

TRB 5:1 - Activity 1: Dissolving Salt

Summary

This lesson will demonstrate to students that matter, such as salt, may seem to have disappeared when it is dissolved in water, but it is still there.

Materials

For each team:

- clear plastic cup
- scale
- table salt
- plastic spoon for stirring
- measuring spoon

Background for Teachers

Dissolving a solid in liquid, such as table salt in water, is a physical change because only the state of the matter has changed. Physical changes can often be reversed. Allowing the water to evaporate will return the salt to a solid state. 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. It has not combined with the water to cause a chemical reaction.

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 the difference between a chemical reaction and physical change.

Intended Learning Outcomes

- 1-Use science process and thinking skills.
- 2-Manifest scientific attitudes and interests.
- 3-Understand science concepts and principles.
- 4-Communicate effectively using science language and reasoning.

Instructional Procedures

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 below.

Instructional Procedures:

Cooperative teams of 3-5 should complete the following procedures: (See "Team Procedures" in the attachments)

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.

Fill the cup about 1/3 full of hot tap water and stir until all the salt has dissolved.

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.

Make a prediction (Hypothesis): What will happen to the salt when the water evaporates?

Check the cup daily. If you notice any changes record your observations.

When the water has completely evaporated, record your observations of the cup. Weigh the cup and the material in the cup. Record the weight.

Answer the following 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.)

Extensions

You may want to consider having part of the class do this activity using sugar or baking soda. Then allow the teams to compare data at the completion of the procedures.

Assessment Plan

Use this rubric to assess your students' performances:

Student's Name

	4	3	2	1
Journal Page	Descriptions and data clear and accurate. All observations completed.	Descriptions and data mostly clear and accurate. All observations completed.	Descriptions and data somewhat clear and accurate. All observations incomplete.	Descriptions and data unclear and inaccurate. All observations incomplete.
Participation in Activity	Used time well and focused attention on the activity.	Used time fairly well. Stayed focused on the activity most of the time.	Did the activity but did not appear very interested. Focus was lost on several occasions.	Participation was minimal OR student seemed negative about participating.

Bibliography

This lesson is part of the Fifth Grade Science Teacher Resource Book (TRB3)

<http://www.usoe.org/curr/science/core/5th/TRB5/>. The TRB3 is designed to be your textbook in teaching science curriculum to your students. This book covers all the objectives of each standard and benchmark. If taught efficiently, a student should do well on the End-of-Level (CRT) tests. The TRB3 is designed for teachers who know very little about science, as well as for teachers who have a broad understanding of science.

Authors

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