



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Ariba S. Aboobakar</b>	<b>Project Number</b> <b>J1401</b>
<b>Project Title</b> <b>Planet Planaria</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The question was whether caffeine increases or decreases the total growth of planaria during their regeneration period, than if they were to be in their usual pond water. The hypothesis was that caffeine would decrease the total growth of the planaria, because it is a harmful drug. <b>Methods/Materials</b> To test this, 20 planaria were cut in half, and 20 of the halves were left to regenerate in their usual pond water. The other 20 were placed to regenerate in caffeine water. 40 plastic cups, 1 metric measuring cup, 20 freshwater planaria, 1 100mG caffeine pill, 2000 mL of pond water, 1 permanent marker, 1 disposable plastic dropper, 1 small utility knife, 20 petry dishes, 7 icepacks, and 1 metric ruler were the materials used to test my question. <b>Results</b> After 12 days of observing the planaria and recording their growth, the results showed that the untreated planaria had an average growth of 0.7mm, while the caffeine treated ones had an average growth of only 0.5mm. The results pertain to the objective because they show that planaria grow better in their usual pond water. The results also show that caffeine is harmful to planaria. <b>Conclusions/Discussion</b> The results did prove the hypothesis correct. I was able to attain my objective of observing what type of effect caffeine has on the growth of planaria. This experiment helps people learn more about Animal Biology because it tells us that what is stimulating to humans may not have the same effect on animals. Also, it gives us more information on how animals adapt to new environments.	
<b>Summary Statement</b> The project's central focus was to see whether caffeine does or does not have a stimulating effect on the regenerational growth of planaria.	
<b>Help Received</b> Mother bought the materials and HELPED cut the planaria in half	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Elizabeth Y. Adabale</b>	<b>Project Number</b> <b>J1402</b>
<b>Project Title</b> <b>What Is the Effect of Smoke Inhalation on the Stability of a Spider's Web?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My goal for this project was to show all smokers that by smoking a cigarette, they are not only affecting the people surrounding them, but possibly the insects and animals that surround them. I wanted to see whether a web built by a spider not exposed to smoke could hold more pennies than a web built by a spider that was exposed to smoke. <b>Methods/Materials</b> I started by placing two wooden frames in 2 5- gallon water jugs that had been cut from the bottom. These served as supports for the spiders (orb web weaver spiders)to build their webs. In one jug, the spider was placed on the wooden frame. This jug was placed on aluminum foil and was covered at the top of the jug with a ziploc bag with holes punched in it. The other spider had pretty much the same conditions, but a cigarette was burned 2 cigarettes at 3 different times a day (6 A.M., 2 P.M., and 10 P.M.). The cigarettes were burned in an ashtray at the bottom of the water jug. At the end of 7 days, the wooden frames were removed which had the spider webs on it. The spiders were set free. I placed a blank sheet of paper on the webs to serve as a flat surface and recorded how many pennies each web held. I repeated this 5 times using a different set of spiders each time. <b>Results</b> Trial #1 Spider with smoke: 109 pennies Spider without smoke: 211 pennies Trial #2 Spider with smoke: 102 pennies Spider without smoke: 201 pennies Trial #3 Spider with smoke: 115 pennies Spider without smoke: 198 pennies Trial #4 Spider with smoke: 99 pennies Spider without smoke: 187 pennies Trial #5 Spider with smoke: 124 pennies Spider without smoke: 215 pennies <b>Conclusions/Discussion</b> This turned out to be a successful experiment. My original hypothesis was the spider exposed to the smoke will have a less stable web than the spider not exposed to smoke. The results showed that smoke did affect the stability of a spider's web. When a spider was not exposed to smoke, its webs were able to hold more pennies. However, the tested spider held only half of what the control spider held. In the end, my hypothesis was supported.	
<b>Summary Statement</b> My project measures how smoke inhalation can dramatically affect common behavior such as a spider building a strong web.	
<b>Help Received</b> My mother helped me purchase most of the items such as the cigarettes and the water jugs.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Lacey A. Benefiel</b>	<b>Project Number</b> <b>J1403</b>
<b>Project Title</b> <b>Environmentally Friendly Pesticides</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The goal of my project is to find an environmentally friendly way to kill or repel pests. The reason I am doing this project is because different chemical pesticides either kill other animals or infect our drinking water. Sometimes they don't even work because the pests adapt and are able to build resistance against the pesticide. From this, I will learn if chemical pesticides are the only ones that work or if there is an environmentally friendly way to kill and repel pests. <b>Methods/Materials</b> In my search to find environmentally friendly pesticides, I will use crickets to represent pests that might be found in crops and daphnia to make sure that the ground water will not be polluted. I will create a terrarium by tipping a plastic container so that the 100 ML of water will stay on one side. I will put 2 crickets on the dry (land) part and 2 daphnia in the water. For each different, natural pesticide, I will put it in a spray bottle and spray it 2 times for each trial. The different natural pesticides I will be using are: vinegar, jalapenos, orange peels, garlic, and water (control group). <b>Results</b> The results of my investigation to find an environmentally friendly pesticide indicated that jalapenos worked best to kill and repel pests. The jalapenos killed more pests in an fastest averaged time period. The orange peels killed the same amount of pests, but in a slower averaged time. Of the remaining pesticides, each only killed 1 pest, but the garlic did it in a faster time. <b>Conclusions/Discussion</b> After my search, I found that the jalepenos worked best as an environmentally friendly pesticide. It killed the greatest amount of pests in a faster averaged time. I also found that the vinegar was the least effective pesticide and killed only a small amount of pests in a longer time period. In conclusion, we should be careful with any chemical pesticides we may use so we don't harm the environment around us. If more farmers used natural pesticides like jalapenos, our planet would be better off.	
<b>Summary Statement</b> I am looking for an environmentally friendly pesticide to replace harmful chemical pesticides which are used today.	
<b>Help Received</b> Mr. Karl Gong, District Science Specialist, and Miss Heather Gray, Project Advisor, helped to improve project; Mother and Grandmother helped type report; Father and friends helped put board together.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Araceli C. Brambila</b>	<b>Project Number</b> <b>J1404</b>
<b>Project Title</b> <b>Ants Be Gone!</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The purpose of this experiment was to test everyday household items to see which was the most effective to use as an organic ant repellent. If a good organic repellent can be found, people will not have to use harmful chemicals that may also harm themselves to keep ants away. <b>Methods/Materials</b> My experiment consisted of four experimental design groups and a control. The control was two teaspoons of honey on an upside down bowl. The reason for the bowl was to ensure that the repellent would not soak into the ground. Ants are extremely attracted to honey, so more ants would come to the experimental design groups and I would have a better chance of recording accurate information. Each day I would set up the five experimental design groups, and would count how many ants came through the ring of repellent that I set around the honey. This number I would then compare to the number of ants that went to the control group and the number of ants that went through the ring of repellent in the experimental design groups. The experimental design group with the least amount of ants was the best to use as an ant repellent. <b>Results</b> After completing my experiment, I concluded that cinnamon was the most effective repellent. This was because of the same reason in my hypothesis - the strong smell, and because the cinnamon stuck to their feet. Many people think that cinnamon may attract ants rather than repel them. When an ant smells something sweet it will be attracted to it. Therefore, when I put out the experimental design group with the cinnamon, ants were not as attracted to it because it didn't smell sweet to them. I also concluded that even though the cinnamon repels ants, it attracts slugs; the reason why, I am not sure of. <b>Conclusions/Discussion</b> Even though cinnamon was the best, it did not completely prevent ants from reaching the honey. There were still a couple of ants at the cinnamon experimental design groups, but it had the least compared to the others and the control. I think that chemical products overall are the best ant killers because they do not contain anything at all that ants would be attracted to. In the future, organic repellents will probably be produced that are safer and more effective. My experiment will never be totally complete as there will always be some questions remaining having to do with other possible materials as effective organic repellents.	
<b>Summary Statement</b> I tested various household materials to discover which was the best to use as an organic ant repellent.	
<b>Help Received</b> My father helped put my board together.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Alexandra M. Carni</b>	<b>Project Number</b> <b>J1405</b>
<b>Project Title</b> <b>Aspirin's Sweetest Friend</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My objective was to see if the presence of a carbohydrate (starch, complex sugar, fiber) affect the absorption rate of a Bayer Aspirin tablet. I hypothesized that there would be no significant change or difference with the presence of the carbohydrate. <b>Methods/Materials</b> My method of testing was done by submerging the plastic membrane filled with the aspirin, carbohydrate and stomach solution into a beaker of distilled water. I checked the pH of the water in even increments of twenty seconds for two minutes and recorded the data. This inferred that the aspirin was diffusing into the water because aspirin is acidic so that will allow the pH to drop. <b>Results</b> I found that the sugar had the quickest average of diffusion, in second came the aspirin with no carbohydrate, third came the starch which was followed by the fiber. Surprisingly the pH rose with the presence of the starch and fiber although it was a very small amount. I still haven't been able to determine why this occurred. <b>Conclusions/Discussion</b> I conclude that my hypothesis was correct by there being no significant change in the absorption rate of the Bayer Aspirin tablet with the carbohydrate's presence. I believe this happened because the carbohydrate is not absorbed in the stomach like the aspirin is.	
<b>Summary Statement</b> I'm testing to see if the presence of a carbohydrate affect the absorption rate of a Bayer Aspirin Tablet.	
<b>Help Received</b> I received help from Marybeth Fenton who helped me with develop the testing process. My mother help me put my board together.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Erika W. Cho</b>	<b>Project Number</b> <b>J1406</b>
<b>Project Title</b> <b>Retinoic Acid Effects on Early Amphibian Development</b>	
<b>Abstract</b> <b>Objectives/Goals</b> How does retinoic acid affect early stages of development? The objective of my experiment is to study how retinoic acid affects development in amphibians. <b>Methods/Materials</b> 15 Petri dishes DMSO Ethanol 1 Digital Camera 1500 Xenopus Embryos 1% Retinoic Acid  1) Fertilize embryos 2) Make stock retinoic acid solution with DMSO 3) Make serial dilution of retinoic acid in water. 4) Apply retinoic acid into Petri dishes that contains 100 embryos at the gastrula stage each. 5) Leave for 30 minutes and then wash retinoic acid. 6) Leave in water for several days. 7) Repeat steps 1-6 with neural stage embryos. 8) Take pictures and record data. <b>Results</b> All the .01% solution embryos died. The higher the concentration of retinoic acid there were, the more deformations were found. The mutations included embryos with fused eyes, no eyes, no faces (heads) or only one eye. <b>Conclusions/Discussion</b> Retinoic acid both affected the embryos at the gastrula and neural stages equally. Tretinoin consists 1% of retinoic acid, but in the experiment, just small concentrations of the retinoic acid caused severe mutations in amphibian embryos. Although amphibians could be more sensitive to retinoic acid than human infants, Tretinoin should be handled carefully.	
<b>Summary Statement</b> This project is about how retinoic acid effects the early stages of amphibian development.	
<b>Help Received</b> Mother helped provide pharmacy books; Used lab equipment at University of California Irvine under the supervision of Dr. Ken Cho	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Katherine Clifford; Shahd El-Khatib</b>	<b>Project Number</b> <b>J1407</b>
<b>Project Title</b> <b>What Prolongs the Lives of Cut Roses the Longest?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of our project is to determine what prolongs the lives of cut roses the longest. In experiment(Exp.) one; we wanted to see whether sugar or sugar and alcohol would prolong the lives of the roses the longest. In Exp. two, we wanted to see what acidity level the roses liked, so we tested aspirin as an acid, distilled water as neutral, and baking soda as a base. In Exp. three, we tested whether commercial plant food, or our version of commercial plant food: sugar, alcohol, and aspirin would work the best.</p> <p><b>Methods/Materials</b> We labeled all seven vases and filled them with their different solutions. In Exp. one; we put sugar in the first vase, and sugar and alcohol in the other vase. In Exp. two, we put aspirin, distilled water, and baking soda in separate vases. In Exp. three, we put commercial plant food in one vase and in the other vase; we put sugar, alcohol, and aspirin. Five roses were put in each vase. Every other day we recorded the roses conditions in our data log using the scale we created, trimmed the stems of the roses, changed the solutions, took pictures of the roses, and measured the pH levels of the roses in Exp.two. We kept this cycle going for thirteen days.</p> <p><b>Results</b> In Exp. one, the roses in the vase with sugar lived the longest. In Exp. two, the roses in the vase with distilled water lived the longest. In Exp. three the roses in commercial plant food were the healthiest. Throughout all three Exp., the roses in commercial plant food lived the longest and were the healthiest on the last day.</p> <p><b>Conclusions/Discussion</b> In our hypothesis, we thought that in Exp. one, the roses in sugar and alcohol would live longer than the roses in sugar. Our hypothesis was proved incorrect. In Exp. two, we thought that the roses in aspirin would live the longest. Our hypothesis was incorrect and distilled water turned out to keep the roses the healthiest. In Exp. three, commercial plant food kept the roses alive longer than the roses in sugar, alcohol, and aspirin. This result proved our hypothesis right. Throughout all three Exps., the roses in commercial plant food lived the longest and were the healthiest, just like we believed in our hypothesis. Our project is important because when you buy cut roses, they wilt and brown and you can only admire their beauty for a few days. We have discovered that commercial plant food helps to preserve roses' health and beauty.</p>	
<b>Summary Statement</b> Throughout three different experiments, we determined what prolongs the lives of cut roses the longest.	
<b>Help Received</b> My mother typed 11 out of 24 pages of our data log ; Half Moon Bay Pastorino Farms helped us by telling us what is in commercial plant food and by giving us background information on what they grow their roses with.	





