



# CALIFORNIA STATE SCIENCE FAIR 2006 PROJECT SUMMARY

<b>Name(s)</b> <b>Sonia E.M. Barrad</b>	<b>Project Number</b> <b>J1701</b>
<b>Project Title</b> <b>Voices That Speak to Us</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> This project investigates to which characteristics of the human voice -- pitch (frequency), amplitude, and timbre (overtones) -- people of all ages respond positively and negatively.</p> <p><b>Methods/Materials</b> I recorded six adult voices (three male, three female) saying the same 45-second excerpt from a patriotic speech, and asked volunteers from around the country (n=165), using an online survey, to rate each voice, to characterize each voice using no more than three of 60 pre-determined adjectives, and to choose the voice they liked best and least and describe why. I analyzed the voice samples for pitch, amplitude and timber, and compared those results to the survey results to determine which characteristics of the spoken voice are most and least liked by the study group.</p> <p><b>Results</b> The study participants overwhelmingly preferred male voices to female voices; low-pitched voices to high-pitched voices; and voices with more overtones to those with fewer overtones. They had a mild preference for louder voices over softer voices, but the data did not correlate as closely on this characteristic. The study participants also disliked certain characteristics (nasal tones and monotone voices).</p> <p><b>Conclusions/Discussion</b> People generally prefer certain vocal characteristics, including voices that are convincing, commanding and induce confidence in the listener. These voices generally are found in people with substantial "chest voices," -- that is, people who speak primarily from their chest. They dislike high-pitched vocal tones, whether in the voice itself or in the overtones. These voices generally are found in people whose speaking voice includes voices in the higher ranges, such as "head voices." They also like voices with more depth (e.g., multiple tones) than voices made up of purer tones. People react most negatively to three vocal characteristics: high-pitched tones, nasal tones, and monotones. Although the study showed an overwhelming preference for male voices, it would be interesting to see how people react to a low-pitched female voice as compared to a higher-pitched male voice.</p>	
<b>Summary Statement</b> This project investigates to which characteristics of the human voice -- pitch (frequency), amplitude, and timbre (overtones) -- people of all ages respond both positively and negatively.	
<b>Help Received</b> Recommendation on software for voice analysis from Chuck Radue, sound engineer; HTML coding for on-line survey by Jorge Velasquez; mother helped type report and provided assistance with Excel spreadsheets.	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Giselle Beltran; Rosa Gonzalez</b>	<b>Project Number</b> <b>J1702</b>
<b>Project Title</b> <b>Does It Matter?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Our project was to find out if the placement on a ballot mattered in the voting results.</p> <p><b>Methods/Materials</b> 120 subjects Ballot 1 Red, Yellow, Green, Blue-30 Ballot 2 Yellow, Green, Blue, Red-30 Ballot 3 Green, Blue, Red, Yellow-30 Ballot 4 Blue, Red, Yellow, Green-30</p> <p>Create four different ballots alternating the order of the colors from ballot to ballot. Pass out each ballot to thirty different subjects and have them circle their favorite color. Record and collect data</p> <p><b>Results</b> After having the subjects circle their favorite color from the ballots with alternating color order. In our results, it showed that in all the ballots, blue had the most votes regardless of the order. Red had the second most votes when it was listed first and third. Green had the second most votes on Ballot 2 when listed second and in Ballot 4, listed last. Yellow had the least votes in all the ballots. This proved that our hypothesis was incorrect. We thought that the order was going to matter but it didn't. Blue had the most votes on all the ballots. We also believed that our testing was inaccurate because it asked the subjects to circle their favorite color and they were prone to actually look and decide their favorite choice. We believe that primacy effect would show more importance in a race where people were voting for candidates.</p> <p><b>Conclusions/Discussion</b> We believed that the placement did matter because of primacy effect. Primacy effects are biases toward selecting the first object considered in a set. We tested this by making a ballot of favorite colors that included red, yellow, green, and blue. We had Ballot 1 where the order was red, yellow, green, and blue. We had thirty subjects chose their favorite color. In Ballot 2 the order was yellow, green, blue and red. Again we had thirty subjects chose their favorite color. Ballot 3 had the order of green, blue, red, and yellow. Ballot 4 had the order of blue, red, yellow, and green. In all the ballots, in spite of the order, blue had the most votes. This proved out hypothesis incorrect. In our testing blue had the most votes even though it wasn't listed first. We believe that our testing was inaccurate for our question. Because the</p>	
<b>Summary Statement</b> In relationship with primacy effect, does the order on a ballot affect the voting results?	
