Unit III: Mixtures and Solutions

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Enduring Understandings

Pure substances have characteristics intrinsic properties, such as density, solubility, boiling point, and melting point, all of which are independent of the amount of the sample.

When a new substance is made by combining two or more substances, it has properties that are different from the original substances.

Essential Questions

How do you separate mixtures?

What is a saturation investigation?

How will the measure of solids and liquids compare to the mass of a mixture and the mass of its parts?

How is relative concentration used to determine density?

How do you identify an unknown substance based on the properties of solubility and crystal form?

What occurs during a chemical reaction?

Content

Module: Mixtures and Solutions

Internet Resources

Chem 4 Kids

- http://www.chem4kids.com/files/matter_mixture.html

Foss Web

- http://www.fossweb.com/modules3-6/MixturesandSolutions/index.html

Brain Pop

- https://www.brainpop.com

Bill Nye Videos

Scholastic News

- http://magazines.scholastic.com

Readworks

- http://www.readworks.org

Activities

- http://www.k12opened.com/ebooks/sci/ebook-mixtures-solutions/index.html

- http://www.fossweb.com/delegate/ssi-foss-ucm/ucm?dDocName=D568021
- http://www.bbc.co.uk/schools/scienceclips/ages/10_11/rev_irrev_changes.shtml
- http://www.bbc.co.uk/schools/gcsebitesize/design/foodtech/functionalpropertiesrev5.shtml
- http://www.harcourtschool.com/activity/mixture/mixture.html
- http://www.teachertube.com/video/separating-mixtures-132500
- https://www.youtube.com/watch?v=pnpmPDa3tbM&list=PLJgbiXLeMSKUMqzC2gT50V2VNXozumzKc

Skills

Observe the behavior of solid materials in water.

Make mixtures and solutions with solids and water.

Separate mixtures and solutions using screens filters and evaporation.

Measure solids and liquids to make mixtures and solutions.

Compare the weight of a mixture to the weight of its parts.

Observe the behavior of a saturated solution.

Compare the quantities of two solid materials required to saturate a volume of water.

Compare mass and mixtures and its parts.

Relate the added weight of the solution to the dissolved material in the saturated solution.

Compare the solubility of materials in water.

Communicate observations.

Compare quantities of two solids materials required to saturate in 50 ml of water.

Discuss and experience saturation.

Measure the volume of mass in solids.

Compare solutions.

Determine the relative concentrations of solutions.

Standards

SCI.5	Structure and Properties of Matter
SCI.5-PS1-3	Make observations and measurements to identify materials based on their properties.
SCI.5-PS1-2	Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
SCI.5-PS1-4	Conduct an investigation to determine whether the mixing of two or more substances results in new substances.