



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

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Project Title Effects of Wavelengths on Brine Shrimp Behavior and Adaptations	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our objective was to observe and record the behavior of brine shrimp after exposing them to various wavelengths over different intervals of time.</p> <p>Methods/Materials We used six different light sources: red light, yellow light, green light, blue light, black light, and sunlight. First, we hatched the brine shrimp and tested the lights on their adolescent stage. We focused a certain light on them for five minutes, observed, five minutes, and repeated until we got to five trials. We repeated this process for the other lights as well, using different brine shrimp. In each exposed cup, there were two brine shrimp. We looked for changes in their color, speed, and swimming direction.</p> <p>Results After testing each of the different lights, we observed that in yellow light, green light, blue light, and black light, the brine shrimp ended up moving faster than the control. The control was no light, and the brine shrimp in the control barely moved. Moreover, the brine shrimp exposed to red light and sunlight ended up moving slower in the last trial than the first. We found that brine shrimp was more active and excited in warmer, lighter water, than darker, cooler water. The brine shrimp adapted to their environment by changing into the color of the light exposed to them. They went from white and translucent to darker to match their environment.</p> <p>Conclusions/Discussion Waves do not transfer matter, but they transfer energy, which is key to understanding that wave interaction does not compromise the matter it comes into contact with, which ultimately allows us to freely observe the matter at hand. The energy transferred from the luminous sources we used came in the form of heat and light which permitted us to explore the effects of that energy on the brine shrimp. The use of refraction and diffraction ultimately affected the behavior of the shrimp when the time it takes for the lights to reach the organisms affects the time they have to adapt and how they will adapt to the intensity of the light as it passes through the various barriers.</p>	
Summary Statement Brine shrimp under the visible spectrum and under UV and infrared rays have displayed natural adaptations as observed through their behavior changes.	
Help Received Chemistry and Biology teachers provided us with lamps and light bulbs; Friend provided us with microscope.	