



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kasie Clark; Kelly Clark</b>	<b>Project Number</b> <b>J0704</b>
<b>Project Title</b> <b>Does Storage Temperature Affect Battery Life?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this science project is to determine if the temperature of household AA alkaline batteries are stored at will affect their life when tested in a low resistance battery draining mechanism. <b>Methods/Materials</b> 40 Duracell AA Alkaline batteries were divided into three groups (room temperature, freezer, and refrigerator) for 43 days. After 24 hours were allowed for them to come to room temperature they were tested in a battery draining mechanism especially designed for this project. A stopwatch was used to test the time it took for the fan on the mechanism to stop rotating. The times of all 20 trials of each temperature group were analyzed. <b>Results</b> Our results show that the Duracell batteries stored at room temperature (average 68 F and 20.43 C) lasted an average of 11.75 minutes; much longer than either the freezer or the freezer groups. Refrigerator batteries were stored at an average temperature of 38 F or 3.33 C and the freezer batteries were stored at an average temperature of 18.6 F or -7.44 C. <b>Conclusions/Discussion</b> Our conclusion is that room temperature is the best place to store Duracell AA Alkaline batteries of the three temperatures we tested. The batteries were stored for a period of forty three days. We were surprised to have conclusive data with this time period. We tested only Duracell batteries to control variables but we would find it interesting to test other brands!	
<b>Summary Statement</b> Our project was to determine if it is better to store AA Alkaline batteries at room temperature, refrigerator, or in the freezer.	
<b>Help Received</b> Hyatt Baker and Gene McGuire helped design and build the battery draining mechanism used to measure battery life (on the display table).	