a. solute
   b. solvent
   c. solute and Solvent
   d. neither Solute nor Solvent

3. What do you call a substance dissolved in any solution?
   a. solute
   b. solvent
   c. solute and solvent
   d. neither solute nor solvent

4. What you can do if you add more amount of sugar in a cup of your hot milk and it taste very sweet?
    a. Add water
    b. Add sugar
    c. Mix the milk solution well
    d. Put it in the refrigerator for an hour

5. When a solution is saturated?
    a. Crystals form
    b. You need to stir it more
    c. No additional material will dissolve in it
    d. Two materials have combined to create a clear liquid

6. How will you prepare an unsaturated solution?
    a. Freeze the mixture
    b. Stir the powder in the liquid
    c. Add less amount of powder to the liquid
    d. Add more amount of solute in a lower amount of solvent

7. To make a solute dissolve more quickly in a solvent, which would you do?
    a. Stir it
    b. Do not stir the solution
    c. Let the solute settle down
    d. Nothing to do with the solute

8. How will you define solubility?
    a. Lack of polarity of molecules
    b. Amount of polarity of molecules
    c. Ability of a solvent to dissolve in a solute
    d. Ability of a solute to dissolve in a solvent

9. Which refers to greater amount needed in dissolving mixtures?
    a. solute
    b. solvent
    c. solution
    d. hydration

10. Which of these factors will cause more sugar to dissolve in a saturated sugar solution?

I. Add more sugar while stirring
II. Add more sugar and heat the solution
III. Add more sugar to the heated solution
IV. Add more sugar and cool down the solution

    a. I, II, III only
    b. I and II only
    c. II and III only
    d. I, III, IV only

Additional Activities

Saturated solutions aren't just for science. Saturated solutions and solubility play an important role in our lives, especially in the kitchen. In this home kitchen experiment, we will be examining how temperature relates to solubility.

> **CAUTION:** Please do the activity seriously to avoid some problems. Be careful in handling hot water!

Directions:

1. Prepare two large cups and place it on the plane table.
2. Add hot water in one of the cup and cold water in the other cup.
3. Next, spoon by spoon add as much sugar as you can if it keeps dissolving. Do this to the hot water first to avoid it cooling, and then repeat with the cold water.
4. Record how many spoonful of sugar you can add in each cup until it is completely dissolved.

Temperature	Spoonful of Sugar
Cold	
Hot	

Question:
Which temperature had a greater solubility and how did you know?
Include observations from your experiment.

Lesson 2 SUPERSATURATED SOLUTION

What I Need to Know

In lesson 1, you found out that you need to dissolve a given amount of a substance (solute) in the required amount of water (Solvent) to produce a saturated and unsaturated solution.

Here in Lesson 2, you will understand supersaturated solution

After going through this lesson, you are expected to:

1. Define supersaturated solution
2. Compare and contrast saturated and supersaturated
3. Cite the importance of supersaturated solution

What I Know

Directions: Read each item carefully. Write only the letter of the correct answer for each question. Use a separate sheet for your answers.

1. Which of the following substances is most soluble in water?
   a. flour
   b. table sugar
   c. cooking oil
   d. baking soda

2. Which statement is true of any saturated solution at a given temperature?
   a. No more solute will dissolve in the solution.
   b. Adding more solute will increase the saturation
   c. You can dissolve more solute if you stir the solution.
   d. One liter of the solution contains 2000 grams of solute.