<b>Help Received</b>	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Emily M. Berg</b>	<b>Project Number</b> <b>J1703</b>
<b>Project Title</b> <b>Do Unofficial Street Signs Affect the Speed of Drivers?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> 'Children at Play' signs and many other signs with the same intent have been becoming more and more common among residents in our community. Although the signs are being posted by many citizens, it is unknown if the signs actually work for their intended purposes. The purpose of this experiment is to see if unofficial street signs actually affect the speed of drivers.</p> <p><b>Methods/Materials</b> After selecting the locations in which my testing would take place, I used a radar gun to measure the speeds of the passing vehicles. During each experiment in each location, I surveyed a 40 car sample with the 'Children at Play' signs present, and then a 40 car sample with no signs posted. There were 320 vehicles tested in all.</p> <p><b>Results</b> The data collected from the four sites in which the testing took place, totaling 8 samples, was entered into a spreadsheet to allow graphing and analysis. At the Scripps Lake Drive location, both studies recorded 85th percentile (the speed that 85% of all cars are going at or below) speeds of 31 miles per hour with and without signs present, which is consistent with the City's study (32 miles per hour). Little or no effect of 'slow' signs was measured. At the Farmingdale Street site, which was the other testing location, the results were similar. The signs had no measurable effect on driver behavior. The average speeds and 85th percentile speeds were almost identical with and without signs present.</p> <p><b>Conclusions/Discussion</b> In conclusion, 'Children at Play' signs had little or no affect on the speed of drivers/motorists. The only noticeable change in speeds was when a police officer was in view, at which time the speeds of the vehicles noticeably decreased. Although many citizens may believe that these signs can prevent children from getting injured, 'Children at Play' signs may actually provide a false sense of security for parents and children, letting them believe that with the sign(s) posted, children are safe playing in the street.</p>	
<b>Summary Statement</b> The purpose of this experiment was to determine whether or not unofficial street signs actually affect the speed of drivers.	
<b>Help Received</b> Councilmember Brian Maienchein referred me to Officer Zeigler of the San Diego Police Department Traffic Division; Officer Zeigler provided radar gun; parents supervised testing and assisted with creating Excel spreadsheets.	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Erinn E. Bertram</b>	<b>Project Number</b> <b>J1704</b>
<b>Project Title</b> <b>Do You Remember?</b>	
<b>Objectives/Goals</b> What is the impact of gender familiar items to ones short-term memory? Is there any impact at all? My hypthosis was that the sex of the person would determine which items they were more drawn to.	
<b>Abstract</b> <b>Methods/Materials</b> I used 15 males, and 15 females, and sat them down individualy. Each person had 30 seconds to stare at the tray full of items(10 male items-hammer, baseball, tape measure, razor, screwdriver, nail, deodorant, baseball hat, golfball, and a watch & 10 female items-nail polish, brush, mascara, hair clips, lipstick, bracelet, tweezers, earrings, magazine, and a purse). After each subject starred at the tray for 30 seconds, the tray was removed and the tester waited another 30 seconds before proceeding. Then the subjects had 30seconds to write down all the items they remebered. (The subjects were not advised beforehand that they would have to write down the items they remebered.) Results were then summarized and observed.	
<b>Results</b> After I studied the data, I realized my hypothesis was not correct after all. Only 5 out of 15 men got more of the male items than the female items. The popular male items that were remembered were the hat, hammer, golfball, and baseball. The female items that the men mostly remembered were the magazine, the purse, and the nail polish. As for the females, 7 out of 15 remembered more male items than female items. The most popular male item that they could recall were the hat, the hammer, and the nail and the most female items they got were the earrings, magazine, and purse. The only item out of 20 that supported my hypothesis was the earrings. With this item, the females clearly dominated with a 14 out of 15 recalling and only 5 out of 15 for the men.	
