

Investigation One – Dissolving Salt (Physical Change)

Standard I Students will understand that chemical and physical changes occur in matter.
Objective 1 Describe that matter is neither created nor destroyed even though it may undergo change.
Objective 2 Evaluate evidence that indicates a physical change has occurred.
Intended Learning Outcomes <ol style="list-style-type: none">1. Use science process and thinking skills2. Manifest scientific attitudes and interests3. Understand science concepts and principles4. Communicate effectively using science language and reasoning

Standard I

Objective 1
Objective 2

Background Information

Dissolving a solid in liquid, such as table salt in water, is a physical change. Physical changes can often be reversed. Allowing the water to evaporate will leave the salt behind. Although the salt may not recrystallize into the same uniform crystals you started with, it is still salt. When salt is dissolved in water, the water tastes salty because the salt is still there.

This activity may take a few weeks to complete, so start it at the beginning of your study of matter. By the time the water has evaporated the students should have a good understanding of a physical change.

Pre-Assessment/Invitation to Learn

Show the class a glass of water and have them list its physical properties. Next show them some salt and have them list its properties. Pour approximately One tablespoon of table salt into the water and stir until all the salt has dissolved. Ask the class to describe the salt water. Say: “You can’t see the salt; where did the salt go?” Have someone taste the salt water and describe how it tastes. Ask: “Where has the salt gone?” (*It’s still in the water; you can taste it.*) Have the students suggest ways that could be used to get the salt back out of the water. Then have teams complete the Instructional Procedures on the next page.

Materials

- Glass of water
- Salt
- Tablespoon

Instructional Procedure

Materials

For each team:

- Clear plastic cup
- Scale
- Table salt
- Plastic spoon for stirring
- Measuring spoon
- Hot water
- Permanent marker

Cooperative teams of 3-5 should complete the following procedures:

1. Pour about 15 ml (about 1 tablespoon) of salt into a clear plastic cup. Place the cup on a scale and find the weight of the cup and the salt. Record the weight.
2. Fill the cup about 1/3 full of hot tap water and stir until all the salt has dissolved.
3. Using a permanent marker draw a line at the level of the water and place the cup where it can remain undisturbed while the water evaporates.
4. Make a prediction (Hypothesis: If... then...): What will happen to the salt when the water evaporates?
5. Check the cup daily. If you notice any changes record your observations.
6. When the water has completely evaporated, weigh the cup and the material in the cup. Record the weight.
7. Have students discuss their findings.

Curriculum Extensions

Science –

You may want to consider having part of the class do this activity using sugar, baking soda, and other household products that dissolve in water. Then allow the teams to compare data at the completion of the procedures. (ILO 1)

Assessment Suggestions

- Have the students answer these questions.
 - ✓ How does the weight of the cup after the water evaporated compare with the weight of the cup and the salt before the water was added? Explain why.
 - ✓ What is the material in the cup?
 - ✓ Was your prediction correct?
 - ✓ When the salt dissolved in the water, was it a chemical reaction or a physical change? How do you know? (It was a physical change because all of the salt was still there when the water evaporated. There were no new substances formed.)
- Check for the student's accuracy on the worksheet and student journal.

Reference to Assessment Section:

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Unit Test	Multiple Choice	Constructed Response	Performance Test
1	1, 2, 3		
2	1, 2, 4		

Dissolving Salt Journal Page

Name _____ Team _____

Date _____ Object Weighed _____

Write a prediction of what you think will happen to the dissolved salt when the water evaporates.

Weight of cup and salt	
Weight of cup and salt after water has evaporated	
Difference between weights before and after evaporation	

Daily Observations: (Use notes and drawings to record your observations. Be sure to record the date of each observation.)

Was your prediction correct?