



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Alec M. Roberts	Project Number J1819
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Project Title Super Cooling and Snap Freezing
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<p style="text-align: center;">Abstract</p> <p>Objectives/Goals If I supercool water and then interrupt the process by shaking it, then snap freezing will occur.</p> <p>Methods/Materials Procedure for Supercooling Water 1. Cut a circle from the cereal box to use as a cover for the plastic cup. 2. Pour a small sample of distilled water into a clean plastic cup and place the cup in the center of the bowl. 3. Cover the cup, then add ice cubes to the bowl, so that the ice is above the level of water in the cup. 4. Sprinkle 2 tablespoons of salt over the ice cubes. 5. Uncover the cup and put the thermometer inside. 6. Monitor the temperature of the water. Keep track of the time and temperature in your lab notebook. 7. When the temperature of the water reaches 1 to 3 deg C or so, carefully remove the cup from the ice bath. 8. Repeat the procedure, testing different types of water to see whether it can be supercooled before freezing. For each type of water, run at least three trials (more is better). Here are some ideas for types of water to test: a. bottled distilled water, b. bottled spring water, c. plain tap water, d. any of the above that have been boiled and then allowed to cool to room temperature.</p> <p>Materials List: large bowl, Ice, salt, distilled water, thermometer (good range would be -10°C to 110°C, e.g. part number 3113300 from Edmund Scientific's at Scientificsonline.com), transparent plastic cups (tip: a tall, narrow shape works best), piece of cardboard (e.g., empty cereal box), scissors.</p> <p>Results When I supercooled the water by using the materials listed above and then shook the bootle, snap freezing occurred.</p> <p>Conclusions/Discussion Conclusion If the water is purer, it will supercool faster and then you snap freeze it to ice. If i used tap water, the water supercooled in 27 minutes because it was purer than boiled water and bottled water. If I used boiled water, I would have to use a lot of water to supercool it. If I got bottled water from the fridge, it would already be cold. The water isn't as pure as tap water so it takes longer to supercool. I think that you can make the experiment longer by doing more trials or using different brands. It would be a lot better if the</p>

Summary Statement To supercool and snap freeze water.

Help Received Mom bought materials, Dad took pictures and helped with the graph.
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