3. Which of the following refers to the maximum amount of solute that can dissolve in a given amount of solvent at a certain temperature?
    a. solubility
    b. dilute solution
    c. saturated solution
    d. unsaturated solution

4. Which of these solutions has more solute than it can hold?
    a. saturated
    b. suspension
    c. unsaturated
    d. supersaturated

5. Supersaturated solution is one with_____?
    a. greater amount of solvent
    b. less solute than the solvent
    c. less solvent than the solute
    d. equal amounts of solute and solvent

6. What is something that can be dissolved in a solution called?
    a. colloid
    b. soluble
    c. insoluble
    d. suspension

7. What do you call a substance dissolved in a solution and contains greater amount of solute than the other component?
    a. saturated
    b. suspension
    c. unsaturated
    d. supersaturated

8. Jessica wanted to ferment a fish. What type of salt solution she needs to prepare in order to conduct fermentation?
    a. saturated
    b. suspension
    c. unsaturated
    d. supersaturated

9. When does a solution become a saturated?
    a. Crystals form
    b. You need to stir it more
    c. No additional material will dissolve in it
    d. Two materials have combined to create a clear liquid

10. A powder is about to be poured into the liquid. Which of the following should be done to make this powder dissolve faster?
    a. Freeze the mixture
    b. Stirs the powder in the liquid
    c. Add more powder to the liquid
    d. Store the mixture in a dark place

What's In

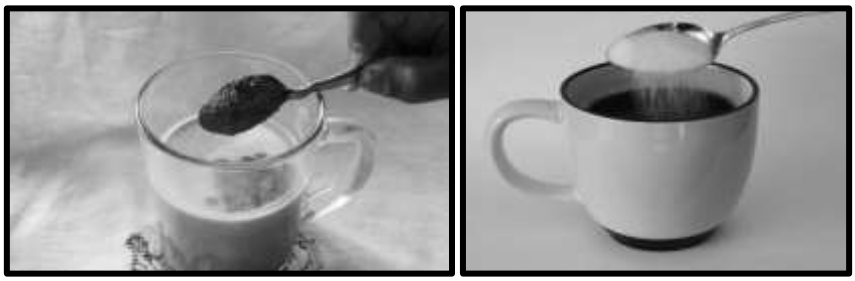
What have you learned from the previous lesson? Let's try to check your prior-knowledge.

Procedures:

1. Arrange the letters of the following scrambled words in column A to make it correct.
2. Define each word by matching it to the given sentences in column B.
3. Write your answer in column C.

Term (A)	**Meaning(B)**	**Answer (C)**
LUBILSOITY	1. a solution in which the amount of solute is equal to the solute's solubility at a given volume and temperature	
TEDSATURAUN TIONSOLU	2. is the ability of a substance to be dissolved in another substance at a specific temperature and pressure.	
RATEDSATU LUTISOON	3. a solution in which the amount of solute is less than the solute's solubility at a given volume and temperature	

Look! What is in the picture below?



What will happen to the solutions if you will add more amounts of solutes like sugar in a cup of hot coffee or cocoa powder in your hot cocoa drink?_____

What's New

Activity 3: Making Supersaturated Solution

Materials Needed

- Sugar
- Water
- Beaker (250 mL) /Plastic cups
- Stirring Rod/Spoon
- Alcohol lamp/Candle
- Tripod/Any supporting cooking material
- Wire gauze/Screen (15 cm^2)
- Match stick

CAUTION: Use carefully the following laboratory instruments/kitchen materials to avoid damage and accident during the conduct of activity. Be careful in doing the activity especially if fire is involved. Make sure the presence of any adult companions while doing this activity.

Procedures:

1. GET YOUR SAFETY GOOGLES AND APRONS ON!
2. Prepare a 250 ml beaker and stirring rod.
3. Fill the beaker with 100 ml of tap water.
4. Slowly add 100 grams of sugar to 100 mL water and stir it.

   Q1. Observe and describe what happens to the solution.
5. Next, add another 100 grams of sugar to the sugar solution in step # 4.

   Q2. Do the particles of sugar still dissolved in water?
6. Heat your solution of at least 80 ^{0}C and continue adding 100 grams to the same sugar into your solution.

   Q3. This time, what had you observed from the solution?

   Q4. Be specific about the particles, did they still dissolve in water? Did the water change in color?
7. Stop boiling your solution. Add another 60 grams of sugar. Stir and observe what will happen?

