



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Samrat Thapa	Project Number S2312
Project Title Effects of Different Colored Lights on Zebrafish Fecundity	
Abstract Objectives/Goals The objective of this study is to determine the effect of different colored lights on zebra fish fecundity. Methods/Materials To test the effects of different color light treatments, random pairs of wild type male and female zebra fish on a 14h light/10h dark cycle were exposed to 14h dark period followed by 4h of the colored light treatment in the testing environment. The testing was done in a rapid breeding vessel. After the testing period, embryos were collected and counted. The same process was repeated twice a week, repeated numerous times under red, room, blue, and green light. Results Based on the data, blue and room light treatments on zebra fish promote zebra fish embryo production while red and green light negatively affect the outcome. Average amount of embryos per of each light treatment that had a successful mating was blue (15.6), room (16.2), green (2.2), red (6.3). Conclusions/Discussion The goal of this project was to identify whether different colored light treatments could be beneficial or disadvantageous to zebra fish fecundity. Though it is not clear why red and green light had such effects, nor why blue and room light achieved their effects, it is clear, color has an effect in embryo production. Further research could be done to understand the reason of these effects. Our experiment was repeated numerous times, but the data represented only showcases those of successful embryo production. The zebra fish may not lay eggs for a variety of reasons, therefore we did not attribute the days of no embryo production as an effect of our lighting treatment. In addition we also varied the number of pairs of zebra fish throughout the experiment, but most of the embryos were produced under a 6:6 ratio. The research data can in no way take account of every factor that was present during experimentation, but we believe that we controlled for all other variables.	
Summary Statement I found that green light is negatively affecting zebra fish fecundity.	
Help Received This experiment was done in the past, but the results created doubt. Therefore with help from Rebecca Belmonte, research student, and Dr. David Stachura, associate professor, we were able to redesign this experiment and get more precise results.	