<b>Conclusions/Discussion</b> I learned that my hypothesis was not correct, and that it didn't matter what the persons's gender was. After looking at the data, I expanded my thoughts. I considered that maybe the size of the item might have something to do with the subejects' memory recall, since the magazine, hammer, and hat (the largest items on the tray) were very popularly remebered. After further reveiw, I realized that size did not matter, since half the subjects also recalled the earrings and tweezers a lot too. With the exception of the earrings, no other items dominated by one particular sex.	
<b>Summary Statement</b> My project is about if there is an impact of gender familiar items to ones short-term memory.	
<b>Help Received</b> Father helped in organizing the data and setting it up neatly.	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> Meghan R. Carvalho	<b>Project Number</b> <b>J1705</b>
<b>Project Title</b> <b>Does the Potential of a Reward Affect a Student's Motivation for Success?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of my project was to determine if the potential of a reward affected a females, between the ages of six and fifteen, motivation to perform a task faster. I thought the group of females between six and nine with prior knowledge of a reward would perform the task the fastest.</p> <p><b>Methods/Materials</b> I first gathered forty girls between the ages six to fifteen. I then told each girl wich group they were in(A, the group with prior knowledge, or group B, the group without any knowledge of a reward.) If the child was in group A, I told them that they would recieve a reward if they completed the task under one minute. I then had each child match the five word cards with the five picture cards, and I recorded their data according to age and group. Afer all fourty girls finished the task, I gave everyone a Hershey Kiss.</p> <p><b>Results</b> The data was inconclusive. Group A from each age group completed the task faster by 33.3%. However, there was no significant difference between the two age groups, six to nine and ten to fifteen. Group A from ages six to nine performed the task at an average of 9.31 seconds,and the group A from ages ten to fifteen finished the task at an average of 9.63 seconds. That's only about a thirty miliseconds difference.Group B from the age group six to nine performed the task at an average of 12.68 seconds, and the same group from the age group ten to fifteen finished the task at an average of 11.6 seconds. The difference is only one second.</p> <p><b>Conclusions/Discussion</b> My hypothesis was only partially supported. It was supported by the fact that group A finished the task the fastest, and that females are more motivated ba a potential of a reward. My hypothesis was not supported by the fact that the two age groups had no signicant difference in the time it took the girls to complete the task. If I were to repeat this experiment, I would make the task harder and narrow the age range so my project would be more controlled.</p>	
<b>Summary Statement</b> My project is about females performing a task faster using intrinsic motivation verses prior knowledge of a reward.	
<b>Help Received</b> Lana Write allowed me to use her dance studio to test subjects; Parents helped proof read	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Daniel E. Castanon</b>	<b>Project Number</b> <b>J1706</b>
<b>Project Title</b> <b>The Correlation of the Perception of Intelligence and the Perception of Attractiveness</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of the study was to find out if there was a correlation between the perception of intelligence and the perception of attractiveness. <b>Methods/Materials</b> Tests which contained six pairs of two pictures of white males were given to 190 males and females. 95 persons were asked to pick the male in each pair they thought was more intelligent. The remaining 95 persons were asked to pick the male in each pair they thought was more attractive. <b>Results</b> Four out of six pairs of pictures were perceived as both more intelligent and more attractive by male respondents. Only in pairs 4 and 5 was one white male perceived as more attractive and the other as more intelligent. Five out of six pairs were perceived as both more intelligent and more attractive by female respondents. Only one white male was rated more attractive and the other as more intelligent. Four out of six pairs were perceived as both more intelligent and more attractive by total respondents. <b>Conclusions/Discussion</b> The hypothesis was correct because the white males perceived as more attractive were generally perceived as more intelligent. When looking at a statistical correlation, it was discovered that the male correlation between intelligence and attractiveness was low and the results varied a lot. The female respondents had a fairly high correlation and their results varied only a little. The overall correlation was in the middle.	
<b>Summary Statement</b> This project examined the correlation between the perception of intelligence and the perception of attractiveness.	
