



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Winnie Chen	Project Number J2110
Project Title Lead in Makeup	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My project was to test the amount of lead in different brands and types of makeup. I thought that color would affect the amount of lead in makeup. The darker the color, the more lead would be present. The lighter the color is, the less lead would be present. Lipstick should have the least lead present since its applied onto your lips and your can swallow it. As for containers, I thought that the containers with sharper or pointy edges, such as squares or rectangles would have more lead. The color would affect the amount of lead. The darker the more lead, the lighter the less lead will be present.</p> <p>Methods/Materials The makeup was split into four categories and ordered from the lightest color, to the darkest. 360 different items were tested (including the containers). Each were tested 2 different ways and 10 times each. One way was by adding different chemicals and using different equipment to grind up the makeup, so that the volume would be equal. Some chemicals used were sulphide anion, bleach, and chlorine. This is a 9 hour process for each item. More than one item can be tested at once. The 2nd way to test lead is by using an XRF analyzer. It is an scientific gun that can determine all bad toxins such as lead. This way was more accurate and quick.</p> <p>Results The darker the color of the makeup got, the amount of lead increased. This is true for all the 4 makeup categories. Lipstick and other lip products in the lip category had more lead than expected. The XRF machine and hand test had very close and similar results. For containers, the darker the color got, the more lead was present. Containers with rounder edges such as circles or cones, had more lead than containers with pointier edges such as squares and rectangles.</p> <p>Conclusions/Discussion For food, such as candy bars, only 0.1ppm of lead is allowed. For lipstick, it is 5ppm. All of the lipsticks exceeded 0.1ppm of lead, but not than 5ppm of lead. They should lower the state regulation for lipstick, and make it similar to food. Lipstick is directly applied onto your lips and people can swallow it, so it is similar to food. The XRF machine and hand test had similar results which proves that both the testing conducted was accurate. Darker and rounder containers have a lot more lead then others. Avoiding these containers are recommended. Lead is extremely harmful to the body and everywhere. Another element should be used to replace lead.</p>	
Summary Statement Testing lead in makeup and its containers.	
Help Received Father's friend help me rent XRF analyzer machine; Parents bought some of my supplies needed;	