

Title - **EXPANDING ON ICE**

By - Judy Schneider

Primary Subject - Science

Secondary Subjects - Science

Grade Level - 5- 8 (adaptable)

SCIENCE PROJECT OF THE WEEK

EXPANDING ON ICE

**PROBLEM:** Does frozen water take up more space than liquid water?

**RESEARCH:** Find out what happens to solids and liquids when they change from one form to the other. Especially look for what happens to liquid water as it changes from a liquid to a solid and from a solid to a liquid.

**HYPOTHESIS:** Based on your research, explain why you think the water will or will not take up more space when it is frozen than when it is a liquid.

**MATERIALS:** ice cubes  
clear plastic glass  
small glass bottle with a large mouth  
small square of aluminum foil (you may use plastic wrap and a rubber band)  
Enrichment: salt

**PROCEDURE:**

1. Fill the glass with water until it over flows.
2. Add one ice cube to the glass.
3. Carefully clean up the spilled water and leave the glass undisturbed until the ice melts.
4. In your data section, describe what happened and give a possible explanation in your conclusion.
5. Fill the glass bottle with water and cover it with the aluminum foil.
6. Put the bottle in the freezer and leave it until the water is frozen solid.
7. In your data section, describe what happened and give a possible explanation in your conclusion.
8. Enrichment: Make salt water by adding four tablespoons of salt to three liters of water. Freeze some of the salt water to make ice cubes and use the ice cubes and the rest of the salt water to repeat steps 1 through 7.

**DATA:** Make a table to record your observations and inferences for both parts of the experiment.

**CONCLUSION:** This is not optional. You must explain what you learned by doing this activity. Remember that you must answer the question you asked in your original problem statement.

**NOTE:** BE SURE TO HAVE YOUR PARENT OR GUARDIAN SIGNS YOUR WORK. PARENTS: YOUR SIGNATURE SHOWS YOUR STUDENT HAS DONE THE WORK.

**TEACHER SECTION:**

**POSSIBLE HYPOTHESIS:** Students may hypothesize that the water will shrink when it freezes as do most liquids. However if they have done their research correctly, they should come up with the correct explanation that the ice will expand.

**POSSIBLE CONCLUSION:** Conclusion should contain a discussion of the fact that there is less water in the glass after the ice melts and that the frozen water in the bottle had a peak in the middle showing that it had expanded.

E-Mail [Judy Schneider](mailto:Judy.Schneider)!