<b>Help Received</b> Father helped with Microsoft Excel; Mother helped with editing; Science teachers Mrs. Weitkamp and Mrs. Hawkins helped critique the experiment; Dr. Jennifer Deal helped design the tests.	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Olivia K. Gardner</b>	<b>Project Number</b> <b>J1707</b>
<b>Project Title</b> <b>Girls Are Better Readers! (...Or Are They?)</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To statistically test whether gender accounts for differences in reading scores at Santa Fe Christian (SFC) school between grades 1 and 3. My hypothesis was that there were differences between girls and boys, and that girls attained reading fluency at a younger age than boys.</p> <p><b>Methods/Materials</b> *Reading test scores for grades 1 through 3 at SFC (all scores were anonymous). *Microsoft Excel *10 Dice (to gain insight into probabilities)</p> <p><b>Results</b> I compared scores for boys and girls in each grade, and then I compared the averages of each grade. In 1st grade the average reading score for girls was 8.58, but the 95% confidence interval (CI) ranged from 6.21 to 10.96. In other words, we can say with a 95% certainty that the average score for girls fell between 6.21 and 10.96. For the 1st grade boys, the average was 8.54, and the 95% CI was 6.71 to 10.36. Given that the CIs overlap, the 1st grade reading scores were not statistically significant different between boys and girls. In 2nd grade the average for the girls was 21.86, while the 95% CI was 20.05 to 23.68. The average score for the boys was 23.08, but their 95% CI was 20.95 to 25.22. While the average scores between boys and girls appear different, the CIs# overlap means that those differences are not significant. Thus, boys and girls in 2nd grade achieved reading fluency at about equal rates. In 3rd grade the average score for girls was 32.64, and the 95% CI was 30.82 to 34.47. The average for the boys was 33.03, and the 95% CI was 31.34 to 34.73. The CI overlap shows that the difference in averages is not significant. Reassuringly, the differences in reading averages between grades 1, 2, and 3 are statistically significant. This difference shows that as the students progress through the grades they achieve higher levels of reading fluency.</p> <p><b>Conclusions/Discussion</b> I learned the basic principles of statistics as I evaluated reading scores from my school. At first glance the reading averages did appear to differ. However, following more thorough analysis, I can conclude that no significant difference exists between the boys and the girls in terms of reading averages.</p>	
<b>Summary Statement</b> I used statistics to study differences in reading scores between genders and grades at my school.	
<b>Help Received</b> My father taught me about statistics, and Mrs. Beeman provided me with the data for my project	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jordan M. Harris</b>	<b>Project Number</b> <b>J1708</b>
<b>Project Title</b> <b>Too Close for Comfort? The Effects of Height and Gender on Personal Space Requirements in Preadolescent Students</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> One day while talking with my friends, I noticed that some of my friends talked so near to me that it made me feel uncomfortable. Others talked to me from so far away that I felt that I needed to move closer in order to hear them. I decided to test the effects of height and gender on personal space (proxemics) in preadolescent students. My hypotheses were that two females will require less personal space than two males, that a female will require less personal space with a male than a male will require with a female, and that regardless of gender, two people of different heights will require more personal space than two people of the same height.</p> <p><b>Methods/Materials</b> I enlisted six preadolescent student assistants to ask questions of 25 females and 25 males in the fourth and fifth grades. Assistants were chosen for their height and gender. Assistants were instructed to ask the subjects five specific irrelevant questions about their pets, extracurricular activities, favorite color, etc. in order to distract the subjects from the real point of the project: gender and height and how they affect personal space. With every other question, the assistants would take a small, unnoticeable step forward. I observed the behavior of the subjects, in particular to see if the subjects felt uncomfortable and therefore took a step backward. Every subject was tested once by an assistant of each gender, for a total of 100 tests.</p> <p><b>Results</b> According to my results, two females required less personal space than two males. Females also required less personal space with males than males did with females. Both the females and males required more personal space with members of the opposite gender than with members of the same gender.</p> <p><b>Conclusions/Discussion</b> I had hypothesized that two people of different heights would require more personal space than two people of the same height. I thought that if there were a significant height difference, the shorter person would feel intimidated and, therefore, require more personal space. To my surprise, two people of different heights required less personal space than two people of the same height! Perhaps this is because, when two individuals are of different heights, the perceived amount of personal space is larger than when two individuals are at the same level, eye to eye, nose to nose, mouth to mouth.</p>	
<b>Summary Statement</b> This project examines the effects of height and gender on personal space (proxemics) requirements in preadolescent students.	