   Q5. Describe your solution.

   Q6. What do you call the solution that contains more dissolved solute than a saturated solution does?
8. Let your substance cool down its temperature up to 25 ^{0}C

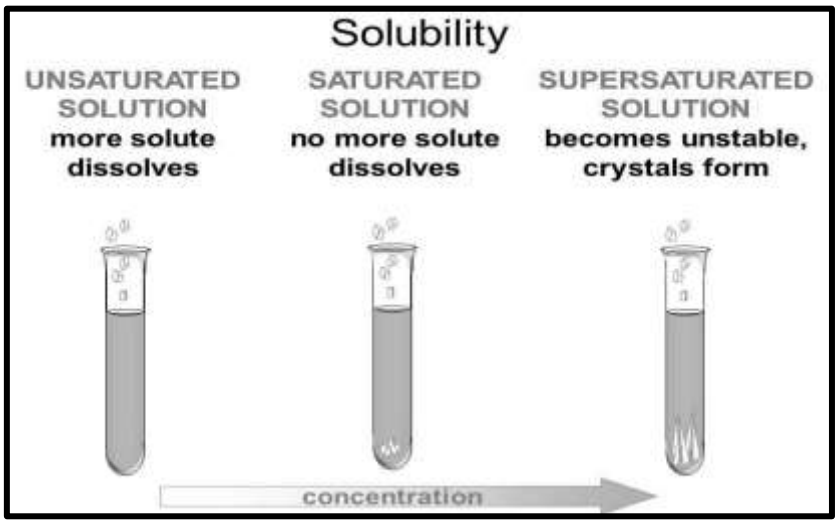
   Q7. What have you observed?

   Q8. Are crystals formed in your solution after cooling it?

What is It

When you add more amount of solute in a solution and then you will observe some particles are left at the bottom of the solution, at this point the solution is saturated. It is a solution in which the amount of solute is equal to the solute's solubility at a given volume and temperature.

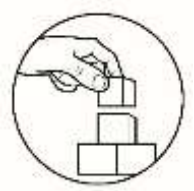
During heating of solution, you continue added solute in a solution and it still dissolved. At this portion the solution is saturated at a higher temperature. Allowing the solution to cool down at normal temperature and no solute crystallizes, the solution is **Supersaturated Solution**. It is a solution in which the amount of solute is greater than the solute's solubility at a given volume and temperature. This state is unstable, which by slight agitation causes precipitation. In this process, some of the solute will come out of the solution. Once precipitation occurs, the end result is a saturated solution.



https://www.google.com.ph/search?q=comparison+between+saturated+supersaturated&sxsrf=ALeKk00JReTyZducFmT9pcwwsNNgkQCnmw

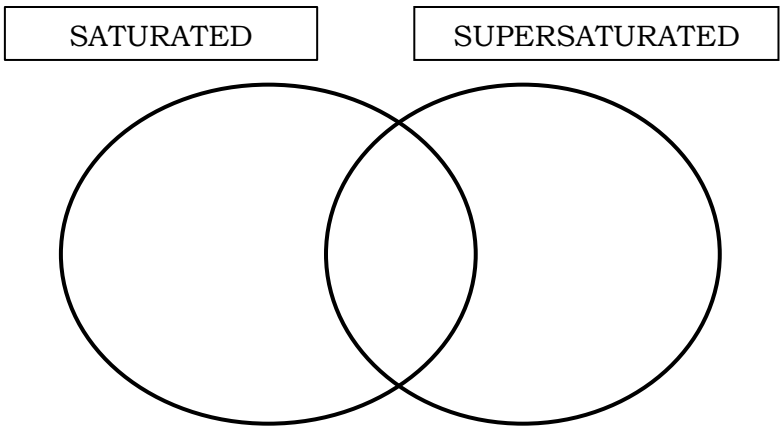
Question:

What do you think are the differences and similarities between saturated, unsaturated and supersaturated solution?



