Ongoing research in our group has been aimed at being able to distinguish different shades and brands of lipsticks via analytical techniques. Our work began using thin layer chromatography (TLC). This technique uses a stationary phases which interacts with each component differently which allows for the separation into different parts. We discovered that TLC did provide some differences there were not enough differences to distinguish all the different brands and shades of lipstick available. We then began looking at high performance liquid chromatography (HPLC). This technique is similar to TLC in that the separation is achieved by the interactions of the analyte with the stationary phase. We looking into the HPLC data we found similar problems as the TLC study. While many different brands and shades of lipstick could be identified there was too much overlap to provide statistically confident results. Finally we began working on gas chromatography (GC) using a flame ionization detector (FID). The separation in GC is accomplished by the gas phase analyte interacting with the stationary phase. While TLC and HPLC both use organic/aqueous solvent mixtures to move help separate the mixture, GC using a purge gas such as He and a computer controlled oven to move the sample across the stationary phase. Results obtained from all our work on this project will be discussed.