



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jonah S. Kaye</b>	<b>Project Number</b> <b>J0509</b>
<b>Project Title</b> <b>Some Like It Hot: Does Heat Help Polyethylene Glycol Dissolve?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Every morning I take polyethylene glycol (Miralax) mixed in cold apple juice. Since dissolving Miralax is a slow process, I researched how to speed it up. My hypothesis was that as the temperature of a solvent (water or apple juice) increases, the solute, polyethylene glycol, added to the liquid will dissolve more quickly. <b>Methods/Materials</b> I measured 100 ml of water in a graduated cylinder 5 times, and poured each 100 ml of water into plastic cups labeled either 9, 17, 25, 33, or 41 degrees Celsius. One at a time, I placed the 9 and 17 cups in my freezer, and the 25, 33 and 41 cups over a heated stove, until a digital thermometer showed the desired temperatures. I then poured 8 grams of Miralax into each cup, stirred each solution, and recorded the time elapsed for the Miralax to completely dissolve. The entire trial was repeated two more times and these three trials were repeated using apple juice as my solvent. <b>Results</b> In all six trials, with each increase in temperature, the time interval for dissolving lessened. In fact, at higher temperatures, the data demonstrated an almost linear correlation between rising temperatures and lowering dissolving time. My data also showed that as a solvent, water hastened the dissolving process as compared to apple juice. <b>Conclusions/Discussion</b> The data collected clearly proved my hypothesis that as the temperature of the solvents increased, polyethylene glycol dissolved more quickly. Of course, more trials would make the data more accurate. In addition, potential minor errors might have affected the data's reliability. Scale and thermometer precision, inconsistent solution stirring, and subjective viewing of dissolving completion may have contributed to possible inaccurate results. In any case, adding heat to my Miralax will undoubtedly speed up my morning routine.	
<b>Summary Statement</b> Does heat help polyethylene glycol dissolve?	
<b>Help Received</b> My mother and father helped type and proofread the written parts of my exhibit.	