



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Ashley Su	Project Number J1932
Project Title Ashley's Secret Formula, Year II: From Lab Samples to Products	
Abstract Objectives/Goals This is the second year of my project. The first year project started from wondering why my mom's perfume smells so soothing and which ingredient in perfume causes it to smell differently? I proved my hypothesis that perfume scents can be altered or created by mixing different types of essential oils with some ingredients. I also created new perfumes just for preteen girls like me for better concentration, refreshment, and relaxation! Following the success of my first-year progress, I continuously worked on further research trying to convert my lab samples to be new products in the market. In doing so, I had to make my perfumes more effective (stronger scents) and stable (last longer). There were many challenges to face and most of them were not easy. The hypothesis of one of the challenges was that Up to Some Certain Level, the Greater Density of the Alcohol, the More Effective the Perfume is; But Less Stability. However, Using Oil Instead of Alcohol, the Perfume Will Be More Stable, But Less Effective.	
Methods/Materials I selected two sets of perfume samples (Top Notes vs. Middle Notes). Each set of perfumes has 20 different mixtures of alcohol density ranging from 6-44% or without alcohol (use Jojoba oil only). I tested them under three different temperature conditions and measured the distance that the perfume scent can reach my nose without fading every 15 minutes. I did this nine times for each mixture. There are total 1080 data tested and recorded.	
Results The perfumes with higher alcohol density produce stronger scents initially but fade quickly. The oil-based perfume last much longer, but is not that effective. The colder temperature seems to be able to hold the perfume scents better and last longer. In addition, the impact of alcohol reduces significantly when its density reaches above 40%.	
Conclusions/Discussion The experimental data strongly supports my hypothesis. In addition, adding odorless oils to dilute essential oils without using alcohol is also proven to be a good choice for perfumes to last longer. Other alternatives such as adding fixing agents (e.g. Aldehydes) need further exploration and research to find out their effectiveness to my perfume products. Detail results can be found in my website www.topkids.com/ashley.htm in which my lab samples are given out free of charge for market tryout.	
Summary Statement This project focuses on converting my perfume lab samples to be products in the market; six perfume blends had been created, tested, and ready to be commercialized as new products targeted for teenagers.	
Help Received Thanks to JCHRIS FOUNDATION for sponsoring all financial need in my research and pre-production cost of my perfume products. My mom helped me to get all materials needed in this project and my dad assisted me in designing my website. Many of my friends were volunteers to be my perfume testers.	