



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> <b>Audrey D. Fuelle</b>	<b>Project Number</b> <b>J2005</b>
<b>Project Title</b> <b>Can Mouthwash Kill Germs Better When Compared to Toothpaste?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this study is to better understand and improve simple oral health challenges we face daily regarding the products we use. <b>Methods/Materials</b> Colgate Total mouthwash, Colgate toothpaste, approximately 40-50 agar plates (ordered from amazon.com), 36-40 swabs,sterilized gloves, camera/ lab journal (preferably of graph composition) <b>Results</b> In my previous experiment I concluded that, when used independently, mouthwash is more effctive at killing germs when compared to toohtpaste for mouthwash presented colonies of coral pigment which can infered as more exotic and immune bacteria. The samples from using toothpaste presented more fungi that grew rapidly. Yet both products used together resulted in less colonies that grew at a slower pace. <b>Conclusions/Discussion</b> Mouthwash is scientifically better because it contains cetylpyridinium chloride; an antiseptic that provides for 12 hours of antibacterial protection. These results have a P value of approximately 25%. This investigation can provide more reassurance for our daily oral health routine, but because the P value is so high I would have to recreate my experiment in order to obtain more accurate/credible data. This will then lead to a more conclusive analysis and conclusion statement. A redefined experiment will be achieved by increasing the sample size and doing before/after samples for each trail.	
<b>Summary Statement</b> As measured by the outcome of the oral samples in agar plates, I found that mouthwash used independently kills more germs when compared to using toothpaste in the same conditions.	
<b>Help Received</b> My science teacher, Dr. E. Dunkle, helped me redefine my experimental procedure to recieve the most accurate data and she helped me analysis some of my results.	