**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Stephanie A. Doran</b>	<b>Project Number</b> <b>J1408</b>
<b>Project Title</b> <b>Analyzing the Effects of Gasoline Vapors on Senecio cineraria: Acute vs. Chronic Exposure</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> What happens to our environment when someone forgets to take the gas nozzle out of the car and they drive off and it leaks? What happens to our environment because of that long steady drip? The objective of this project is to compare these two predicaments. These are both life situations that could be harming the plant life around us.</p> <p><b>Methods/Materials</b> This experimentation consisted of taking nine plants and separating them into three groups, control, chronic, and acute. The control plants received no gasoline fumes. The chronic plants received 10 minutes of gasoline fumes every day for six days. This was similar to the long, steady drip of the nozzle. The acute plants received 60 minutes of gasoline fumes every six days. This was similar to a large gasoline spill. The experimentation went on for eighteen days before leaf area, chlorophyll, and dry weight testing. After the eighteen days were over, the plants had to be gotten ready for the testing. The plants were cut apart into three sections, the roots, stems, and leaves. One average sized leaf was taken from the leaf pile and put on ice for chlorophyll. Then, the plants were taken to a college lab. The leaves were tested for leaf area in a leaf area machine. Afterwards, the plants (except for the chlorophyll leaves) were put into a drying oven. For chlorophyll, the leaves had to be ground up in acetone and then spun in a centrifuge. The liquid then had to be diluted 1:5 and the absorbents were measured in a Thermo-Spectronic Analyzer. The absorbents were measured at two different wavelengths, 645 and 663 MHz and then put into an equation in order to find out the amount of chlorophyll. After a week of drying, the plants were weighed. All of this information was used in order to find ratios and compare results. The experiment was run three times to ensure consistent results.</p> <p><b>Results</b> The results of this project were that the acute exposure plants were the heaviest, largest, and had the most chlorophyll. The chronic exposure plants were the lightest, smallest, and had the least chlorophyll. The control plants were in between the two exposures.</p> <p><b>Conclusions/Discussion</b> This experiment concludes with the fact that the long, steady drip is worse for the plants than a large gas spill. There may have been ethylene in the gasoline, which is a plant stimulant so that may be why the acute exposure plants were the biggest.</p>	
<b>Summary Statement</b> Although human error cannot be avoided, and we cannot prevent accidental spills, we can prevent the drip by making sure that all of the gasoline pumps and tanks are in good working condition, which will prevent harmful vapors.	
<b>Help Received</b> Used lab equipment and Fresno State University under the supervision of Dr. John Constable; Used gasoline from All American Service Station Maintenance under the supervision of Jeff Doran	





