



## Science Fair Projects

3rd Grade to 5<sup>th</sup> Grade

### Title: Physical Science

#### "Freezing Hot Water"

##### Stating the Problem - The Big Question

Write a question that asks what you want to find out from your investigation.

##### Forming a Hypothesis - A Smart Guess

What do you think your scientific investigation will prove? Make a smart guess. Write a sentence that states what you think the answer will be to your Big Question.

##### Planning the Procedure

Before a scientist begins experimenting, he or she usually spends some time reading about the topic to find what other scientist have learned. This information is used to plan the procedure for the experiment. Finding the answers to the following questions will help you understand water and how it "behaves"...

- ❖ What is a water molecule?
- ❖ What are the three forms (states) of water?
- ❖ At what temperature does each form of water change into a new form?

Here is an example of how you could do the experiment. Take two identical ice cube trays and fill them to the same level with water, one with boiled water cooled to room temperature, the other with cold water brought to room temperature. Use a thermometer to record the water temperature. Place the trays in the freezer and check them at 5-minute intervals. Note which one has ice crystals forming first. When designing a test for your hypothesis, it is very important that you control all of the variables. For example, use the same kind of container for each trial and put the container in the same spot in the freezer each time. Write a step-by-step description of your experiment. Make a detailed list of materials.

Make a chart, table or log, to record the results of your experiment. You might use something like this:

##### Chart

	Time Ice Crystals First Observed				
	Test #1	Test #2	Test #3	Average	Notes
Cold Water ____°C					
Hot Water ____°C					

This project is from Daryl Vriesenga's book, *Science Fair Projects, Grades 4-6*, Michigan, Schaffer Publications, 1990. The Guide is available on line at: [SchooDoodle.com](http://SchooDoodle.com)



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"Freezing Hot Water" (continued)

#### **Recording Results**

"Br-r-r-r!" Begin freezing the water. Keep accurate records of the results of your experiment. Did the ice always form at the top of the container? Bottom of the container? Sides of the container? When recording the results, write comments that describe how or where the ice formed.

#### **Drawing a Conclusion**

Which freezes more quickly, hot or cold water? Before you began your experiment you formed a hypothesis. Was your hypothesis correct?

Write a report explaining what you learned from your scientific investigation. Your report should include all of the steps of the scientific methods: the Big Question, the hypothesis, a description of your experiment, the results and a paragraph stating your conclusion.

#### **Display**

One of the best ways to share the results of your experiment is to make a display that shows others what your project was all about. A display should have a title that catches the viewers' attention and also explains what the project is about. Include in your display a description of the other steps of the scientific method.

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