



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Melissa E. Adams	Project Number J0301
Project Title Do Running Partners Motivate or Distract?	
Abstract Objectives/Goals In physical education class, I noticed that during our warm-up laps some of the students were not running their hardest. I wanted to think of a better way to do more effective warm-up laps. I wondered if who the students were paired with while running mattered. I decided to design an experiment to try to discover an answer. Methods/Materials To carry out my experiment, I emailed the physical education teacher to set up the class test plan. For each class I tested, I had the students run one lap around a track. Then the test subjects would run with partners. The students would be paired girl/ girl, boy/ boy, or girl/ boy. I was in a hidden location with a stopwatch timing how long it took the subjects to run each lap. I recorded the results into my excel sheets. Results I recorded a total of 113 times for 40 test subjects. Each subject had to perform three tests. The average mean time for the students running alone was 35.9 seconds. The mean for the two girls as partners was 34.1 seconds. The mean for two boys as partners was 33.8 seconds. The mean for the boy/ girl partners was 33.7 seconds. Conclusions/Discussion The average times for all of my results were very similar except when students ran alone. On average, the subjects were 6% slower when running alone than their average times when running with a partner. Running alone did not make as great a difference as I thought it would. All three of the pair averages were statistically the same. I was surprised by my results. I had thought there might be differences between same sex and opposite sex pairings. The results were not dramatic, but seemed to support the research that recommends running with a #pacer#, (running with another runner) to improve performance. Perhaps the novelty of being paired with a pre selected partner encouraged competition in the runners. Physical education teachers may want to randomly pair students to motivate them to run their laps faster.	
Summary Statement The goal of this project was to find out whether students running laps alone or students running laps with same sex or opposite sex partners would affect the average running speeds.	
Help Received Thanks to the physical education teachers and student subjects who participated in my experiment. Thanks to my science teacher for her guidance.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Olivia A. Aquilina	Project Number J0302
Project Title Do Adults Know Which Numbers Count?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective for this experiment was to see how many adults were informed about the hazards of plastic containers based on what chemicals they were made from.</p> <p>Methods/Materials The method I used was a survey that I conducted at four different locations. From these locations, I asked people between the ages 21-50+ a series of simple questions that informed me of their knowledge and awareness of the recyclable numbers and the chemicals that they potentially release into the food or beverages they contain. I arranged the people into groups; Group 1 (21-30yrs), Group 2 (31-40yrs), Group 3 (41-50yrs), and Group 4 (50+yrs), according to their age. This helped me to see which age group was most informed.</p> <p>Results Out of 300 people, only 3 actually knew the correct answers on my survey. The three individuals were aware of the numbers on the bottom of plastic containers and were able to tell me which ones were hazardous to their health. One person that answered correctly was in Age Group 3 and two other people were in Age Group 2.</p> <p>Conclusions/Discussion The age group that was most aware was Age Group 2 (31-40yrs), however, only 2 people out of 75 knew the correct answers. With this knowledge, I know that the news has not been going around as efficiently as it can. I can improve this by telling friends and family. I no longer buy or drink plastic bottles that contain a recycling number of 3, 6, or 7. In doing this, I will stay clear of any hazards they come with and will do my best to inform others. I have spread some of the news already and will continue to do so. Since I have been using the Scientific Method, I can now use it easily and will use it in future projects.</p>	
Summary Statement My project was a survey to see how many adults were informed about the hazards of plastic containers based on what chemicals they contain.	
Help Received My mom helped me with my display board, my dad helped me conduct my surveys, and my teacher, Ms. Reed, helped to guide me through this project.	



CALIFORNIA STATE SCIENCE FAIR 2009 PROJECT SUMMARY

Name(s) Rachel M. Beck	Project Number J0303
Project Title Labels: Can You Tell the Difference?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The average American watches more than 4 hours of TV each day. In those hours we spend about one third of that time watching just commercials! These commercials basically tell us that what we wear, what our house looks like, and what we own is all wrong. We want to update those looks so we can feel better about ourselves and we have created an image for ourselves based on our material things. Consumer companies continue to change their looks so as soon as they change, we will change with them so we don't have last season's clothes. As a teen, my generation is the #1 target for consumer goods. Teenage girls purchase designer labels, because they feel better about themselves when they wear them. This is because they are generally expensive in most views, and they are made to fit slimmer, more model-like bodies. It's like we are buying an image and the label instead of the quality.</p> <p>Methods/Materials So for my project, I found the top three designer labels at my middle school; Abercrombie, Aeropostale, and Hollister. Then I found the least liked three non-designer labels at my middle school; Target, Sears, and Wal Mart. I went to the websites of each brand name and found 8 items of clothing from the designer labels that were similar to the eight I found at the non-designer name brands. I uploaded the pictures onto an application on my computer called paint where I removed the labels from each of the items in the pairs, and switched them. So after I was finished, it looked like the clothes originally from the designer labels were from one of the non-designer stores, and the non-designer clothing looked like they were from one of the designer stores. I was able to make 100 middle school girls believe the items were from the opposite stores. Then for the placebo, I switched them back and used the original brand names and I asked them which clothing item they liked better. I wanted to see if they would change their clothing decision based on the impact of the designer labels.</p> <p>Results In the end, 83 out of 100 of the middle school girls I tested changed their clothing decision at least once based on the impact of the designer labels! And out of a possible 800 changes that could have been made based on the designer labels, 233 were made. This means that about 30% of the time, teen girls will change their decision for the clothes they wear based solely on the appearance of the label.</p>	
Summary Statement I found out if designer labels effected the clothing choices middle school girls choes to wear.	
Help Received My mom helped me revise work and sew headerboard and mt dad helped purchase materials. My friend helped with testing, and my science teacher helped with any questions on written work.	



CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s) Asia B. Black	Project Number J0304
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Project Title
Are There Links between Certain Simple Phobias and Certain Social Phobias?

Abstract

Objectives/Goals
My hypothesis is that I will find links between certain simple/specific phobias and certain social phobias. There are two main categories of phobias, simple/specific phobias and social phobias. There are two other types of phobias (agoraphobia and hemophobia). My objective in doing this project was to find out if people who had particular simple/specific phobias also had certain social phobias in common. Which combined groups of phobias seem to correspond with each other within the two main groups of phobias.

Methods/Materials
My method of collecting data was typing a survey of phobias and distributing it to several different locations. I made up a survey that included the top 10 simple/specific phobias and the top 4 social phobias. I included Agoraphobia and Hemophobia aka Blood Injection phobias as separate categories. I also made sure to have fill-in spaces "OTHER" spaces for people who had phobias not listed on the survey. I also had a space for people to fill in "NONE" if they had no existing phobias in any of the categories.
I wanted to survey a wide range of people. I also needed to survey more adults than children. This was due to the fact that about 90 percent of children normally have phobias. However, probably 90 percent of my data was a collection of adult survey participants.

Materials: Survey of Phobias; People (240 people in total); Boxes for survey collections; Clipboards; Different locations for conducting my survey (street, medical and dental offices, school and e-mail); Computer (for analyzing data); Modeling clay; Wooden plaque.

Results
My hypothesis was correct. I believed that there were indeed links between certain simple and certain social phobias and there are.

Conclusions/Discussion
I have many graphs showing the resulting data, which will be submitted with the rest of my project. Here is a brief summary of that data:

The top 10 phobia pairs:

Public speaking & performing in public (both social).....36.5%
Being embarrassed & performing in public(both social).....24.3%

Summary Statement
My project is about finding which simple/specific phobias and which social phobias seem to occur as a combination in most people.

Help Received
Upon getting permission I conducted my survey at my family's doctor and dentist offices. My parents helped with some data organization.



