



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> Marcus L. Nelson	<b>Project Number</b> <b>J1130</b>
<b>Project Title</b> <b>Does Hair Type Affect Hair Hygrometer Results?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The purpose of this project was to find out which type of hair responds quicker to a hair hygrometer. A hair hygrometer is an instrument used to find the humidity in the air. <b>Methods/Materials</b> The main structures of the hygrometer were built. Next the hairs had to be connected (that have already been boiled for five minutes) to the nails and to the arrow. It would point to wet or dry depending on what stage of the procedure it was on. I then tested the hair in the chamber (Tupperware) with two cups of water. I waited for the humidity to rise for thirty minutes and to move the arrow to the wet mark on the face of the hygrometer. Next, I took out the water, dried the chamber, and then added half a cup of calcium sulphate (a.k.a. desiccant). At this time I started my stopwatch. The desiccant was used to absorb the moisture and dry the hair, which would move the arrow to the dry mark on the face of the hygrometer. This was the drying time or response time. <b>Results</b> It was found that all of the non-dyed hair samples dried out at an average of 22 minutes 18 seconds. The dyed hair samples dried out at an average of 41 minutes 15 seconds. <b>Conclusions/Discussion</b> The hypothesis was incorrect. It was believed that the dyed hair would dry faster. The dyed hairs took longer to dry because they absorbed more water than the non-dyed hairs. There were a few problems. A hygrometer was broken. The procedure needed sunlight and the project was tested during the winter months so I ran out of light on several occasions. I learned that the process of dying hair may dry it out. I will isolate natural hair color to determine if color is a factor in dry time.	
<b>Summary Statement</b> My project is to determine if non-dyed or dyed hair will dry faster.	
<b>Help Received</b> Leif Cadenhead assisted in the chemical preparation. My teacher helped me get all of the hair samples. My mother helped me get all of the materials.	