



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

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Project Title The Effect of Gradient-Coated Sunglass Lenses on Yeast Growth after Exposure to UVA Rays	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this experiment is to find the effect of different colored gradient-coated sunglass lenses on yeast growth after exposure to UVA rays for ten minutes. The objective is to eventually identify the gradient-coating color that most effectively blocks out UVA rays.</p> <p>Methods/Materials Ten Petri dishes containing yeast extract dextrose (YED) medium were streaked with a special UV sensitive yeast strain (G948-1C/U). The Petri dishes were divided into quadrants, three of which contained a different colored lenses while the fourth quadrant had no lens(control group). The Petri dishes were then exposed to UVA rays via a black light for ten minutes and incubated at 30 degrees Celsius for 72 hours. After this period, the dishes were removed from the incubator and the area of the regions lacking yeast growth were found and analyzed.</p> <p>Results The quadrants containing the pink gradient-coated sunglass lenses, on average, had the largest ratio of the area of the regions lacking yeast growth to the area of the sunglass lenses. On the other hand, the black gradient-coated sunglass lenses had the smallest ratio. The green gradient-coated lenses had a ratio greater than that of the black lenses yet less than that of the pink lenses. The control quadrant had absolutely no yeast growth, confirming that yeast cannot grow after exposure to UVA rays for ten minutes.</p> <p>Conclusions/Discussion Areas lacking yeast growth indicate that UVA rays were able to penetrate the lenses. Thus, the colored lens with the largest ratio is the least effective in blocking out UVA rays. Therefore, the pink-gradient coating sunglass lenses were the least effective. In contrast, the black gradient-coated lenses had the smallest ratio thereby being the most effective. This validated our hypothesis that if black gradient-coated lenses are placed on top of the Petri dish containing yeast, then there will be a smaller region lacking yeast growth after being exposed to UVA rays for ten minutes. The results also show that more opaque lenses tend to be more effective in protecting against UVA rays.</p>	
Summary Statement The objective of this experiment to evaluate the effectiveness of different colored gradient-coated subnglass lenses using UV sensitive yeast as an indicator.	
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