



# CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

<b>Name(s)</b> <b>Raya Farber; Zoe Stern</b>	<b>Project Number</b> <b>J1211</b>
<b>Project Title</b> <b>Now You See It, Now You Don't</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b> The objective of this study is to determine the effect of color on the appearance and timing of afterimages.</p> <p><b>Methods</b> White paper, construction paper in multiple colors (red, orange, yellow, green, blue, and purple), Raspberry Pi board, Raspberry Pi Sense HAT (with RGB LED light matrix), computer, glue, scissors, stopwatch, data sheets, subjects (human) - 10 sixth graders, 10 adults (ages 25-70). We tested subjects with colored circles as well as LED lights to evaluate the experiencing and length of time of afterimages.</p> <p><b>Results</b> Several subjects were given light and paper tests in various colors. Based on length of time of afterimages, red appears to create the longest lasting afterimage compared to the other colors.</p> <p><b>Conclusions</b> When given the light test, participants saw an afterimage for an average of 7.88 seconds. When given the paper test, participants saw an afterimage for an average of 11.15 seconds. These afterimages mostly matched the expected colors from the R,G,B cones that weren't fatigued. We think the paper images persisted longer because our procedure called for the subject to stare at it longer, more fatiguing the eye.</p>	
<b>Summary Statement</b> Our project is about the effect of color on the appearance and timing of afterimages.	
<b>Help Received</b> The actual tests were run independent of help. Support from our STEM instructor, Liat Baranoff, was provided to set up the Raspberry Pi unit. She also helped us calculate the data.	