<b>Help Received</b> Thanks to the six assistants who helped me in the testing process and to Roxanne Hunker, my science teacher, for her input on this project.	





**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Sarah E. Hicks</b>	<b>Project Number</b> <b>J1709</b>
<b>Project Title</b> <b>Personal Stereo System Users: Are People Risking Hearing Loss?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The purpose of my study was to test the volume levels that personal stereo system (PSS)users were listening at to see if the volume was loud enough to cause possible hearing loss over time, and if they were open to changing their listening habits when given a verbal warning. <b>Methods/Materials</b> I randomly selected 108 subjects (55 females, 53 males) between the ages of 9 and 65 years old, who were listening to personal stereo systems. With permission, I took sound level meter readings of their PSS volume/output. If their peak readings were 90dB or above, they were warned about possible hearing loss over time and asked to consider turning down their volume. Data was noted for peak volume, age, gender, and if they would change their listening habits. <b>Results</b> I found that 51% of my subjects listened to their PSS's at an average of 90dB or above (too loud per OSHA recommendations). More than half (72%) said that they would turn down their volume when warned about possible hearing loss. I also found that the females in my study listened to their PSS's at a louder average level (93 dB) than the males (86 dB). <b>Conclusions/Discussion</b> With the growing popularity of PSS's and earbuds/phones which can produce sounds of more than 115dB directly in the ear, potential hearing loss over time is a concern. In my study, half of the subjects were listening at dangerous sound levels (90 dB or above), highlighting the need for public education on the risks of hearing loss and how to prevent damage.	
<b>Summary Statement</b> I tested the loudness levels of people's personal stereo systems and took data on whether they would turn down the volume when warned that they were listening at a risky level.	
<b>Help Received</b> Dad helped with graphs and drove me to locate test subjects.	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> Alyssa J. Hufschmid	<b>Project Number</b> <b>J1710</b>
<b>Project Title</b> <b>Gender Differences in Perceiving Facial Emotions</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Are females and males equally accurate in identifying emotions portrayed through facial expressions?</p> <p><b>Methods/Materials</b> Materials and Subjects #Twenty-two male and twenty-two female test subjects, ages 12 to 14 #Six pictures of facial expressions #Rating sheets #Data chart (answers from each Rating Sheet were summarized on them for analysis) #Test Instructions #A website was constructed by my consultant that automated the collection of responses, using the same materials as the paper and pencil procedures (see <a href="http://www.drhal.com/alyssa">http://www.drhal.com/alyssa</a>).</p> <p>Procedure Each subject first read the Test Instructions, which described the study and obtain informed consent. They were shown a series of 10 pictures, and used the Rating Sheet to record which emotion each picture portrayed. Finally, they filled out the bottom of the Rating Sheet, listing personal information.</p> <p>The online test followed the same steps, using the same instructions, pictures, and a similar rating sheet.</p> <p><b>Results</b> The mean number of correct ratings by boys, and by girls, are shown in Figure 1. Girls outscored the boys, with averages of 8.36 and 7.59. A t-test for independent samples showed this difference was unlikely to be due to chance alone (<math>t(42) = 2.102</math>, <math>p &lt; .05</math>). Error bars in Figure 1 show the expected range of scores, for each gender, with samples as the large as mine.</p> <p><b>Conclusions/Discussion</b> Young females were more accurate than young males in distinguishing which emotion was presented in facial pictures. This has been found in a number of studies with adults but is not well established with younger people (McClure, 2000; Rahman, Wilson, and Abrahams, 2004). Teenage boys and girls in my study were usually correct in recognizing emotional expressions, but girls were better (that is, had a higher percent of correct ratings).</p>	
<b>Summary Statement</b> In my project I studied the gender difference in accurately identifying facial expressions.	