What's More

Using the diagram below, compare and contrast between Saturated and Unsaturated solutions. Write the similarities at the center of the diagram and their differences in both sides of diagram.



What I Have Learned

Part A: Classify whether the solution described is saturated or unsaturated or supersaturated.

Solubility (grams solute per 100 mL solvent) at 25^{0}C	**Solution at _____**	**Type of Solution**
36	36 grams in 100 mL solvent at 25^{0}C	
80	80 grams in 100 mL solvent at 25^{0}C	
40	80 grams in 100 mL solvent at 50^{0}C	
50	100 grams in 200 mL solvent at 25^{0}C	
100	150 grams in 100 mL solvent at 50^{0}C	

Part B: Read the statement inside the box and identify if the following solutions are saturated, unsaturated, or supersaturated solutions below.

A solution containing 200 grams of sucrose (or table sugar) in 100 mL of water at 25 ^{o}C is a saturated solution.

1. A solution made by dissolving 200g of the same sugar in 100mL of water at 25^{o} C.
2. An additional 100 g of the same sugar was added to the previous solution in 100 mL of water at 25 ^{o}C.
3. The saturated solution is heated to 100 ^{o}C. All the solutes are dissolved in water.
4. Cooling down the solution to 25 ^{o}C and no crystals were formed.

What I Can Do

Congratulations for the job well done! Now to develop your writing skill, kindly make/compose a poem related to Supersaturated Solution. Write your answer in a separate sheet of paper.

TITLE

_____
_____
_____
_____

Assessment

Directions: Read each item carefully. Write only the letter of the correct answer for each question. Use a separate sheet for your answers.

1. How will you identify a saturated solution?
   a. Less solvent than solute
   b. Less solute than solvent
   c. Equal amounts of solute and solvent
   d. Less amount of both solute and solvent

2. Which statements are true of any saturated solution at a given temperature?
   a. No more solute will dissolve in the solution.
   b. Adding more solute will increase the saturation
   c. You can dissolve more solute if you stir the solution.
   d. One liter of the solution contains 2000 grams of solute.

3. What is solubility refers to its ability?
   a. Solute to dissolve a solvent
   b. Solute to dissolve in a solvent
   c. Solvent to dissolve in a solute
   d. Solvent and solute to dissolve each other

4. Which of the following refers to the solution that contains the maximum amount of solute dissolved by a given amount of solvent?
   a. solubility
   b. saturated solution
   c. unsaturated solution
   d. supersaturated solution

5. Which of the following refers to the solution that contains less amount of solute than can dissolve at a given temperature?
   a. solubility
   b. saturated solution
   c. unsaturated solution
   d. supersaturated solution

6. You are given a 30 mL solution in a beaker. You add solute to the beaker and it dissolves completely. What is the solution?
   a. solubility
   b. saturated solution
   c. unsaturated solution
   d. supersaturated solution

7. Which of the following are made up of solutes and solvents?
   a. colloid
   b. mixtures
   c. solutions
   d. suspension

8. What is the solution that contains more solute than a saturated solution under the same conditions?
   a. solution
   b. saturated
   c. unsaturated
   d. supersaturated

9. Why increasing temperature of the solvent will speed up the dissolving process? because it brings _____.
   a. more solute to crystallize
   b. less solute molecules to the solvent
   c. fresh solvent into contact with more solute
   d. more solvent molecules to collide with the solute

10. When does a solution become saturated?
    a. Crystals form
    b. You need to stir it more
    c. No additional material will dissolve in it
    d. Two materials have combined to create a clear liquid

11. Which of the following describes a solvent?
    a. It's a metal molecule
    b. Another word for solution
    c. A thing that makes drinks turns colors
    d. The liquid in which a solute is dissolved to form a solution

