

Separating Mixtures

Name:

Teacher:

Class:

Physical Science
Unit 1
Exit Tickets

Lesson 1 Exit Ticket: Dirty Water

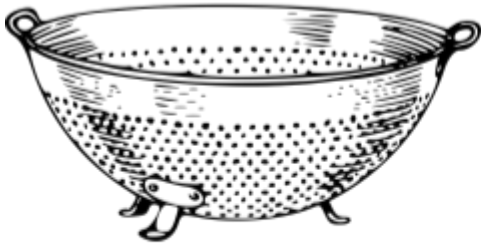
- 1. How could we make clean water from water found at the beach? State and explain your claim simply and clearly.

Lesson 2 Exit Ticket: The Global State of Water

1. Should cleaning up polluted water on Earth be a priority for scientists? Explain and justify your response. [3]

Lesson 3 Exit Ticket: Removing Solid Particles

Sahara has a mixture of 1,000 large and small paper clips. She has these following items in her kitchen:



Colander



Strainer



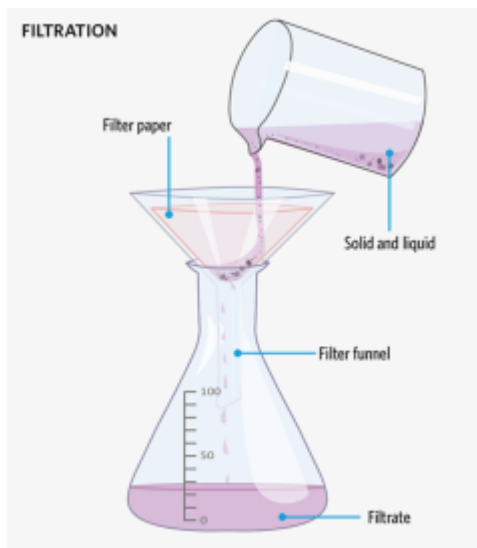
Funnel

1. Sahara decided to use a funnel to separate the large paper clips from the small paper clips. Explain why a funnel is not the best tool for separating the paper clip sizes. [1]

2. Circle the tool above that best separates the paper clips by size.

Lesson 4 Exit Ticket: Removing Dissolved Particles

Directions: The picture shows an experimental setup to separate a salt, sand, and water mixture by filtration.



1. Salt and sand are approximately the same size. Will the experimental setup shown above separate the solutes (sand and salt) from the solvent (water)? Put an X on the statement you agree with most. [1]

- Filtration will separate both salt and sand from the water.
- Filtration is not enough to separate both sand and salt from the water.

2. Why or why not? Explain your choice. In your explanation, address both the sand and the salt. [2]

3. Identify the components in the filtrate that would be present after pouring the mixture through the filter. [1]

Lesson 5 Exit Ticket: Removing Other Liquids

Directions: The cup pictured below contains a mixture of the following three immiscible liquids: honey, dyed green water, and blue dish soap. Table 1 lists the physical properties of those substances.



Table 1

Substance	Mass (g)	Color	State of Matter	Density (g/ml)
Honey	11.36	Gold	Liquid	1.42
Dyed Water	30.00	Green	Liquid	1.00
Dish Soap	28.40	Blue	Liquid	1.06

1. Which layer would you expect to find each substance in the cup? [1]

Layer	Substance
Top	
Middle	
Bottom	

2. If the liquids were not immiscible, could you use decantation to separate this mixture? Circle the most correct explanation. [2]

- A. You could not use decantation to separate this mixture. If the liquids were not immiscible, each liquid would have an identical density.
- B. You could use decantation since the liquids would still retain their individual densities.
- C. You could not use decantation to separate this mixture. If the liquids were not immiscible, they would all mix together.

Lesson 6 Exit Ticket: Physical Properties

1. José has a mixture of marshmallows, sugar, and water. The sugar has dissolved into the water. List two materials José would need to separate his mixture. [2]

1.

2.

2. Explain why he would need both of these materials. [2]

3. Identify two substances that you think could be separated through decantation. Explain your reasoning. [2]

Lesson 7 Exit Ticket:

Solubility

Directions: The following table lists the physical properties of the following substances. Use the following information, Table 1, and your knowledge of science to answer the question below.

Table 1: Physical Properties of Substances in Water

Substances	Polar or Nonpolar?	Soluble in water?
Ethanol	Polar	
Vegetable oil	Nonpolar	
Salt		Yes
Sugar	Polar	

1. Which compounds are polar, nonpolar, and soluble/not soluble in water? Fill in the blanks in Table 1. [3]

Lesson 8 Exit Ticket: Changing Solubility

Kyra is experimenting with hot chocolate mix at home. She places the mix into a cup of water.



1. Identify two things Kyra could do to make the hot chocolate mix dissolve faster. Explain your response. [3]

Lesson 9 Exit Ticket: Graphing Solubility

Scholars were studying the solubility of four substances using the graph shown. Use the image below to answer questions 1–3.