<b>Help Received</b> Dr.Kopeikin helped analyze data; Teacher helped improve project	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kellie C. Livingstone</b>	<b>Project Number</b> <b>J1711</b>
<b>Project Title</b> <b>AYP and Diversity: How Do Schools Measure Up?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Adequate Yearly Progress (AYP) takes an essential role in today's society. But, ever since 2001 when the No Child Left Behind Act was passed, every school is expected to grow 1 point each year; both as a whole and in each numerically significant subgroup. This means that a school that has 25 subgroups and grows 1 point in 24 subgroups would get a #no# for AYP. Based on my research, I hypothesize that the more subgroups a school has the more difficult it is for them to be making AYP. <b>Methods/Materials</b> To test my question, I did two things; a data analysis based on 2005 AYP scores and a random number generator. I did this to make sure that my results were the same in both situations. As testing began to develop, I was appalled to see that more than half of the schools were not making AYP. Also, when using my random number test, I saw that it was impossible to make AYP when a school had 37 subgroups. <b>Results</b> After testing was complete, I proved my hypothesis to be correct and saw that schools with greater amounts of subgroups were not making AYP. 56% of California middle schools are not making AYP, while 44% are. Also, the random number test showed that of the 100 schools (trials), 81% of the schools with 37 subgroups were making it in 35 of the subgroups. This concludes my experiment, showing the bias in today's school system.	
<b>Summary Statement</b> Analyzing the AYP test scores of California middle schools to see if as the diversity of a school grows, do their chance of making AYP become smaller?	
<b>Help Received</b> Mrs. Sarah Sullivan (my principal); helped me conduct the random number generator and analyze the data	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kelsey C. Paulus</b>	<b>Project Number</b> <b>J1712</b>
<b>Project Title</b> <b>Contemporary Christian Worship: A Blessing to God's Ears, but Damaging to Yours?</b>	
<b>Objectives/Goals</b> Nine samples were taken from three church services over an eleven week period to see if the worship service decibel levels were damaging to the human ear.	
<b>Abstract</b> <b>Methods/Materials</b> Materials: Decimeter, Sanctuary, Video Camera, Video Tape Methods: 1. Obtain materials. 2. Enter the sanctuary and sit as close to the center as possible. 3. Place the decimeter on the floor between feet. Turn decimeter on with the sound weighting at 80 or 90 dB. 4. Video record the decimeter during the worship service. 5. Go home, watch the recording and record each decibel on the talley count sheet. 6. Repeat steps 1-5 for each church visited. 7. Analyze data. Calculations for the amount of time that each dB is heard, based on the tick marks recorded for each dB, are counted only for dB's 100 and above. The reason for this is because the maximum exposure time for these dB's before damaging the ear is shorter and fits within the worship times. 8. Conclude. Using the Maximume Exposure Chart, each worship service will be labeled as Safe, Watch Out or Danger. This is based on whether or not the dB levels are safe or damaging to the inner ear	
<b>Results</b> Many Christian churches enjoy loud contemporary worship services. Some are unaware of how damaging their volume levels can be to their worshippers# ears. One solution is to educate the church soundboard technicians. They need to know that a safe dB level is at 85 or below. Decibels higher than that at prolonged periods of time will damage the worshippers ears. Results show that the volume levels during the worship services visited, were not all within acceptable levels for the human ear. Results varied from church to church and week to week within the same church.	
<b>Conclusions/Discussion</b> The volume levels during contemporary Christian worship services were not all within acceptable levels for the human ear.	
<b>Summary Statement</b> To determine if the decibel levels during contemporary Christian worship services are damaging to the human ear.	