**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Mathew R. Evans</b>	<b>Project Number</b> <b>J1409</b>
<b>Project Title</b> <b>Which Food Substances Produce Brain Freezes Most Often?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> To determine if the consistency of frozen foods cause brain freezes to occur equally. Utilizing the same time constraints, I tested whether drinking liquid products containing ice (Slurpees) would cause brain freezes more often than eating solid frozen food products (ice cream) <b>Methods/Materials</b> Materials list: 1. one scoop ice cream 2. bowl and spoon 3. one cup Slurpee with straw 4. timer or stopwatch 5. subject people Procedure: 1. prepare subjects for testing. 2. prepare equal ice cream scoops into bowls with spoons, or one cup Slurpee with straw 3. Instruct subjects to eat or drink as much as possible and as fast as possible when told to start 4. Instruct subjects to make a mental note if a brain freeze occurs and duration of brain freeze in 5 second intervals 5. Announce that subjects are to start eating/drinking, then identify time in 5 second intervals 6. Continue to call out time intervals for people to track occurrence and duration of brain freeze in 5 second intervals. <b>Results</b> Slurpees consistently produced brain freezes more often, for longer duration and were of more intense duration than ice cream brain freezes. <b>Conclusions/Discussion</b> My original hypothesis was that drinking liquid products containing ice (Slurpee) would cause brain freezes more often than eating solid frozen foods (ice cream). Based on the data I collected I believe my hypothesis to be correct. The Slurpee brain freezes seem to start sooner and last longer, and be more intense. The reason I think this is true is because the Slurpee straw forces the ice cold beverage to the roof of your mouth faster than ice cream does.	
<b>Summary Statement</b> My project was to determine if drinking liquid products containing ice (Slurpees) would produce brain freeze more often than eating solid frozen food products (ice cream) utilizing the same time constraints for both.	
<b>Help Received</b> Mom purchased Slurpees/ice cream products and helped with internet research, science board arrangement and the filling out of this application!	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Ali R. Haghghi</b>	<b>Project Number</b> <b>J1410</b>
<b>Project Title</b> <b>The Effect of Radiation on the Growth of Lentil Seeds</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective is to determine the effect of radiation on the developmental processes of plants such as lentil seeds. <b>Methods/Materials</b> Fourteen groups of ten lentil seeds were packaged individually, and each package was exposed to different doses of x-ray radiation ranging from 10-130 Gy. One of the packages, control group, was not exposed to any radiation. After exposure to radiation, the seeds were planted in an identical environment. The plants were given three to four days to grow to a measurable height and after that time the height of each individual plant was measured and recorded daily. <b>Results</b> The seeds which received less than 80 Gy clearly benefited from the radiation. Those groups had a taller average height than the control group, where as the groups that received more than 80 Gy of radiation had shorter average heights, exhibiting the harmful affects of radiation. <b>Conclusions/Discussion</b> I conclude that although a low dose of radiation may enhance the growth process, higher doses of radiation can seriously impede plant growth.	
<b>Summary Statement</b> The project was designed to illustrate the effect of radiation on the growth processes of plants.	
<b>Help Received</b> My father helped me use a linear accelerater to irradiate the lentil seeds.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>T. Danny Hill</b>	<b>Project Number</b> <b>J1411</b>
<b>Project Title</b> <b>The Effects of Tobacco on Land Hermit Crabs</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Cigarette butts litter the beaches. Tobacco, which contains the drug nicotine, is contained in the cigarette butts. I wondered if the scavengers, land hermit crabs, were eating the tobacco found on the beaches, and if so what effect the tobacco would have on the crabs. I asked two questions: Do hermit crabs eat tobacco? and What effect does tobacco have on hermit crabs? I tested two hypotheses: Hermit crabs eat tobacco. Hermit crabs will lose weight when they eat tobacco. <b>Methods/Materials</b> 1. 2 aquarium tanks were set up in an identical manner except the tobacco tank contained 4 grams loose tobacco and 4 grams crab food and the control tank contained 4 grams loose crab food and 4 grams crab food. 2. 10 hermit crabs were weighed. 5 were marked with numbers and 5 with letters. The numbers group was placed in one environment and the letters group in the other. 3. The crabs in both tanks were cared for identically. 4. The crabs were weighed each week. 5. After 3 weeks the crabs in the numbers group were placed in the letters group environment and the crabs in the letters group were placed in the numbers environment. 6. The crabs were weighed each week for another 3 weeks. 7. The average weight of the crabs in each group was calculated each week. The rate of weight gain and loss for each group each week was calculated using the formula for slope of a line. <b>Results</b> I wanted to weigh the tobacco at the end of each week to determine if crabs were eating the tobacco. However, the crabs moved the tobacco into the water dish and mixed the tobacco into the calcium carbonate substrate. I could not weigh the tobacco and obtain reliable results.  I found that when either group of crabs lived in the aquarium with tobacco, the crabs lost weight or gained weight at a slower rate than when the crabs lived in the control (tobacco-free) environment. <b>Conclusions/Discussion</b> I do not know if crabs eat tobacco. However, I do know that when crabs are exposed to tobacco on a daily basis, their rate of weight gain is less or their rate of weight loss is more than when crabs live in an environment without tobacco. Overtime, prolonged weight loss may result in premature death.	
<b>Summary Statement</b> Is tobacco, that litters our beaches, eaten by land hermit crabs, and if so, does it affect their rate of weight gain/loss, a measure of health.	
<b>Help Received</b> Mother purchased and handled the tobacco and proofread my report and poster board.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Tony Ho</b>	<b>Project Number</b> <b>J1412</b>
----------------------------------	---------------------------------------

**Project Title**  
**Effect of Salt Substitute on the Growth and Development of the Mosquito Culiseta incidens**

**Abstract**

**Objectives/Goals**  
Controlling mosquitoes has been an important task for scientists. Various ways of controlling mosquitoes have been conducted by researchers for many decades. The purpose of my experiment was to test the effect of salt substitute as to compare with common table salt, on the mosquito *Culiseta incidens* under a laboratory condition. It was hypothesized that if salt substitute affecting the growth and development of the mosquito depends on the concentration of the salt, then any concentration beyond the range of tolerance will affect them in terms of the rate of growth and the survival rate, the greater the concentration, the greater the effect.

