



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

Name(s) Sarah V. Stutsman	Project Number J2313
Project Title Let Moths Illuminate the Way!	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To verify which type of street light: Light Emitting Diode, High Pressure Sodium, Induction, or no street light, affects a moth's behavior more.</p> <p>Methods/Materials Set up a twin-sized bed sheet outside, placing a fluorescent lantern in the middle. Turn on the lantern an hour after sunset. After 30 minutes, note the number of moths attracted to the light. Check temperature, humidity levels, and barometric pressure with a thermometer and a barometer. Repeat in different locations with different types of street lights.</p> <p>Results On average, in the area with the Light Emitting Diode street light 4.3 moths were attracted to the fluorescent lantern, 2.3 moths were attracted in the area with the High Pressure Sodium street light, and in the areas with Induction and no street lights, 2 moths were counted. These results demonstrate that Light Emitting Diode street lights are better for moths and the environment in general.</p> <p>Conclusions/Discussion Through the many different trials used in this experiment, the environment with the Light Emitting Diode (LED) street light attracted the most moths. There are many different variables that should be taken in account. For example, the humidity and temperature levels, along with the phase of moon could have affected the moths' behavior each night. This experiment should aid in the battle to improve light pollution as it demonstrated which type of street light created less of a distraction to the moths. Moths have been avoiding light due to light pollution which affects the plants they pollinate and their predators.</p>	
Summary Statement Due to moths' attraction rate to a fluorescent lantern being higher in an area with a LED street light rather than in areas with High Pressure Sodium, induction, and no street lights, the LED light is better for the environment.	
Help Received Michelle Stutsman (driving me around town); Tracy Martin (providing information about street lights); Tom Moody (directing me to Tracy Martin); Gloria Faus, Jeanette Fossum, and another neighbor (allowing me to perform my experiment on their lawns)	