



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Cohberg P. Ng	Project Number S0214
Project Title Passive Cooling	
Objectives/Goals Is it possible to cool a laptop processor confining to the following points of interest and specifications	
Abstract Compatibility 1a.The cooling material and components must reside within the current footprint of the stock case 1b.The construct must using existing mounting hardware to anchor itself to the case material 1c.The construct must be able to keep the current hardware within the manufacture#s thermal temperature specifications Portability 2a.The construct must be able to cool the computer hardware without increasing the weight of the current laptop computer by more than ten percent Environmentally Friendly 3a.The construct must be able to cool the computer hardware using no power	
Methods/Materials Variables Being Manipulated Beta, a Boolean Value, indicates if the cooling construct is in adherence to procedure 1a ,1b ,1c ,2a, and 3a	
Conclusions/Discussion In accordance with my data analysis, passive cooling complying with regulations (1a-1c,2a,and 3a) is not a viable solution for passive cooling. Although the passive cooler was significantly more effective at cooling the processor passively than the manufacturer cooler; air stagnation, limited case airflow, and cramped building zones prevented the cooler from being as effective as originally anticipated. Setting the stringent requirements for the cooling construct was a warranted path of goal failure however there were several points that I was able to accomplish.	
Summary Statement Can a laptop computer be modified to use a compatible passive cooling construct adhering to compatibility requirements, portability concerns, and environmental regulations.	
Help Received Used milling equipment under the supervision of school shop teacher Mr. Allen Grant. Inspiration for project came from my physics teacher Mr. Scott Holloway. And for auxiliary support, my family.	