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Erin E. Coates	Project Number J0305
Project Title To Trust or Not to Trust, That Is the Question	
Objectives/Goals The purpose of this project is to find out if gender has an influence on whom people choose to trust.	
Abstract Methods/Materials The first part of this project involved recruiting two people (one male and one female) to be the script readers for the project. Each script reader read the scenarios into a recording machine. In Script Version 1, Scenario 1(hiking), the female recording is played first. In Script Version 1, Scenario 2(snowboarding), the male recording is played first. In Script Version 2, Scenario 1(hiking), the male recording is played first. In Script Version 2, Scenario 2(snowboarding), the female recording is played first. These recordings were loaded onto a CD so they could be played to many people at one time. One hundred students were tested for this project. For half of the test subjects, the scenarios of the first version of the script were played and the test subjects wrote down which person they were going to trust for each scenario. For the other half of the test subjects, the scenarios of the second version of the script were played and they wrote down which person they were going to trust for each scenario.	
Results It was found that females trust people of their same gender more frequently than those of the opposite gender. For the male test subjects, males trust people of the opposite gender more frequently than people of their own gender. It was also found that the majority of the male test subjects trusted the directions given to them first.	
Conclusions/Discussion The hypothesis, when trusting people, a person is more likely to trust another person of their own gender over someone of the opposite gender, was proven partially correct. It is only partially correct because the majority of the female test subjects chose to trust the female in each scenario, but the majority of the male test subjects chose to trust the female in each scenario or the order of the voices.	
Summary Statement A person's willingness to trust or follow sometimes is influenced by the gender of the leader.	
Help Received Mrs. Elaine Gillum for helping me find test subjects and giving me space to work on my project, Mr. David A. Pizzaro for being my email mentor.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Gregory L. Edels	Project Number J0306
Project Title Motivation vs. Desire	
Abstract Objectives/Goals To determine if a student's performance of a mental or physical task would be improved by offering a reward at completion. Methods/Materials Materials included permission slips; a testing binder; test subjects (ages 8 - 14); log-in sheets; a basic multiplication test; a track for running; a large bag of candy; a timer; pencils; and, "Yes/No" cards. Results The group that was not offered a reward performed best on the multiplication test and the running task. Conclusions/Discussion Offering rewards does not improve one's performance.	
Summary Statement This study tested whether motivation from rewards affects a student's desire.	
Help Received Parents helped with research and typing; Ms Reynolds gave much moral support.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Michael J. Feldman	Project Number J0307
Project Title Decision Making in the Face of Risk	
Abstract Objectives/Goals My objectives were to determine (A) how people make decisions when faced with uncertainty and (B) how the framing of a question influences their choices. I expected that teenagers would be more likely than adults to be affected by framing, and that adults, particularly, women, would be more risk averse than teenagers. Methods/Materials Questionnaires were designed to test (i) the effect of framing on people's choices and (ii) risk aversion in two different situations. Two types of questionnaires were distributed to randomly selected teens and adults. Completed questionnaires were sorted by type, age, and gender. For each group, parameters of interest were estimated using 95% confidence intervals, and the differences between different pairs of populations were examined using 95% confidence intervals. This project involved learning methods of statistical inference and mastering Microsoft Office 2007 Excel. Results The study showed that framing has a bigger effect on teenagers than on adults: teenagers reacted strongly to the difference in the framing of the same question on questionnaires A and B, while for adults the observed difference was not significant. Contrary to my hypotheses, teenagers tend to be more risk averse than adults and the difference in proportions of risk averse male and female subjects was not significant. Conclusions/Discussion The study shows that teens are strongly influenced by the framing of a question. The study also shows that when faced with an uncertain situation involving financial gains and losses, teens tend to be more risk averse in their choices than adults. This study does not support the hypothesis that female and male subjects have different attitudes towards risk aversion. This is particularly interesting because intuitively one might expect the opposite. Because risk aversion and responses to wording are important in many areas of life such as education, psychology, economics, etc., these findings are important and should be investigated further.	
Summary Statement Compare (i) the effect of framing and (ii) risk aversion in two different situations on teens and adults.	
Help Received Dr. Holmes (UCSB) gave me her textbook and guidance on what to learn.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Taylor Y. Hurlock	Project Number J0308
Project Title Happy, Happy, Joy, Joy: Determining Changes in Happiness Before and After Watching Positive Videos	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Sadness can be a problem among junior high students. One way to decrease sadness among this group was found in this experiment. The objective of this study was to determine the difference in happiness before and after watching three different types of positive videos: a comedy, a friendship and a romantic video. The hypothesis stated that the comedy video would increase happiness the most because of the increase in endorphins when a person laughs.</p> <p>Methods/Materials Eight 7th grade subjects were used for this experiment, including seven girls and 1 boy. Two trials were conducted on different days. During each trial, four of the subjects watched all three videos. Each video was viewed on a different day. The other four subjects watched no videos and just rested during the testing time, which was two minutes in length. Prior to watching each video or resting, each subject was given a test which consisted of 5 questions which would rate their happiness. After watching the video or resting, the subject took the test again to see if their happiness changed and how much, if it did.