



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Erica P. Ceraos</b>	<b>Project Number</b> <b>J0204</b>
<b>Project Title</b> <b>Glass Fracture</b>	
<b>Abstract</b> <b>Objectives/Goals</b> I hoped to find similar ways in fracturing with glasses at room temperature, freezing temperature, and boiling temperature of water. Since the glass was the same size and thickness, and the same method was used to break the glass, I had high hopes in finding consistency within the same temperature. I hoped to discover some kind of relationship with the glass at different temperatures and with the way they fracture. I hoped to learn and understand glass more in general. For example, I wanted to find out more about what glass was made of and how it was made. <b>Methods/Materials</b> For my science fair project, I broke glass. I purchased sixty 4 x 4 squares with 1/16 inch thickness. I drew an X across each glass to show the center of the square. I set up my device made out of a ring stand and PVC pipe and placed the square glass on a designated spot on a piece of construction paper. Before dropping the 20g weight down the PVC pipe, I used a plumb-bob to make sure the pipe was lined up with the center of the glass. Then I would drop the weight. After it broke, I put the pieces of glass back together the best I could and recorded the way it fractured. I repeated this process with glass squares at room temperature (21 degrees Celsius), freezing temperature (-2 degrees Celsius), and boiling temperature of water (100 degrees Celsius). I kept 19 pieces of glass at room temperature, boiled 16, and froze 20. The other 5 were used beforehand to find a method on how to fracture the glass. <b>Conclusions/Discussion</b> I suppose I accomplished a lot in my project. I found out that glass doesn't fracture the same way no matter how many things I controlled to be the same. Even if the glass was the same size, shape, and thickness, you would not find consistency in the way it fractures. I know a lot more about glass and understand it more, too.	
<b>Summary Statement</b> I broke the same type of glass with the same size, thickness, and at different temperatures (room temperature, freezing temperature, and boiling temperature of water) to see if it would fracture the same way.	
<b>Help Received</b> Father helped boil the glasses.	