**Methods/Materials**

1. Obtained mosquito eggs from the field (Alum Rock Park)
2. After eggs hatched for 48 hours, ten fist-instar larvae were placed in each of five baby food jars filled with 80 ml of various salt solutions (Potassium chloride). These solutions were 2/1000 (2 grams of salt substitute in 1000 ml of H<sub>2</sub>O), 4/1000, 5/1000, 6/1000, 7/1000, 8/1000.
3. The larvae were fed with .5 gram of fish food every 3 to 4 days until they became pupae.
4. Observations were made daily.
5. When pupa is observed, a piece of nylon stocking would be put over, so that the emerging adult mosquitoes will not fly away.
6. All adult mosquitoes would be sucked up by a mechanical aspirator and the gender of the mosquitoes would be determined.

**Results**  
The results show that there was no significant difference in the rate of development and among the control, 2/1000, 4/1000, 5/1000 groups. The same was true among the 6/1000, 7/1000, and 8/1000 groups. However the 6/1000, 7/1000, and 8/1000 groups took significant longer to reach the adult stage than the control, 2/1000, 4/1000, 5/1000 groups. In terms of the rate of adult emergence, there were significant differences among various groups except between 2/1000 and 4/1000 groups, and among 6/1000, 7/1000, 8/1000 groups.

**Conclusions/Discussion**  
The finding clearly shows that as the concentration of salt substitute increases, the adult emergence rate decreases. The LD 50 of salt substitute for the mosquito was 4.42 parts/1000, not significantly different from the LD 50 of the table salt. The mode of action of salts on the destruction of the mosquitoes is related to osmotic pressure.

**Summary Statement**  
My project is to investigate if there is a greater salt concentration, there would be a greater effect on the growth and development of the mosquito *Culiseta incidens* and to compare the results of salt substitute with table salt.

**Help Received**  
Mr. Lee gave me papers to figure out the LD 50 and the Least Significant Differece and reviewed my works.



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> Anne Huang; Morgan Phung	<b>Project Number</b> <b>J1413</b>
<b>Project Title</b> Can Detergent or Acidity Control the Mosquito Population?	
<b>Objectives/Goals</b> Mosquitoes carry deadly diseases, like West Nile Virus and malaria. Proper control of mosquitoes will reduce these diseases.  Immediate Purpose: To determine if changing the pH value or adding detergent to still H(2)O can control the mosquito population.  Ultimate Purpose: To reduce the number of mosquito-borne diseases quickly, efficiently, and environmentally-safely.	
<b>Abstract</b> <b>Methods/Materials</b> METHOD:  1) Make 10 ideal mosquito habitats (100 ml) and arrange them into 2 equal groups. 2) Each group has 1 bowl for each pH value: 5.0, 6.0, 7.0, 8.0, and 9.0. To reach these different pH values, add enough HCl or NaOH and measure pH values using the pH meter. 3) In 1 group, each bowl has 1 drop of detergent. 4) Place habitats outside. Build a "waterproof shelter" to protect the experiment. 5) Observe number of mosquitoes/mosquito larvae every day, for at least 2 weeks .	
<b>Results</b> The results were inconclusive because no mosquitoes or mosquito larvae were found.	
<b>Conclusions/Discussion</b> The hypothesis, by adding trace amounts of environmentally-friendly detergent or by changing the pH value to still H(2)O, mosquitoes will be attracted and killed, was inconclusive. Because of the absence of data, it is not possible to conclude whether the hypothesis was supported or refuted. Possible explanations for the lack of data include: the timing (winter vs. summer), the duration, the size of the habitats, and the location of the experiment.	
<b>Summary Statement</b> The purpose of this project is to test whether detergent or acidity can control the mosquito population.	
<b>Help Received</b> Anne's dad helped by letting us use his lab to change the pH values to the water.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> Erik L. Kreeger	<b>Project Number</b> <b>J1414</b>
<b>Project Title</b> <b>What Pollutant Affects Daphnia pulex the Most: Bleach, Motor Oil, or Liquid Soap? A Study of Marine Pollution</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The goal of this project was to find out, from a group of three, which pollutant affected marine life the most. Daphnia pulex were used to determine which pollutant had the greatest effect on marine life. I hypothesize that bleach will have the greatest affect because it can easily mix with the water. <b>Methods/Materials</b> Initially I used cups filled to 100ml with distilled water and enough pollutant to make four different concentrations of each pollutant for an acute test and a chronic test. Two cups were used for each concentration as well as two for control. The initial concentrations proved too high though as all the daphnia, except in the control, died the first day. I modified the procedures three times, including increasing the sample size to 800ml, using air pumps, reducing concentrations and finally using water directly from the stock tank, where the daphnia were thriving. <b>Results</b> In my first three tests, except for the controls, they all died the first day. In the fourth test, six in the soap lived, two in the bleach and ten in the control through the first day. On the next day, two soap, one bleach and ten control lived. On day three, one liquid soap was living as well as nine control. <b>Conclusions/Discussion</b> My conclusion is that motor oil is the worst pollutant of the three. Additionally, I learn that developing good procedures is as important as having the initial idea. Finally, I determined that very small amounts of a pollutant can easily affect marine life.	
<b>Summary Statement</b> My project was about finding out which pollutant affects marine life the most, using daphnia pulex.	
<b>Help Received</b> Dad helped measure pollutants, type report and layout display board; neighbor offered advice on feeding daphnia pulex.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kelsey J. Krobert</b>	<b>Project Number</b> <b>J1415</b>
<b>Project Title</b> <b>A Smokey Situation</b>	
<b>Objectives/Goals</b> What is the effect of cigarette smoke on the growth of tomato plants? If I put five tomato plants in an enclosed area every other day and burn one cigarette-then I think it will improve the growth rate of the tomato plants.	
<b>Abstract</b>	
<b>Methods/Materials</b> Ten plants of the same variety: Twenty tomato seeds. Soil system to support five plants: 15.2 cm diameter pots with drain holes; Soil to fill each pot; Filtered (reverse osmosis) water. One plastic cubic meter chamber to support five plants: Clear plastic sheet; Power drill ; Glue; Cigarettes. System to monitor and measure growth: Paper; Pen ; Pencil; Permanent marker; Graph paper; Computer; Bates National Rule. Lighting system to support ten plants equally: Fluorescent light fixture (four each 122 cm cool white bulbs); Ten peat pots; Ziploc container.	
<b>Results</b> I planted both groups of tomato plants and set them under the lighting system that I had set up in my garage. The second night of my project, my father helped me construct my smoking chamber for the experimental group. The main body of it was made from a cardboard box with tape that worked surprisingly well. Every other night I would take a cigarette, coil a thin wire around the brown bottom of it, light it, and place it in the hole that I had made in the bottom of the box. It would take approximately fifteen minutes to burn the whole cigarette. I would then measure and recorded the current growth of each of the five tomato plants. Lastly water both groups and place the back under the lights. I would be careful of how much light they had; always turning off the lights when the sun went down and on when I woke up. The only deformity that I found among the experimental plants was that the tips of their leaves would grow yellow over time. The average of the experimental group was 24.64 centimeters. The average for the control group was 22.76 centimeters. The outcome was that the experimental group grew 1.88 centimeters taller than the control group. The results of my experimentation has proved my hypothesis valid.	
<b>Conclusions/Discussion</b> The experimental group average was 24.64 centimeters. The control group average was 22.76 centimeters. The outcome was that the experimental group grew 1.88 centimeters taller than the control group, making my hypothesis valid.	
<b>Summary Statement</b> The effects of cigarette smoke on the growth rate of tomato plants	
<b>Help Received</b> Father helped build smoking chamber and glue papers on board	