</p> <p>Results The results of this experiment showed that watching the comedy video increased the subjects happiness the most. The average of the differences for the comedy video for both trials was 2.625, for the friendship video it was 2.125, for the romantic video it was .875, and for the control group it was 0. The results correlated with the purpose because results told of the averages of the differences for each video.</p> <p>Conclusions/Discussion The hypothesis was proven right. If a junior high student is unhappy and they are choosing to watch a video to increase their happiness, this experiment would indicate that the video they need to choose would be a comedy. Watching this video will produce endorphins, also known as the "happy chemical", in their body which will cause relaxation and good mood through positive physiological and biochemical changes. These changes will cause a person's happiness to increase.</p>	
Summary Statement This project was about comparing the effects that watching three different, positive videos have on a person's happiness.	
Help Received Sister helped with creating the original idea;Teacher assisted in preparing the project; Mother helped to perfect the abstract and the board; Subjects volunteered their time to the experiment.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Emily P. Imfeld	Project Number J0309
Project Title Investigating How the Appearance and Presence of a Dog Affects Donations	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My goal was to see if the appearance and presence of a dog of effect how much, if anything people would donate to the local SPCA. With this knowledge I can help local organizations plan successful fund raising events.</p> <p>Methods/Materials Method: Set up area with kennel, table, sign and chair at Vons Grocery Store; Put dog in kennel; Sit in chair and wait for adults to walk pass(don't attract any attention);As adults walk pass, mark either male and female and if they donated (no verbal cues);Count 200 people, then leave; Repeat for each variable Materials 6 Dog Types - Big, Small, Friendly Looking, Mean Looking, Control (no dog) and Stuffed; 4x4 Portable Wire Kennels; Clipboard and Paper; Table & Chair; Jar for Donations; Poster Board 20"x30"; People</p> <p>Results My hypotheses stated that the control (no dog) would get the least number of donors, which was correct. I was also correct when I stated that the mean looking dog would get the second least donors. I found that my hypothesis for the small dog was incorrect. My hypothesis stated that the small dog would get the most donors due to the fact that most people would think that he/she was cute. Less than 5% of the 200 people who passed to the control (no dog) donated. When compared to the control (no dog) The Mean Looking Dog and the Small Dog they had over 66% more donors. The Friendly looking Dog and the Big Dog both received 25 donations each. Comparing The Friendly looking Dog and the Big Dog to the control (no dog) they received 177% more donations. The real surprise was the Stuffed Dog. With 22 donations, it was right on the heels of The Friendly looking Dog and the Big Dog. 144% more donors than the control (no dog). Out of 1,200 people that passed our area 110 people donated, which is 9%. 55% were female and 45% were male. However, 70% of the donations were from females and 30% came from males. The male and female donation pattern was almost identical to the overall group, + or - 3%.</p> <p>Conclusions/Discussion The dogs, whether alive or stuffed, who had a more positive or happy image received more donors. The less attractive dogs received fewer donors, but were still better than no dog. This proves a positive image is always better than a negative image.</p>	
Summary Statement Seeing if different looking dogs can have an effect on people willingness to donate	
Help Received Mother helped type report and create graphs, Dad and sister helped set up donation table	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Katie M. Jackson	Project Number J0310
Project Title What Are Your Hands Telling About Your Personality?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine if you can tell an introvert from an extrovert based on different hand gestures.</p> <p>Methods/Materials Interviews were held for teenagers, between the ages of 12-16. The interviews were videotaped and later, the performed gestures were charted. After, all participants took the Myers Briggs Personality Test to use as a comparison for charted results.</p> <p>Results In most cases, my hand gesture test, and the Myers Briggs Test matched. The most common gesture was hands on the surface - an extroverty characteristic. The least common gesture was clenched fists - an introvert characteristic.</p> <p>Conclusions/Discussion The hypothesis was correct that you can tell an introvert from an extrovert based on different hand gestures. In most cases, both tests matched, proving that the hypothesis is correct.</p>	
Summary Statement Are you able to tell an introvert from an extrovert, bases on different hand gestures?	
Help Received none	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Beau C. Kittleson	Project Number J0311
Project Title What's Your Math "Add"itude?	
Objectives/Goals My objective was to learn if there is a correlation between a parent's attitude towards math and their child's attitude towards math.	
Abstract Methods/Materials I created a survey on excel that had 4 questions each for parent and child pairs worth a total of 20 points. I recorded the parent and child scores in an excel spreadsheet and made a graph of the total scores from each parent/child survey pair. I calculated the absolute value of the difference of the parent/child scores and recorded this value on a scatter plot. I created a line plot from this data to show how many pairs had a particular point difference. I then interpreted the data with the following criteria: If the difference of the parent/child score was 4 or less there was a correlation between the parent's attitude and the child's attitude. If the difference was greater than 4, there was no correlation between those samples.	
Results Forty six surveys were collected. Thirty eight out of the forty six (38 out of 46) parent/child pairs tested were within a 4 point differential of each other, and thus showed correlation. Eight parent/child pairs did not have a close final score and thus did not correlate.	
