



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Vincent L. Shields	Project Number J1433
Project Title Five Second Rule: Fact or Fiction?	
Abstract Objectives/Goals How much time does it take to transfer bacteria from a contaminated wood surface onto clean food? I predicted that bacteria are capable of transferring from a contaminated surface onto clean food in less than 5 seconds to disprove the "5 second rule", a commonly held belief that dropped food remains free of contamination if quickly recovered. Methods/Materials I established the percent of bacteria that can be transferred from a contaminated wood surface onto clean Hershey Chocolate Kisses during selected time points of exposure. Raw chicken was rubbed onto a clean wood board evenly to contaminate the surface. Hershey Chocolate Kisses were placed on the contaminated board for time intervals of 5, 10, 20, 40, and 80 seconds. The contaminated Kisses were directly inoculated onto the blood agar culture plates. The inoculated plates were incubated for 48 hours at 37°C. Random areas of the contaminated board were also cultured to establish the source level of bacteria and negative controls were used to verify that the Kisses were free of bacteria when unwrapped from the foil. The experiment was repeated 4 times at each selected exposure interval. The numbers of bacterial colonies per cm ² were averaged. Results I calculated the percent of bacterial colonies transferred from the contaminated wood surface onto the Kisses. The percent of bacterial colonies transferred for 5, 10, 20, 40, and 80 seconds is 1.22, 1.38, 3.04, 4.78, and 14.26% respectively. Conclusions/Discussion The findings confirm that bacteria can be transferred from a contaminated surface onto clean food within 5 seconds. Longer periods of exposure resulted in an increase in the transfer rate of the bacteria to the Kisses. To conclude, the "5 second rule" is just an urban legend.	
Summary Statement The purpose of my project was to establish how much time does it take to transfer bacteria from a contaminated wood surface onto clean food, Hershey Chocolate Kisses.	
Help Received Science teacher gave me direction and encouragement. Parents supported my learning of bacterial culture techniques, which I performed independently.	