**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Sanjeevani Kumar</b>	<b>Project Number</b> <b>J1416</b>
<b>Project Title</b> <b>How Bad Is Smoking?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of the project is to warn the smokers about the harmful effects of smoking on their bodies and to caution the nonsmoker never to start smoking.</p> <p><b>Methods/Materials</b> I bought a breathing pump and alcoholic wipes. Then I went to a cigarette store and asked the smoker to sign the informed consent form and the smoker's questionnaire. Next, I asked them to inhale air out of the breathing pump three times. Then, I went to the houses of nonsmokers I knew and asked them to fill out the informed consent form. Lastly, I asked them to inhale air out of the breathing pump three times. All my subjects were about the same age and gender.</p> <p><b>Results</b> The data indicates that nonsmokers are able to inhale out of the breathing pump for almost twice the milliliters as smokers. When the smoker exhaled the cigarette on tho a white handkerchief, there was a stain of tar on the handkerchief. Smoking has the same effect on our lungs.</p> <p><b>Conclusions/Discussion</b> After doing this project I concluded that smoking directly affects the lungs and a nonsmoker has a larger lung capacity than a smoker. Some diseases that you can research on that smoking can cause are: bronchitis, emphysema, lung cancer, heart disease, and near or far sightedness.</p>	
<b>Summary Statement</b> To see if a smoker can inhale as much air as a nonsmoker.	
<b>Help Received</b> Dr. Vinod Kumar supervised and advised me on the project.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Daniel M. Kwon</b>	<b>Project Number</b> <b>J1417</b>
<b>Project Title</b> <b>Green Tea: An Effective Alternative in Reducing Heartbeat Rates as Compared to Prescription Medicine</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to determine if Green Tea is as effective in reducing heartbeat rates on Daphnia as Altace, a prescription medicine.</p> <p><b>Methods/Materials</b> We tallied the heartbeat rates of daphnia samples thirty times each in water, in green tea, and in Altace (a high blood pressure medicine). A daphnia was placed on a microscope with a drop of water and the number of daphnia's heartbeats was counted in five seconds. The result was multiplied by twelve to determine the daphnia's heartbeat rates in minute in water. Then, the number of daphnia's heartbeats was counted in the green tea concentrate as well as the Altace drug. This process was repeated 30 times each to collect enough sample data.</p> <p><b>Results</b> In our testing, the average reduction in heartbeats of daphnia exposed to green tea (40.2 beats per minute) was greater than in daphnia exposed to the Altace (33.0 bpm). Furthermore, the standard deviation (s.d.) of the green tea was much less (15.9 bpm) than Altace (25.3). This means that the green tea is not only more effective in lowering heartbeat rates, but it is also more stable since it has a smaller standard deviation. Also, Altace sometimes had a tendency to raise the heartbeat rate instead of lowering, which the green tea never did.</p> <p><b>Conclusions/Discussion</b> My hypothesis was supported because the green tea showed better heartbeat rate reduction results than the Altace! The daphnia's heartbeat rate was slower with the green tea than with the Altace. Other benefits of taking green tea include big cost savings (\$508.44 saved per year) compared to Altace and no side effects (it's a natural tea!). It is interesting to learn that the green tea is more effective, stable, reliable, and cheaper than Altace. (Cost savings calculations based on the assumption: 2 tea bags a day for a year and one 5 mg Altace pill a day for a year)</p>	
<b>Summary Statement</b> This project is to demonstrate that a natural herbal tea (green tea) is as effective as a prescription medicine (Altace) in reducing heartbeat rate on Daphnias and perhaps humans.	
<b>Help Received</b> Many thanks to my mom and dad for giving advice, transportation, and funding; Mr. Hodges and Mrs. Nelson (science teachers) for their advice and mentoring; and Dr. Sami Issa for providing sample medicine and expert opinions.	



