



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Ty R. Koebler	Project Number J1413
Project Title A Driver's Risk of UV Exposure	
Abstract Objectives/Goals The purpose of this experiment is to determine how drivers are exposed to UV light, and whether any characteristics of the vehicles can predict how much UV light they will be exposed to. Methods/Materials UV Meter, level, access to 50 cars and an iPhone. I took UV readings inside and outside the front windshield and drivers' side windows of vehicles, and calculated the amount of UV light passing through each window. I tracked make, model, year, price, and whether a car was new or used. Results I found that a much greater percentage of UV light is passing through the drivers' side windows than the front windshield. I also found that the amount of UV light that passed through the car windows was not correlated with a car's make, model, price, year, or whether the car was new or used. Conclusions/Discussion Based on the cars I tested, drivers are at risk of UV exposure through their side windows. This project points out that drivers should protect themselves while driving, either by using broad spectrum sunscreen, wearing protective clothing, or installing coating that filters UV light on their side and back windows. In addition, the project highlighted the difficulty of predicting UV exposure based on a car's characteristics. One unique finding was that in the cars I studied, the percentage of UV light passing through side windows actually increased from 2015 models to 2017 models. This particular finding was not shown in literature I read. This finding is important because with the ozone layer being degraded due to chemical pollution, UV rays will pose greater threats of skin damage, so the percentage of UV light passing through the windows should be decreasing rather than increasing.	
Summary Statement As measured by the percentage of light passing through the front windshields and drivers' side windows of 50 vehicles, I found that drivers are at risk of UV exposure mainly from their side windows.	
Help Received I designed and conducted my experiment myself. Managers from five car dealerships allowed me to test 10 cars each. My science teacher Amy Schwerdtfeger gave me feedback on my my procedure, graphs, and conclusion.	