Conclusions/Discussion My hypothesis was proved because, based on my criteria, there was a correlation between the parent and child attitudes towards math. I think there was a correlation because if a parent communicates their feelings about math with their child, the child will most likely share the same feelings. I took my project a step further and looked at the data to see if there was a positive or negative correlation between the parent/child attitudes toward math. I found out that there was a 67% positive correlation, which meant that when the parent had a positive attitude the child had a positive attitude. I also learned that there was a 15% negative correlation which meant that when the parent had a negative attitude, the child then had a negative attitude. This project could be really helpful to parents because if they treat their children with a positive Math #Add#itude#, their children will most likely reflect this positive attitude and do better in math.	
Summary Statement This project investigates if there is a correlation(negative or positive) between a parent's attitude towards math and their child's attitude towards math.	
Help Received mother helped print out the graphs, mother discussed methods for determining correlation.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Daniel A. Kruger	Project Number J0312
Project Title Got Trash? II	
Objectives/Goals My project title is Got Trash? II. My purpose in doing this project was to see if there is more plate waste now or three years ago. I decided to do this experiment, because three years ago, when I did my science project on plate waste, our cafeteria was serving more food with less healthy items. Two years ago our cafeteria made menu changes that reduced the amount of food served and added healthier items. I was curious to see if students were throwing away more or less food with these changes. My hypothesis is that there is now more platewaste.	
Abstract Equipment: Small scale that weighs in ounces, large scale that weighs in pounds Everyday,I would weigh a sample tray being served and record the weight. Next I would write down the menu for the school lunch being served that day. After lunch I would go to the cafeteria and use the scale that measures in pounds to weigh the now full trash cans. I also wrote a survey that asked students what they liked and disliked about the cafeteria menus.	
Methods/Materials Equipment: Small scale that weighs in ounces, large scale that weighs in pounds Everyday,I would weigh a sample tray being served and record the weight. Next I would write down the menu for the school lunch being served that day. After lunch I would go to the cafeteria and use the scale that measures in pounds to weigh the now full trash cans. I also wrote a survey that asked students what they liked and disliked about the cafeteria menus.	
Results Year 2006: 2300 lbs. waste, 264 oz. tray weight, 1984 students served 11 days. Year 2008: 1513 lbs. waste, 285 oz. tray weight, 2517 students served 15 days. Year 2006: 2300 lbs/11days = 209 lbs. avg. daily waste, 264 oz/11 days=24 oz. avg. daily weight of tray, 1984 students/11 days = 180 avg. of students served Year 2008: 1513 lbs/15 days=101.87 lbs. avg. daily waste, 285 oz/15 days=19 oz avg. daily weight of tray, 2517 students/15 days =168 avg. of students served 2006:180 avg. students served X 24 oz. avg. tray weight = 4320 oz/16 = 270 lbs. 270 avg. lbs. served - 209 avg. lbs. waste = 61 avg. lbs. eaten/day 2008: 168 avg. students served X 19 oz. avg. tray weight = 3192 oz/16 = 200 lbs 200 avg. lbs. served - 102 avg. lbs. waste - 98 avg. lbs eaten/day	
Conclusions/Discussion My hypothesis was that there is more plate waste now than three years ago. I thought that there would be more plate waste, because the lunches now include healthier foods. My data showed that my hypothesis was wrong. There was less plate waste, yet the students thought they were eating less according to surveys. If I were to do this experiment again, I would test more days. I would summarize my results as follows: The cafeteria is serving less food per student. The cafeteria is serving healthier food. The students are eating more, but the majority of them do not think so.	
Summary Statement My project is about how much cafeteria food is wasted at my school.	
Help Received My mother helped type the report.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Anisha Kumar	Project Number J0313
Project Title Does Encouragement Really Help?	
Abstract Objectives/Goals For my experiment I tested how different types of reinforcement, namely positive, neutral and negative affects performnace. My test revealed that positive reinforcement affects performance the best. Encouragement and positive comments led to better and higher scores. This topic is pertinent to society in general. Methods/Materials For the materials I used a task worksheet, stopwatch, pens, observation sheet and post-task questionnaire. My subjects were 11-14 year olds and 25-55 year olds unknown to me. My sample size was 84. After handing the subjects the test and instructing them what to do, I told the subject to start. I timed them without their knowledge. While they were taking the test, I observed them and filled in the data chart. Also, every 45 seconds I said a comment to them, according to the type of reinforcement they were given. After they were done, I handed them the post-task quesitonnaire depending on the type of reinforcement given. After they were finished, I debriefed them about my topic and I recorded the results. Results My hypothesis was if positive, neutral and negative reinforcement is given to subjects, then subjects given positive reinforcement will perform better than subjects given neutral or negative reinforcement. It proved to be true. Both adults and kids given positive reinforcement scored higher than those given neutral or negative reinforcement. I took a T-Test to discover if the means of the groups were statistically significant. In order to do this I had to calculate the standard deviation. The only means that came out significant at the confidence level of 99% were: children with positive or negative reinforcement; children with neutral or negative reinforcement; adults and children with positive or negative reinforcement. Conclusions/Discussion The post-task quesitonnaire revealed that: 50% of the subjects given positive reinforcement were affected by the experimenter's comments; 50% of the subjects given neutral reinforcement said they would have performed worse if they had been given negative comments; 64% of the subjects given negative reinforcement said they were affected by the experimenter's comments. In general, I found that the adults did better than children. Adults have higher self-esteems. Children,are still in their formative years and are easily influenced by other's comments.	
Summary Statement My project tests how positive, neutral and negative reinforcement affects performance.	
Help Received Dr. Rastogi was my mentor.	