# CALIFORNIA STATE SCIENCE FAIR 2005 PROJECT SUMMARY

<b>Name(s)</b> <b>Tiffany Lam</b>	<b>Project Number</b> <b>J1418</b>
<b>Project Title</b> <b>Impact of Boyle Heights' Air Quality on Adolescent Children's FEV1% Values</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to find out if the lung capacities of middle school children living in Boyle Heights, Los Angeles have been compromised by air pollution in their residential area. I believed my testing would reveal compromised values because the Boyle Heights Air Quality Study (Air Resources Board, 2002) measured significant quantities of air pollutants that the Childrens Health Study (Gauderman et. al., 2004) found to have an adverse effect on the lung development of children.</p> <p><b>Methods/Materials</b> In this study, the main indicator of respiratory health was forced expiratory volume in the first second percent (FEV1%). My participants were 13 or 14 year old residents of Boyle Heights for at least 5 years, from non-smoking homes, and considered non-asthmatic. My control group was a similar population from Palos Verdes, CA. For each participant I recorded height, age and ethnicity. This information allowed me to calculate the range of healthy FEV1% values for each participant by using an On-Line Spirometry Calculator (Hankinson et. al., 1999). I then asked each child to perform a series of breathing exercises into a spirometer, after which I analyzed the spirometry curves in order to calculate their experimental FEV1% value. For each participant, a healthy experimental FEV1% value would fall between their LLN (lower limit normal) and their Predicted FEV1% value.</p> <p><b>Results</b> Eight out of 60 Boyle Heights participants had healthy FEV1% values. Two out of 46 Palos Verdes participants had healthy FEV1% values. Most children had FEV1% values that were less than their LLN (lower limit normal). Most children in both schools were found to have FEV1% values that are lower than they should be.</p> <p><b>Conclusions/Discussion</b> My findings show that the lung volumes, and therefore the respiratory function, of the children tested were not what they should be as determined by published spirometry reference values. This confirms my hypothesis. I believe the results of my study turned out the way they did because the pollutants measured in Boyle Heights have been known to cause negative effects on the lung development of children. As a continuation of this study, I would like to study the connection between the income levels of Latin American families and the health of their respiratory function, because many low-income families are living in areas that violate federal air quality standards, (Seedling News, Winter 2004.)</p>	
<b>Summary Statement</b> FEV1% was measured to determine if the respiratory functions of children living in Boyle Heights (who attend Hollenbeck Middle School) have been impacted by the air pollution in their neighborhood.	
<b>Help Received</b> My teacher, Mr. Simonsen, helped me with understanding the software programs needed to collect and analyze my data and he also helped me with editing my project. Dr. Davis, from the Statistics Department at UCLA, gave me suggestions for improving my graphs.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> Amy H. Lee	<b>Project Number</b> <b>J1419</b>
<b>Project Title</b> <b>Don't Let the Bed-Bugs Bite You!</b>	
<b>Objectives/Goals</b> The objective is to determine what is the best way to remove dust mites found on a pillowcase. I believe that a piece of pillowcase washed in hot water in a washer and dried under the sun would be the best method in removing the dust mites comparing to that washed or soaked in cold water or dried in a dryer.	
<b>Abstract</b> <b>Methods/Materials</b> A set of pillowcase pieces were soaked in hot (120°F) and cold (68°F) water and then dried in a dryer and under the sun. Another set of pillowcase pieces were washed in hot and cold water in a washer and dried in a dryer and under the sun. Also, a piece of pillowcase was placed directly under the sun without prior soaking or washing. Repeat the above steps twice more. Observed for dust mites and compared the results to find out which method was most effective in removing dust mites. The materials were: microscope, two pillows with regular size pillowcases, household-type washer, dryer, gas stove, six Qt. Size pot, 2000 ml of water for each soak, one pair of scissors, a ruler, one thermometer, outdoor clothes hanger/dryer, clothes pins, sterile gloves, watch, notebook, and pencil.	
<b>Results</b> The best way to get rid of dust mites on the piece of pillowcase was to wash it in the washer on a regular cycle (25 minutes) with hot water and to dry it under the sun for one hour. The results also showed that the water temperature made a difference whether the piece of pillowcase was soaked or washed; the hot water removed more dust mites than cold water. It was the drying phase of the experiment that made the greatest difference; drying under the sun removed more dust mites than drying in dryer. Placing the piece of pillowcase directly under the sun alone without wash removed more than half of dust mites.	
<b>Conclusions/Discussion</b> My test results support that my hypothesis was correct. My conclusion is that the best way to get rid of the dust mites found on a piece of pillowcase is to wash it in hot water and then dry it under the sun. Water temperature and the method of drying the pillowcase were the key factors in determining the effectiveness of removing the dust mites. Also, the length of the time that the pillowcase had been used (one week vs. one month) made the difference in collecting the dust mites. My test data suggest that people who use humidifiers should wash and dry their pillowcase regularly since humidity attracts dust mites.	
<b>Summary Statement</b> My project is about determining what is the best way to remove dust mites found on a pillowcase.	
<b>Help Received</b> I received help from the technicians at Ridgecrest Regional Hospital Laboratory Department. They not only allowed me to use their microscope, but also taught me how to operate it. I also received help from my parents and many valuable suggestions from my science teacher Mr. Ganner.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> Michelle Lovato; Aundraya Martinez	<b>Project Number</b> <b>J1420</b>
<b>Project Title</b> <b>Will a Nasal Dialator Help Prevent Snoring?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this study was to investigate if using a nasal dialator would help prevent snoring.</p> <p><b>Methods/Materials</b></p> <p>Materials:</p> <ul style="list-style-type: none"><li>10 Human Subjects</li><li>10 Nasal Dialators</li><li>2 Video Cameras</li><li>1 Pulse Oximeter</li></ul> <p>Methods:</p> <ul style="list-style-type: none"><li>1) Survey 20 people</li><li>2) From the results of the survey, pick 10 people that meet the test criteria (Heavy Blockage and a lot of snoring)</li><li>3) Record the human subjects# oxygen level awake using an oximeter without a nasal dialator</li><li>4) Record the human subjects# oxygen level awake using an oximeter with a nasal dialator</li><li>5) Using a video camera, tape the human subjects# oxygen level while sleeping without a nasal dialator</li><li>6) Using a video camera, tape the human subjects# oxygen level while sleeping with a nasal dialator</li></ul> <p><b>Results</b> After completing this sleep study, we have determined that using a nasal dialator allows you to have a more restful sleep. The main objective was to find out if using a nasal dialator prevented snoring, and we found out that it extremely reduced snoring, and tossing and turning. By using the nasal dialator the human subjects# snoring was reduced by an average of about 5 hours. The nasal dialator reduced the tosses and turns by an average of about 11.</p> <p><b>Conclusions/Discussion</b> We have concluded that a nasal dialator reduces snoring, as stated in our hypothesis, which also attains to our objective. This project will expand the knowledge of sleeping by advising the society of a device that will prevent snoring and allow a better night#s sleep. By doing this project, we are going to educate the public about a new, more reliable device that helps prevent snoring.</p>	
<b>Summary Statement</b> The focus of our project was to see if using a nasal dialator while sleeping would help prevent snoring.	
<b>Help Received</b> Uncle provided supervision and equipment for this project.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Taran J. Lu</b>	<b>Project Number</b> <b>J1421</b>
<b>Project Title</b> <b>The Effectiveness of Four Different Remedies on Motion Sickness</b>	
<b>Abstract</b> <b>Objectives/Goals</b> In my study I tested the effects of four different remedies on motion sickness, in order to find out if they were truly beneficial. <b>Methods/Materials</b> Four treatments were administered to subjects on four separate days. After each treatment, subjects were spun for varying amounts of time in a chair that could keep up a constant rotational rate. I measured the amount of time subjects needed to rest before being able to walk a 15 foot line, the amount of time it took subjects to walk the line and then return, the number of mistakes made, and how sick each subject felt on a scale of 1-5. <b>Results</b> I found that ginger tea and Dramamine were the most effective combatants of motion sickness, followed by 7-Up and finally pressure wristbands. Dramamine and ginger tea resulted in the shortest average amount of time required to walk down a 15-foot line and back, fewest average number of mistakes during the walks, and the lowest average level of self-reported nausea. <b>Conclusions/Discussion</b> Dramamine and ginger tea showed to be effective motion sickness reduction remedies. In my opinion the ginger tea has a slight edge over the Dramamine, due to Dramamine causing subjects to become drowsy. Surprisingly the wrist bands appear to have had a negative effect on relieving motion sickness, consistently causing subjects to have increased times when it came to walking a 15-foot line.	
<b>Summary Statement</b> I investigated the effectiveness of Dramamine, pressure wrist bands, 7-Up, and ginger tea on the reduction of motion sickness.	
<b>Help Received</b> My parents proof-read and gave suggestions on my written work. My dad also helped me find an effective way to induce motion sickness.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> Andy Lucas; Riley McCluskey	<b>Project Number</b> <b>J1422</b>
<b>Project Title</b> <b>The Effect of Growth Hormones on Irradiated Lima Beans</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Our objective was to determine what effect growth hormone supplementation had on irradiated lima beans. <b>Methods/Materials</b> Forty-eight lima beans were irradiated with high-energy X-rays at Providence St. Joseph's hospital. Sixteen beans were irradiated at 10,000 rads, sixteen beans at 30,000 rads, and sixteen beans at 60,000 rads. In addition, sixteen beans were not irradiated and served as controls. Following irradiation, the lima beans were placed in a hydroponic germination station, where they were exposed to artificial light 16 hours of every 24-hour period, for nine consecutive days. Half of the beans were given growth hormone supplementation (Hormex Growth Hormone) and half were hydrated with clean water only. After nine days, the plants were uprooted and the stem and root lengths were measured. <b>Results</b> Lima bean growth was severely stunted at radiation levels of 30,000 and 60,000 rads, since the beans that were irradiated at these levels germinated and then stopped growing altogether. When we compared the data taken from the plants supplemented with growth hormone, the hormone-treated plants generally had longer roots, yet shorted stems. Strangely, at 60,000 rads, there were a few centimeters of stem growth on most plants, yet no visible root growth. <b>Conclusions/Discussion</b> Although the growth hormone did not repair stem length damage in the irradiated plants, it did slightly increase root length. The increase of root length in Hormex-watered plants suggests that the growth hormone may be able to make up for the damage inflicted by the radiation. When we began, we had little knowledge of radiation and how it works. This study helped us to learn about radiation and its impact on plant growth. We will continue our studies of Hormex's potentially beneficial effects on radiation damage over the summer using considerably larger control and variable groups to achieve more valid results.	
<b>Summary Statement</b> We examined the effects of growth hormone supplementation on lima beans that were exposed to high levels of radiation.	
<b>Help Received</b> Mothers provided transportation and supplies; Used linear accelerator at Providence St. Joseph's Hospital	