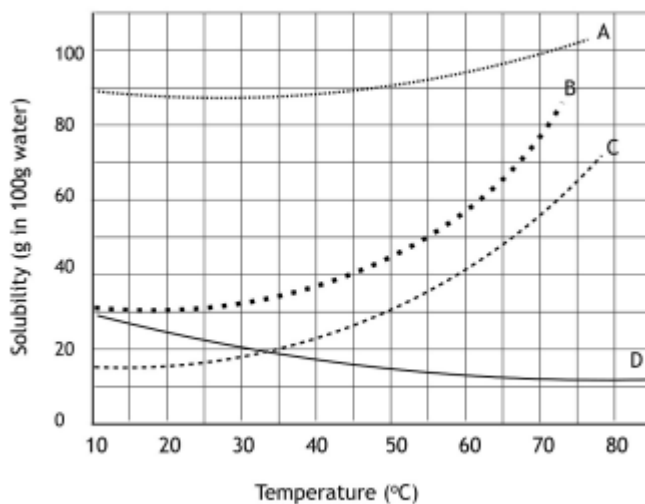


Image Credit: [Brightyellowjeans](#), [CC BY-SA 4.0](#), via [Wikimedia Commons](#)

1. At which temperature was approximately 20 g of Substance C and Substance D dissolved? [1]
 - A. 10°C
 - B. 27°C
 - C. 33°C
 - D. 42°C

Rafael is trying to dissolve 100 g of Substance A in Beaker 1 and 100 g of Substance B in Beaker 2 at room temperature (23°C) but only some of each compound dissolves.

2. Which compound would benefit the most with an increase in temperature? [1]
 - Substance A
 - Substance B
3. How do you know? Explain why. [1]

Lesson 11 Exit Ticket: Fiz, Fiz, Pop!

Directions: Use the graph below to answer the question that follows.

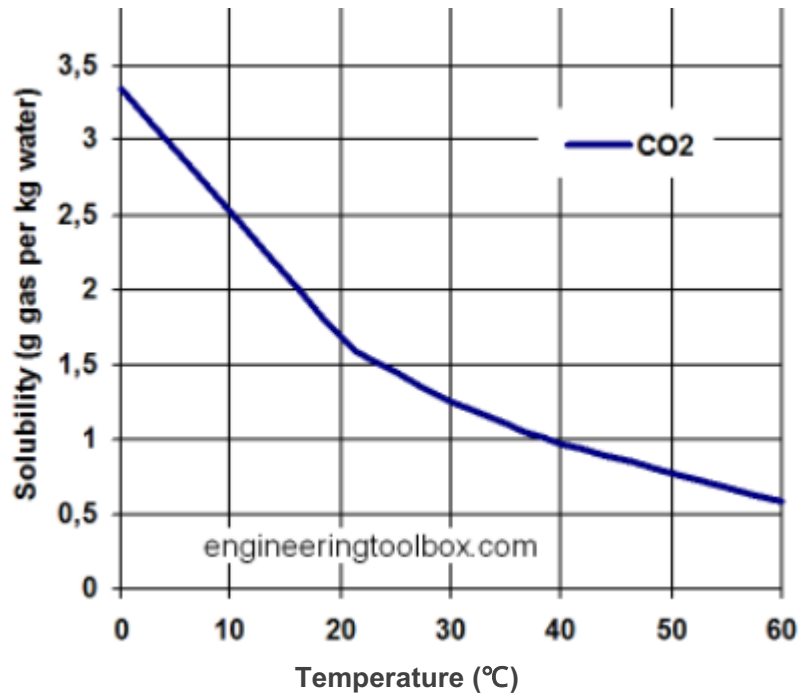


Image Credit: "Solubility of CO₂ in water," [The Engineering Toolbox \(multiple authors\)](#), public domain, via Wikimedia Commons

1. When making your own soda, circle the best strategy to maximize the number of bubbles in your soda without adding more CO₂. [2]
 - A. Agitate the solution.
 - B. Increase the temperature of the solution.
 - C. Decrease the temperature of the solution.
 - D. Increase the amount of CO₂ in the solution.
 - E. Decrease the amount of CO₂ in the solution.

Lesson 12, Day One, Exit Ticket: The Dirty Water Design Challenge: Introduction and Planning

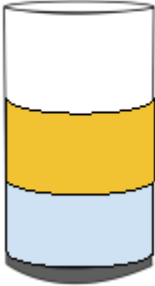

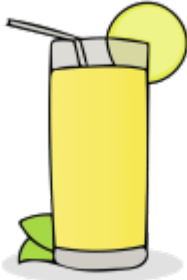

1. Identify two ingredients in the dirty water mixture and explain how your group plans to remove them. Justify your response. [2]

Lesson 13, Day One, Exit Ticket: The Dirty Water Design Challenge: Implementation and Reflection

1. Explain one revision you want to make to your group's design when you have the opportunity tomorrow. Justify your response. [3]

Lesson 13, Day Two, Exit Ticket: The Dirty Water Design Challenge: Implementation and Reflection

1. List the method the household items can be separated by on the line below its picture: distillation, decantation, and/or filtration. [4]

<p style="text-align: center;">Oil and Water Mixture</p>  <p>Separation Technique:</p>	<p style="text-align: center;">Salted Water</p>  <p>Separation Technique:</p>
<p style="text-align: center;">Lemonade Powder Drink</p>  <p>Separation Technique:</p>	<p style="text-align: center;">Coffee Grounds and Coffee</p>  <p>Separation Technique:</p>