CALIFORNIA STATE SCIENCE FAIR 2009 PROJECT SUMMARY

Name(s) Grace I. Ng	Project Number J0314
Project Title Perception vs. Reality on Sport Drinks: Are You Label-Able?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The ability to read nutrition facts labels is crucial when choosing healthy foods. This research is trying to determine which age group, middle school students, high school students or adults and which gender interpret the nutrition label most accurately.</p> <p>Methods/Materials Devise a questionnaire to record the subject's age group, gender, ranking of sport drinks. Select subjects from a middle school, high school, and the general population. Select the top five sport drinks based on a pilot study on common sport drinks consumption. Subjects were first asked to rank the sport drinks based on prior knowledge of the sport drink. Subjects were then asked to rank the sport drinks again after they read the nutrition facts label. Questionnaires were then checked for completeness upon turn in. Comparisons were made between before and after among different age groups and gender. Comparisons were also made between subject's ranking and an objective ranking.</p> <p>Results There were a total of two hundred two subjects who completed the questionnaire. 61 subjects (30%) were middle school students, 70 subjects (35%) were high school students, and 71 subjects (35%) were adults. 68 subjects (34%) were male and 134 subjects (66%) were female. Less than half of the subjects were able to identify the presumably healthiest sport drink; similarly, only 29% of subjects identified the least healthy sport drink correctly. Sport drinks ranked the highest on the appearance continued to rank the highest after subjects reviewed the nutrition facts label (Before:After 47%:51%). Two sport drinks ranking moved upward (Before:After 23%:29% and 24%:26%). Two other sport drinks ranking moved downward (Before:After 26%:22% and 27%:16%).</p> <p>Conclusions/Discussion The results support the hypothesis that adults have the most accurate perception and evaluation of sport drinks, with or without the nutrition labels. It is demonstrated by the relative coherence rankings for the most and the least healthy sport drinks, before and after reading the nutrition facts label, for the adults. On the other hand, the lack of unity of rankings among most sport drinks within different age groups may imply the knowledge that all subjects acquired formally and informally are not adequate to equip them to make educated choices among an array of sport drinks.</p>	
Summary Statement Perception and interpretation of sport drinks and their nutrition fact labels among different age groups and genders.	
Help Received Thank you to my parents for giving me support, encouragement, and valuable advice; Mrs Armstrong for her trust and helpful suggestions; Miss Smith and Mrs. Maiorca for allowing me to conduct my survey in their classes.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Nicole L. Sinno	Project Number J0315
Project Title Power of Persuasion: The Effects of Bias on Decision-Making	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Last year was an election year. I watched television commercials supporting and opposing various propositions and read arguments for and against the issues. It seemed the wording of the presented facts influenced my opinions. The purpose of this project was to see if a factual survey could be written to obtain a desired outcome, and document if opinions would change when participants were later presented with both sides of the issue.</p> <p>Methods/Materials I spent many hours researching three controversial topics: the legal age of driving in California, the use of genetic engineering for crops, and the purchase of foreign cars. I wrote six one-sided, factual paragraphs, three supporting the issues, and three opposing. I went through many revisions. I interviewed participants regarding prior knowledge for the three topics. I performed a total of 444 tests. The purpose of my first test was to see if the participants would be influenced when presented with one sided arguments. My second test consisted of introducing both sides of the issue to see if the participants would change their opinions once both sides of the argument were presented. In each test, the participants had to rate (1-10) how much they agreed with a final statement.</p> <p>Results I found that having prior knowledge biased the outcome. I focused on the topic that was not familiar to the students to more accurately assess the effects of my paragraphs alone. I evaluated the results. Students who read a paragraph supporting the use of GMOs scored a mean of 7.5, had a mode of 10 and a median of 9, indicating they agreed with GMO usage. Students who read a paragraph opposing the use of GMOs had a mean, median, and mode of 3. This meant they opposed GMO usage. After being presented with both paragraphs, the participant scores changed very little.</p> <p>Conclusions/Discussion According to the results, presenting only one side of an issue did manipulate thinking. It also appeared that once the participants had formed an opinion through reading the initial one-sided paragraph, even after reading both sides of the argument, their opinions rarely changed.</p>	
Summary Statement The purpose of this project was to see if a factual survey could be written to obtain a desired outcome and note if opinions would change when both sides of the issue were later presented.	
Help Received Thanks to my parents for their encouragement. Thanks to my science teacher for her guidance.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Rebecca C. Stark	Project Number J0316
Project Title Cars and Children at Play	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project was to investigate the most effective way to keep children safe and prevent accidents when children are playing on or near streets. I wanted to observe the influence of children in the street and different warning signs on drivers.</p> <p>Methods/Materials First, chalk was used to mark four hundred feet on the street. The person at the beginning and end of the four hundred feet had a walkie-talkie. The person at the end also had timer. A plastic child sign and a clapboard "Slow" sign were used in the project, each one tested with and without a kid playing on the street.</p> <p>Results Overall, the plastic child sign (sign 1) with a child playing on the street was the most effective in the slowing down the driver. The clapboard sign (sign 2) did slow the car down a significant amount, but not as much as the plastic child sign. Both signs are more effective if a child is present in the street.</p> <p>Conclusions/Discussion Although playing on the street is never truly safe, these "Caution: Children at Play" signs do reduce the drivers speed significantly. Drivers know to watch for children when driving, so when a child is on the road, a driver will slow down more compared to when there is just a sign.</p>	
Summary Statement I tested the speed of cars with the presence of two different signs and a child playing on the street.	
Help Received Dad helped by telling me when to start timing using a walkie-talkie while I was at the end of the four hundred feet; mom helped with excel graphs.	