**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jenna S. Madeyski</b>	<b>Project Number</b> <b>J1423</b>
<b>Project Title</b> <b>Activity Level and Ability to Concentrate Direct Attention: The Effects of Prolonged Consumption of Sugar</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objectives of my experiments were to investigate whether or not prolonged consumption of sugar would affect the ability of mus musculi (domestic mice) to concentrate their direct attention; and to document the impact of sugar intake on their activity level. My hypothesis was that, when compared to the #Control Group,# the "Sugar Group" would display increased activity levels and lesser ability to concentrate.</p> <p><b>Methods/Materials</b> I utilized 2 cages of 5 mice (all male and from the same gene pool). Everything was identical, save for one exception: One of the cages featured sugar water at a 4:1 ratio (for every cup of water, there was 1/4 cup of sugar). The sugar variable was applied for two weeks prior the experiment. To test Activity Level, I put each mouse in an exercise ball, then placed the ball on an 64-square grid. Subjects were positioned in the exact center of the grid and given 2 minutes to be freely active. During each subject#s 2-minute time period, I # along with two witnesses # counted the total number of grids covered. To test their Ability to Concentrate Direct Attention, I put each mouse in the exercise ball positioned at one end of a 6-meter-long run. Each subject was timed on how long it took to reach the opposite end. If a mouse took more than 5 minutes to finish the test, it was assumed that they had lost interest entirely, the maximum 5 minutes was recorded, and the subject was removed from the run.</p> <p><b>Results</b> As compared to the #Control Group#, the mice given sugar showed an increase in activity level; though only slight (15%). The #Sugar Group# did, however, demonstrate a drastic 215% decrease in their ability to concentrate direct attention. This second result demonstrated that sugar can significantly reduce one#s ability to concentrate.</p> <p><b>Conclusions/Discussion</b> Although sugar might serve to slightly boost activity levels, its effect does not last. Long-term consumption of significant levels of sugar decreases one#s ability to concentrate direct attention span, but far more drastically than I thought in my hypothesis. In closing, although high-level, long-term consumption of sugar might make one slightly more active, it clearly causes one to become extremely inattentive.</p>	
<b>Summary Statement</b> For two weeks, I observed the effects of sugar consumption by mice, specifically testing their activity level and ability to concentrate direct attention.	
<b>Help Received</b> both parents assisted in editing for the notebook and backboard, as well as supporting me financially; Mindy Engevik helped also with editing; The Hamilton-Kinders helped me obtain mouse cages	