12. To make a solute dissolve more quickly in a solvent which would you do?
    a. Stir it in cold water
    b. Stir it in warm water
    c. Let the solute settle down
    d. Nothing to do with the solute

13. Which of these does the dissolving that is usually presented in greater amounts?
    a. solute
    b. solvent
    c. solution
    d. hydration

14. How does the solubility of a solid change when the temperature of the liquid solvent is increased?
    a. The solubility increases
    b. The solubility decreases
    c. There is no change in the solubility
    d. The change in the solubility is unpredictable

15. A saturated solution is made by dissolving 36.8g of a solid in 200mL of water. A second solution is made by dissolving 19.1 g of the same solid in 100mL of water. How the solution would be classified?
    a. unsaturated
    b. saturated
    c. supersaturated
    d. hyper saturated

Additional Activities

Prepare the following materials:

- Balance/Digital weighing scale
- Beaker/Plastic cup
- Thermometer
- Stirring rod/Spoon
- Graduated Cylinder/ Any measuring cup
- Funnel
- Sodium Chloride (Table Salt)

Procedures:

1. Make your own procedure for determining the solubility of sodium chloride in water at 30^0C.
2. Create a supersaturated solution using table salt as your solute
3. Make an observation regarding the result of your activity.

Answer Key

LESSON 1

Assessment

1. A
2. B
3. A
4. A
5. C
6. C
7. A
8. D
9. B
10. C

What I Know

1. A
2. C
3. A
4. C
5. D
6.
7. B
8. A
9. B
10. C

LESSON 2

Assessment

1. C
2. A
3. B
4. B
5. C
6. C
7. C
8. D
9. D
10. A
11. D
12. B
13. B
14. A
15. C

What I Know

1. B
2. A
3. C
4. D
5. C
6. B
7. D
8. D
9. C
10. B

References

Calbreath, Baxter et. al. *CK12.ORG.* n.d. https://courses.lumenlearning.com/cheminter/chapter/saturated-and-unsaturated-solutions/ (accessed May 14, 2020).

Centre, Kul Techno Lab and Research. *kullabs.* 2014-2019. https://www.kullabs.com/classes/subjects/units/lessons/notes/note- (accessed May 16, 2020).

ck12.org. 2020. https://www/ck12.org/book/cbse_chemistry_book_class_ix/section/2.1/ (accessed May 14, 2020).

Ferido, Marlene B., Gutierrez, Jacqueline Rose M., et.al. *K to 12 Grade 7 Science Learner's Material.* First. Pasig City, NCR: Department of Education - FEP Printing Corporation, 2017.

Ferido, Marlene B., Magno, Marcelita C., et.al. *Science and Technology Textbook for Third Year* . Translated by 125-135. Quezon City, NCR : Department of Education - Vibal Publishing House, Inc., 2004.

Flores, Alvin C., Josue Evelyn L., et.al. *SEDIP - Integrated Science: Science and Technology Textbook for First Year.* Revised Edition. Caloocan City, NCR: Department of Education - Grand Graphics Inc., 2004.

Hensley, Priscilla. *slideplayer.com.* n.d. https://slideplayer.com/slide/10494686/ (accessed May 16, 2020).

Lumen Learning. 2017. https://courses.lumenlearning.com/cheminter/chapter/homogeneous-and-heterogeneous-mixtures/ (accessed May 14, 2020).

Nelson, Daniel. *Sciencetrends.* n.d. http://sciencetrends.com/5-examples-of-homogeneous-mixture-for-chemistry-class/ (accessed May 14, 2020).

For inquiries or feedback, please write or call:

Department of Education - Bureau of Learning Resources (DepEd-BLR)

Ground Floor, Bonifacio Bldg., DepEd Complex
Meralco Avenue, Pasig City, Philippines 1600

Telefax: (632) 8634-1072; 8634-1054; 8631-4985

Email Address: blr.lrqad@deped.gov.ph * blr.lrpd@deped.gov.ph