CALIFORNIA STATE SCIENCE FAIR 2009 PROJECT SUMMARY

Name(s) Anna T. Thomas	Project Number J0317
Project Title Prospect Theory: Assessing Financial Risk Taking Patterns in Children	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To establish whether irrationality in financial decision making is innate or develops over time; specifically, to determine whether children follow the four fold pattern(FFP) of risk attitudes described in Prospect Theory(PT). The four risk attitudes are: 1) risk-averse over high-probability gains, 2) risk-averse over low-probability losses 3) risk-seeking over high-probability losses, and 4) risk-seeking over low-probability gains. "Risk-averse" indicates a preference for an assured gain[loss] over a gamble with equal expected value(EV). "Risk-seeking" indicates a preference for the gamble. These attitudes are irrational; a perfectly rational human would be neutral to a choice between a certainty and a gamble when they have equal EV. A second objective was to establish if a gender variation exists for risk taking in the age group tested.</p> <p>Methods/Materials A 14-question survey was administered to 29 boys and 37 girls, aged 11-13, to test for each risk attitude by presenting choices between a gamble and the EV of the gamble. It included three questions for each attitude and two questions that gauged understanding of the material. Each question had two possible answers, A and B. Selection of A indicated risk-averse behavior; B indicated risk-seeking behavior.</p> <p>Results The results were compared with the PT results for adults available online. On average, 79% of adults and 42% of children had selected choices consistent with PT. After conducting a Z-test, it was determined that children did not exhibit any of the four attitudes; analyzing each gender separately yielded the same result. Also, 49% of boys' and 52% of girl' choices were B (risk-seeking). A Z-test confirmed that neither gender was more risk seeking.</p> <p>Conclusions/Discussion This project has established that children do not follow the FFP, a pattern verified in adults. This suggests that a stage in human development exists during which the FFP emerges. Therefore, in order to prevent the dominance of these irrational risk attitudes, it is vital to begin financial education prior to this stage, while risk attitudes remain unbiased. These new findings are especially relevant during the current economic crisis, which has highlighted the need for more financial education. Further research would be aimed at determining the age at which the attitudes described in PT emerge and examining the development of risk taking behavior from childhood to adulthood.</p>	
Summary Statement The purpose of this project was to determine whether the irrational risk attitudes present in adults and described in Prospect Theory are innate or developed over time; if innate, children should exhibit the same irrational behavior.	
Help Received Father proofread board material; mother helped with board display; Mrs. Leni Tomasso facilitated testing in science lab.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Pilar Torres	Project Number J0318
Project Title Multitasking Capability: Do Age or Gender Matter?	
Abstract Objectives/Goals Multitasking describes what an individual does who is participating in more than one task simultaneously. The purpose of this project was to try to assess whether males or females are better at multitasking and at what age the ability to multitask is at its peak. Methods/Materials Ninety five test subjects between the ages of seven and 86 were divided into six age groups and given a multitasking test incorporating both visual and verbal cues. Subjects looked at a series of triangles and were instructed to record information regarding the triangles while simultaneously, a voice recording instructed subjects to write down letters or numbers in another column on the answer sheet. Results Of the six age groups tested, the 20 to 39 year old age group scored highest with an average score of 42.3 points. The ten to nineteen year olds had a 7% lower average score at 39.3 points. The 60-69 year olds had a 25% lower mean score of 32 points. The 40-59 year olds ranked fourth with a mean score of only 30.7 points. The 70 and older age group ranked fifth with a mean of 22.3 points. The 7 year olds scored lowest with a mean score of 17 points. The mean score for males was 36.7 points, which was significantly different from the mean female score of 33.1 points. Conclusions/Discussion In this study, on average, the males scored higher than the females in their ability to multitask. The results of this study suggest that the ability to multitask may peak between the ages of 20 and 39, and drop dramatically after the age of 70. The results of this test also suggest that men may be slightly better at multitasking or at least as good at multitasking as women.	
Summary Statement The purpose of this project was to try to asses whether males or females are better at multitasking and a what age is the ability to multitask at its peak.	
Help Received Thanks to the subjects who volunteered in my tests. Thanks to my mother for driving me to test locations. Thanks to my science teacher for her support.	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Megan L. Uy	Project Number J0319
Project Title What Are You Afraid Of?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I wanted to find out if people's fears change with age and if people of different age groups have different fears. So I formed a yes/no questionnaire on fear and I surveyed a total of ninety-six people aging from 7-72. Then I tallied the results of yes/no responses to the fear questions and divided in four categories. The results of my experiment showed that people of different ages had somehow similar fears. That no matter what age group, people mostly fear human interaction and nature. Through research, I did not find out that fear comes in many guises and do change as we age. As we grow, we outgrow our unreal or irrational fears. Our fears become tied to specific dangers, threats, and situations that we encounter.</p> <p>Methods/Materials Materials/Subjects: 1.People of Different Ages; 2.White Paper; 3.Pencil; 4.Pens; 5.Printed Interview Questions/Questionnaire; 6.Computer; 7.Printer.</p> <p>Results Basing on the tally results, here are my observations: (total number of people interviewed:96) a.Most of the 7-12 age groups fear human interactions more than the other categories. b.Most of the 13-18 age groups are afraid of human interactions and nature. c.Most of 19-24 age groups fear nature and human interactions compared to the other categories. d.Most of the 25-30 age groups are afraid of nature. e.Most of the 31-36 age groups are afraid of nature. f.Most of the 37-42 age groups are afraid of nature. g.Most of the 43+ age groups are afraid of nature.</p> <p>Conclusions/Discussion Basing on the results of my experiment, I conclude that even though their fears differ in other categories, majority of the people that participated, no matter what age group they belong in, feared human interaction and nature the most. I also conclude that a person's fear may not only be determined by how old that person is but perhaps also by other factors such as their environment or cultural background, which i have not considered to include in my experiment. Although I have learned from my research that fear changes and differs with ages, I do not have enough data to support my hypothesis because the results of my surveys show that people of different ages somehow have similar fears.</p>	
Summary Statement How Does Fear Change and Differ With Age?	
Help Received My mom helped by handing questionnaire to her co-workers,she also brought me to the mall so I can hand my fear questionnaire to some mall employees, and she helped with editing my report. Dr. D., one of my schoolmates' parent, gave me ideas on how to format my fear interview questionnaire. Mr. Kreeger, my	



