



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Emma R. Sofen	Project Number J1629
Project Title Star Light, Star Bright: Atmospheric Extinction and Its Effects in Astronomy	
Abstract Objectives/Goals The objective of this experiment is to investigate how much atmospheric extinction affects stellar images. Methods/Materials To perform this experiment, first you need a photometric or perfectly clear night. Using a tracking telescope with a CCD camera attached (and a laptop with corresponding software) take pictures of a star using clear, red, blue, and green filters every 10-20 min. until the star reaches an airmass of 3.14. The pictures should measure the number of photons striking the CCD camera that are coming from a region very close to the star called Star ADU. Gather information on the time and airmass each time a picture is taken. Results The results for all of the filters in the second experimentation show a decrease in the number of photons over time. The clear filter count was the highest, then the green, then the red, and then the blue. Conclusions/Discussion My conclusion is that atmospheric extinction definitely affects stars, and it shows more and more as the star gets lower and lower in the sky. There was more green light emanating from the star because on the solar spectrum green has a higher wavelength than blue and red.	
Summary Statement My project is all about measuring atmospheric extinction on stars.	
Help Received Science teacher helped with organization and good project ideas; Greg Spear was mentor; used equipment from Basking Engineering at UCSC under supervision of Greg Spear; mother helped type and advised where to put various parts on board.	