

SOLUBILITY AND RECRYSTALLIZATION MODULE

Predicting the solubility of substances and determining how concentration effects the recrystallization of sugar.

LESSON #1

SOLUBILITY OF COMPOUNDS IN POLAR AND NON-POLAR SOLVENTS.

OBJECTIVE(S):

Students will be able to:

Differentiate between the solubility of polar and non-polar solutions to dissolve compounds.

Predict the solubility of compounds in polar and non-polar solvents.

STANDARD(S) & INDICATOR(S):

5.1.8.C.2. Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.

5.2.12.A.5. Describe the process by which solutes dissolve in solvents.

LEARNING EXPERIENCE

Students will observe a series of demonstrations in order to determine their rule(s) for solubility.

Students will then be asked to predict which pairings of solutes and solvents, that were not shown, would be soluble or insoluble.

ASSESSMENT

Students report their predictions on which compounds are soluble in polar and non-polar solvents using the rules they determined during the lesson.

Students explain why they made their predictions.

LESSON 2
How do we get a better yield of rock candy?
The effect of concentration on the recrystallization of sugar

OBJECTIVE(S):

Students will be able to:

Design an experiment to determine how concentration effects the recrystallization of sugar.
Gather and evaluate the data that shows the relationship between concentration and solubility.

STANDARD(S) & INDICATOR(S):

5.1.8.C.2. Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.

5.2.12.A.5. Describe the process by which solutes dissolve in solvents.

LEARNING EXPERIENCE

Students will be given a research question “Does concentration of the solute effect recrystallization?”

Students will design an experiment to determine the effect of the concentration of solute on recrystallization. After approval from the instructor, over the course of four class periods (2 lab periods) the experiment will be performed and evaluated.

STUDENT ASSESSMENT

Students report on the experimental design.

Students prepare graphs of the collected data for the mass of recovered crystals as sugar concentration increases, and report their conclusions regarding the relationship between concentration and solubility.

Students suggest changes in the experimental design.

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Supporting Program: Center for Pre-College Programs, at the New Jersey Institute of Technology

Contributors

Lori L. McCoy (Clifton High School, Clifton, NJ), Primary Author

Howard Kimmel, Levelle Burr-Alexander, John Carpinelli - Center for pre-College Programs, NJIT.

Laila Jallo, Rajesh Dave – C-SOPS, NJIT