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Alexandra L. Bollman	Project Number J0399
Project Title Seeing Is Believing: Eye Improvement by Motivation of the Human Mind	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals It is my hypothesis that the mind has the ability, to a certain extent, to overcome limitations of the body. In this experiment there were two groups of subjects, proven and might work. I predict that the people who are told that the eye exercises will definitely improve their vision will improve. Those who are told that they might improve will remain the same.</p> <p>Methods/Materials In order to conduct this experiment I used the following materials: Snellen eye chart, two small rubber balls, Presbyopia Reduction exercise sheet, Pencils, Measuring tape (at least 10ft), Surveys (proven and might work). My Method was to gather subjects and give them one of the two surveys. Subjects were alternated between proven and might work, except when two or more subjects were tested together they would receive the same survey. Subjects eyesight was tested with a Snellen chart. Subjects were stopped at the end of the first line read imperfectly. The number of correct characters was recorded. Subjects then performed three vision exercises: Tromboning, Presbyopia Reduction and Tension Reduction Ball Toss. Then each subject was retested with the Snellen chart. The Snellen chart was out of sight during the exercises. These steps were repeated for over 42 test subjects. There were also 15 test subjects that scored 100% on the first snellen test, these subjects were discarded from the experiment, as they had no room for improvement.</p> <p>Results Of the 23 proven test subjects, 20 improved and 3 did not. This means 86% of this group improved their vision. The proven group averaged an improvement of 5.6 letters. Of the 19 might work subjects tested, 8 stayed the same, 2 became worse and nine showed some improvement. The might work subjects improved an average of 2.6 letters. In the might work group 53% either stayed the same or got worse and 47% charted some improvement.</p> <p>Conclusions/Discussion The majority of my test subjects in both groups confirmed my prediction. The data I collected shows the might work group, who were told that the results of the exercises were inconclusive, did not improve at the same rate as the proven group. This supports the hypothesis, showing the power of a person's mind to influence the body's actions. The mind can perform extraordinary tasks and in the case of my experiment, believing really is seeing.</p>	
Summary Statement Can motivation of the human mind effect eye improvement	
Help Received Mother drove me to test subjects houses and helped assemble the board	