



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Stephanie M. Kroll</b>	<b>Project Number</b> <b>J1117</b>
<b>Project Title</b> <b>Which Whitening Toothpaste Has the Best Short-Term Whitening Effect on Teeth?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to figure out which whitening toothpaste whitened teeth the fastest. I believed that the toothpaste that contained the most titanium dioxide, hydrated silica, sodium bicarbonate, and sodium carbonate would have the best effect on teeth because these ingredients take off surface stains on the teeth and coat the teeth to make them appear white.</p> <p><b>Methods/Materials</b> Four whitening toothpastes were tested on four people for a one month period. Of the four toothpastes, three had an ADA (American Dental Association) seal, and one did not. All of these toothpastes contained at least one of the following whitening ingredients: titanium dioxide, hydrated silica, sodium bicarbonate, and sodium carbonate.</p> <p><b>Results</b> The participants brushed their teeth twice a day with their assigned toothpastes. Every Sunday for the four week period, between eight and eight thirty p.m., I took the tooth shade measurements of the participants teeth. Each time, I made sure to measure the same tooth, in the same light and room. At the end of the four week period, I was able to calculate the average tooth shade and the difference in tooth shades, which helped me to make my conclusion.</p> <p><b>Conclusions/Discussion</b> After conducting the experiment, I found that my hypothesis was correct. My conclusion was that the toothpaste that contained the highest amount of titanium dioxide, hydrated silica, sodium bicarbonate, and sodium carbonate, had the best whitening effect on the participant's teeth.</p>	
<b>Summary Statement</b> My project is about the short-term effects of whitening toothpastes on teeth.	
<b>Help Received</b> I received a shade guide and instruction on how to use it from Dr. Kroll of Ventura.	