



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Michelle Chan; Viviane Nguyen	Project Number S1705
Project Title Smack That Thing! Investigating the Transmission of E. coli to Apples through Houseflies	
Objectives/Goals We have all experienced it. We have all seen a fly buzzing around the house, and reach for the fly swatter - almost by instinct. But how much harm is already done within those few seconds the fly manages to land on a surface? Considering ourselves as devoted fly-haters, we were inspired to conduct an experiment to see how much bacteria a fly can deposit on one of the few vulnerable and unprotected fruits - apples. We also wanted to emphasize the importance of washing fruits before eating and therefore incorporated that into our experiment: how can the transmission of the bacteria E. coli in houseflies be prevented through rinsing contaminated apples? After conducting research, we hypothesized that rinsing the apples in cold tap water for 20 seconds would reduce the bacteria count by 90%.	
Abstract Methods/Materials In order to test this claim, we bought houseflies and exposed them to E. Coli through their culture medium and recreated a stimulation of the flies landing on the apples' surface. The control group consisted of apples that were not exposed to the flies, the second group consisted of apples exposed to the flies, and the third group consisted of contaminated apples soaked in tap water for 20 seconds. We used an inoculating loop to transfer a sample of bacteria from each slice onto a Petri dish and then observed their colony growth every 24 hours for 48 hours.	
Results All in all, our hypothesis proved to be correct, with the Petri Dishes containing the apple slices that were not rinsed after fly exposure displaying the most growth and that count was reduced significantly after the cleanse by nearly 8 times. The percent increase from the control apples to the fly exposed apples was 94%. The percent decrease from the fly exposed apples to the washed apples was 87%, therefore proving our hypothesis to be correct.	
Conclusions/Discussion The results of our experiment reflect that rinsing our fruits does reduce the likelihood of an E. coli outbreak. These findings will raise awareness about the amount of bacteria a fly can deposit within seconds of landing and make people more conscientious when washing their fruits before consuming them. Although rinsing your fruits with cold water does drastically reduce to probability of ingesting E. Coli, it is not 100% reliable - so when in doubt, throw it out. Next time you see a fly buzzing around your food, grab a fly swatter and smack that thing!	
Summary Statement Our project investigates the role that houseflies play in transmitting E. coli to an apple and the affect that rinsing the apple has on its E. Coli count.	
Help Received Conducted experiment under supervision of teacher Angie Nguyen.	