



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Julia P. Stuart	Project Number J0720
Project Title Does Light Intensity Affect People's Perception of Fechner Colors?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The goal of my project is to determine if light intensity affects people's perception of Fechner colors. I hypothesized that Fechner colors would change in different luminosities, and that they would change in a distinct pattern.</p> <p>Methods/Materials I used a drill to spin Benham's disk at a constant rate that was fast enough for people to see Fechner colors, and a light meter to measure the amount of light in the area. I had the subjects fill out a questionnaire about their vision, take the Ishihara color blind test, and then look at the spinning Benham's disk. They would pick the color they saw from a color matching guide. Then, I had them repeat this in separate locations that had different light intensities.</p> <p>Results We tested different subjects in three different locations with multiple varying light intensities. The same light intensity with the same subject had the same results but the same subject in different light intensities perceived different colors. Perception differed between subjects. The data loosely follows the light spectrum.</p> <p>Conclusions/Discussion My first hypothesis was correct in that the Fechner colors changed in different luminosities, and my second may be correct because the subjects seemed to follow the visible light spectrum. As the light brightened, the colors' wavelengths fluctuated. This may have something to do with the color receptors in the retina.</p>	
Summary Statement I found that people's perception of Fechner colors varies depending on the light intensity of the environment.	
Help Received I tested the subjects, collected data, and created diagrams by myself. Andrea Preble, my mother, offered some advice on experimental design.	