<b>Help Received</b> Mr. Rich Bartel - Guidance and Use of Decimeter, Bobbie Lee Garret, MA FAA - Background Info, Serena Paulus (mom) - Help with dB counting, typing and backboard	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Hannah M. Plunkett</b>	<b>Project Number</b> <b>J1713</b>
<b>Project Title</b> <b>Penny Candy vs. Dime Candy</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The goal of my project, Penny Candy vs. Dime Candy, was to determine if kids, ages 7-12 years, are more likely to choose one candy (labeled 'Dime Candy') over another identical candy (labeled 'Penny Candy') based on how they are labeled. I believe that they will choose 'Dime Candy' over 'Penny Candy', because they will think that 'Dime Candy' is worth more, therefore will be better quality and will taste better. <b>Methods/Materials</b> I interviewed 100 randomly selected students at my school between the ages of 7-12 years old. I showed them a tray with 2 identical candies, one labeled 'Penny Candy' and the other labeled 'Dime Candy', and asked them the following question: "If you could choose one of these candies, which one would you choose?" I recorded their answers in a journal along with their sex and age. <b>Results</b> Sixty-six percent of the participants chose the 'Dime Candy' over the 'Penny Candy'. The most significant category was the 10 year olds, with 87% of them choosing the 'Dime Candy'. <b>Conclusions/Discussion</b> The results of this study support my hypothesis. Labeling of items has an effect on the choices that people make. Specifically, people believe that higher price means higher quality.	
<b>Summary Statement</b> My project is about labeling of items and how labeling effects peoples choices.	
<b>Help Received</b> From my parents and sister who helped with typing and laying out my board.	



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Bryan Rodriguez</b>	<b>Project Number</b> <b>J1714</b>
<b>Project Title</b> <b>First Five</b>	
<p style="text-align: right;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To see if attending preschool had an effect on children.</p> <p><b>Methods/Materials</b> Create and hand out surveys to K-5th grade students. Tally the surveys to see the results.</p> <p><b>Results</b> Preschool has a positive effect on children.</p> <p><b>Conclusions/Discussion</b> Students that attended preschool had a positive attitude toward school. They had less behavior problems, higher grades, and worked better in the classroom than the students that did not attend preschool.</p>	
<b>Summary Statement</b> The effects of preschool on elementary school aged students.	
<b>Help Received</b> Mrs. Houston's third grade class, my dad and mom.	



# CALIFORNIA STATE SCIENCE FAIR 2006 PROJECT SUMMARY

<b>Name(s)</b> Michael J. Vredenburg	<b>Project Number</b> <b>J1715</b>
<b>Project Title</b> <b>Eye Injuries: Adolescent Perceptions and Self-Protective Behaviors Concerning Recreational Guns</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Toy replicas of real firearms and have become popular worldwide, resulting in eye injuries and blindness; yet little research has been conducted to examine factors contributing to the safe, and unsafe, use of airsoft and paintball guns, particularly among adolescent users. A primary aim of this study was to examine adolescent risk perception and measures taken to protect eyes. To evaluate actual risk, ballistics testing on airsoft guns was performed.</p> <p><b>Methods/Materials</b> Risk perception data: 104 participants were asked to participate in the study and given consent forms to have signed by their parents. The risk perception survey created for this study assessed adolescents' perceptions of the dangers of airsoft and paintball markers and their safety practices as a function of age, gender, and experience. Ballistics testing: The experimenter followed a recipe to prepare ballistics gelatin that simulated muscle tissue. Four test guns of different power levels fired ammunition of three different weights into the gel. The depth penetration of the ballistic gel was measured using a steel caliper gauge. Injury to other body tissues (eyes, skin, bone, etc.) was evaluated.</p> <p><b>Results</b> Participants of this study perceived airsoft guns as less dangerous than other types of toy guns. Many indicated that they do not wear protective eyewear, even when shooting at each other. Experience playing with these guns was associated with decreased danger perceptions. An evaluation of packaging and labeling of these products revealed that while protective eyewear is frequently included in paintball gun packaging, it was rarely included in airsoft boxes. Although adolescents perceive airsoft guns to be relatively safe, the ballistics results suggest otherwise.</p> <p><b>Conclusions/Discussion</b> The results of this study have important implications, particularly for manufacturers of airsoft guns. Although participants who play with airsoft guns are apparently aware of the need for protective gear, a significant percentage of players choose not to take steps to protect themselves.</p>	
<b>Summary Statement</b> This study evaluated the perceived and actual risks of eye injury posed to adolescent users of airsoft and paintball guns and the extent of their self-protective behavior.	
<b>Help Received</b> Michael Kalsher, Associate Professor of Psychology at Rensselaer Polytechnic Institute, helped me with statistics. Stephen Plourd, an accident reconstructionist, helped me with ballistics testing. My father, a high school science teacher, let me collect data from his students.	