# CALIFORNIA STATE SCIENCE FAIR 2005 PROJECT SUMMARY

<b>Name(s)</b> <b>Rachel A. Miller</b>	<b>Project Number</b> <b>J1424</b>
<b>Project Title</b> <b>Haboring a Lethal Companion: Parasites in Horses</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> This project is the result of trying to protect our family horses from the damaging effect of parasites. The purpose of the project was to determine which paste wormer was most effective in the control of parasites. The paste wormers, given orally, each contain specific chemicals needed to kill the parasites that live in the internal organs of the horse.</p> <p><b>Methods/Materials</b> Sixteen horses were selected to be used in this project. The parasite populations in the horse can be examined by using a PARACOUNT EPG KIT. This kit allows you to count the parasite eggs that are passed through the horse in its manure. Three different paste wormers were selected: Safeguard, Ivermectin, and Strongid. The project horses were divided into four groups. The control group was not wormed, and each test group was wormed with a different wormer. Prior to worming, the fecal material of each horse was examined and the EPG (Eggs Per Gram of Fecal Material) were documented. The horses were then wormed, and every fourteen days for twenty-eight days the fecal material was examined and the EPG counts were documented.</p> <p><b>Results</b> The project results showed that paste wormers are effective in the control of parasite populations in horses. All three wormers showed a definite decrease in the egg counts. Safeguard had a 46% decrease in the EPG. Ivermectin and Strongid showed a 43% decrease in the EPG. The control group had a 32% increase in the EPG. Veterinarians recommend that the parasite egg counts be kept below 200 EPG. The test horses started with counts much higher than this and even with the decreased egg counts remained higher than the recommended levels.</p> <p><b>Conclusions/Discussion</b> By basing a de-worming program on EPG counts, a more efficient program can be established. The primary objective of the control program should be to monitor and maintain EPG counts at low levels and to de-worm when appropriate to keep worm counts at a minimum. This project showed that all three paste wormers used were efficient, and that proper use of them by the horse owner will provide the protection needed from the damaging effect of parasites.</p>	
<b>Summary Statement</b> This project determines whether or not the paste wormers that are available to the horse owner are effective in controlling parasites in horses.	
<b>Help Received</b> My sister, Rebecca, helped me worm the horses. My sister, Jamie, helped me set up my data pages for the log. Our Veterinarian, Dr. Blair, loaned me a microscope and showed me how to use the Paracount EPG Kit. My Mother helped me shop for materials for the project board.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Hayley C. Morton</b>	<b>Project Number</b> <b>J1425</b>
<b>Project Title</b> <b>The Effectiveness of Microban Inhibiting the Growth of Microbes on a Computer Mouse</b>	
<b>Objectives/Goals</b> My hypothesis is that the Fellowes Microban antimicrobial product inhibits the growth of microbes and is effective against a broad range of bacteria. I base my hypothesis on the fact that Microban is used as an antimicrobial solution for consumer, industrial and medical products for a vast number of large corporations.	
<b>Abstract</b>	
<b>Methods/Materials</b> Materials: 2 Fellowes Microban mice, 2 Fellowes standard mice, 30 sterile swabs, 24 agar plates, a few pairs of gloves, 1 refrigerator, 1 digital camera, 1 HP inkjet printer, 4 computers, people to use the mice, 1 logbook for data and observations.  Method: Collect bacteria from each mouse using the sterilized swabs. Inoculate each dish by streaking a pattern gently across the entire agar surface without tearing into it. Streak the sample in a straight line. Let grow in undisturbed warm location, ideally in an environment around 100° F (37° C). Make observations and keep records of what you see growing in each dish. The student isolates and grows a strand of three different bacterial cultures. Photograph agar plates from day 1 to 6 for results.	
<b>Results</b> I labeled ten agar plates Sets 1 to 5 (sample A and B) in two different series, MCB (with Microban) and no MCB (no Microban). I then recorded the results and took pictures for days 2, 4, and 6. Although the MCB (with Microban) agar plates showed less bacterial growth on day two, the difference was not that sizable. By day 6, the amount of microbes on the agar plates labeled no MCB (no Microban) was decidedly larger than on the agar plates that had been swabbed from the Microban computer mouse. In reviewing the data gathered on day 6, Table 1, the results showed that the computer mouse A protected with Microban had 25.93% less bacterial growth than the computer mouse without Microban. In fact, the total number of colonies of microorganisms was: with MCB (14) and no MCB (54). The results from day 6, Table 2, were 38.10% less bacterial growth for the Microban protected computer mouse and the total number of colonies of microorganisms was only 16 compared to 42 for the unprotected mouse.	
<b>Conclusions/Discussion</b> The results from the experiment supported my hypothesis that the Fellowes anti-microbial product was effective in reducing the amount of bacterial growth on a computer mouse.	
<b>Summary Statement</b> My project was to test the claim of the Fellowes Manufacturing Company that their Microban antimicrobial product would be more effective inhibiting the growth of bacteria on a treated computer mouse than an untreated computer mouse.	
<b>Help Received</b> My mother helped drive me to the stores for materials such as agar plates. Both parents encouraged me to get my work turned in on time.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Katherine C. Nagasawa</b>	<b>Project Number</b> <b>J1426</b>
<b>Project Title</b> <b>Tylenol 911: Live or Liver?</b>	
<b>Objectives/Goals</b> Problem Statement: What other anti-oxidants will help reduce/eliminate N-actyl-p-aminobenzoquinoneimine (NAPQI)?  Hypothesis: I hypothesize that anti-oxidants such as Glutathione will be better than Vitamin C or N-acetyl cysteine (NAC). I plan to try Vitamin C, Co-enzyme Q10 (Co-Q10), NAC, Glutathione, and Cysteine.	
<b>Abstract</b> <b>Methods/Materials</b> Materials: Acetaminophen                      NAC Glutathione                          Vitamin C Co-Q10                                Saran Wrap Baking Soda                        L-Cysteine Beakers                                Flasks Pipettes                               Vials, capped Metal spatula                        Eye goggles Plastic gloves  Procedure: Set up equipment and put on safety goggles and gloves Create NAPQI by mixing hydrogen peroxide, acetaminophen , and baking soda together Divide the created NAPQI into 3 vials Put Cysteine into one of the vials, GSH into another, and NAC into the last vial Stir each solution and observe for yellow color indicating reduced product in each one	
<b>Results</b> Results: I was looking for the quenching of the yellow color when I added the different anti-oxidants. My experiments indicated that NAC was slightly superior to GSH whereas L-Cysteine gave a bizarre reaction.	
<b>Conclusions/Discussion</b> Conclusion: In my model, it would appear that NAC might be the best compound to use in an emergency with an overdose of Tylenol.	
<b>Summary Statement</b> Testing several anti-oxidants in a model system to see if they could reduce the toxic metabolite of Tylenol (NAPQI) which can cause liver damage.	
<b>Help Received</b> Grandfather ordered chemicals	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Blake A. Oliaro</b>	<b>Project Number</b> <b>J1427</b>
<b>Project Title</b> <b>Organic vs. Traditional Pest Control</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The usage of pesticides in the United States has surfaced as a problem. It has been proven that pesticides harm our water sources and wildlife. Therefore this experiment was conducted to determine the most effective pest control method, and what method produces the best tasting lettuce. The hypothesis is that the isopropyl alcohol mixed with water would be the most effective method.</p> <p><b>Methods/Materials</b> This experiment tested three different variables or methods to control pests. Diazinon (a toxic pesticide), ladybugs (a natural predator), and isopropyl alcohol mixed with water. The milkweed bug was the pest that was used. At the start of the experiment, the plants were established in an artificial environment. Second the milkweed bug was introduced. Finally the method of protection was instituted. Lastly, the plants were moved outside to determine if warm temperatures would have affected the lettuce's poor growth, or if the milkweed bugs had caused the majority of the damage.</p> <p><b>Results</b> The results showed that all of the methods did very poorly. But it was concluded that the alcohol mixed with water did the best. However, the alcohol mixed with water did have a faint alcohol aftertaste. The ladybugs did the worst at protecting the plants.</p> <p><b>Conclusions/Discussion</b> Many things were learned in the experiment. The milkweed bug proved to be a deadly predator to lettuce. This project also came up with some ideas for future experimentation. Due to taste, I recommend that growers could use a different alcohol to water ratio and spray at different intervals. In addition, other nontoxic mixtures might also work well, and should be tried. I hope my project will contribute to the safety of our environment and food.</p>	
<b>Summary Statement</b> This project tests the effectiveness of organic pest control versus traditional pesticides on lettuce.	
<b>Help Received</b> County Extension Specialist advised on project; Dad supervised use of Diazinon; Science teacher obtained some of the insects	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> Susan M. Pasternak	<b>Project Number</b> <b>J1428</b>
<b>Project Title</b> <b>Nature vs. Nature: Eradicating Arundo donax with Allelopathic Leaf Extract Treatments</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Arundo donax is an invasive, non-native species that is a natural threat to riparian habitats throughout the United States. Currently, herbicides are the primary method of eradication with ineffective, expensive, and harmful final results. The objective of this study was to use a natural method of allelopathic leaf extract treatments to eradicate Arundo donax in an environmentally-friendly and cost-effective manner.</p> <p><b>Methods/Materials</b> Fallen plant material of Eucalyptus globulus, Nerium oleander, Pinus contorta, and Quercus agrifolia were boiled with tap water for one hour at 100° Celsius and allowed to steep for 48 hours, forming a 27% extract. Arundo donax was cut down to a height of approximately 8 centimeters. The various leaf extract solutions were then poured into the hollow nodes of the canes and cooked plant material was scattered throughout the plot. Residual growth was monitored and recorded. The most effective treatment was then re-tested for accuracy throughout a period of approximately two and a half months.</p> <p><b>Results</b> By using the leaf extract treatments, the percentage of eradication follows: 60% of Quercus agrifolia, 77.7% of Pinus contorta, 83% of Eucalyptus globulus, and 100% eradication of Nerium oleander. All testing sites had inhibited growth rates when compared to the control. Subsequent experiments on Nerium oleander had similar results with some variations.</p> <p><b>Conclusions/Discussion</b> Experimentation of allelopathic leaf extract treatments supported the objective of discovering a natural solution to eradicate Arundo donax. Astonishing results indicate that Nerium oleander extracts were effective in achieving this goal. Studies such as this increase public awareness that natural alternatives to herbicides exist. Using nature to fight nature will become the way of the future in order to preserve the quality of life for all living creatures.</p>	
<b>Summary Statement</b> The use of allelopathic leaf extract treatments, namely Nerium oleander, is a natural, environmentally-friendly, and inexpensive method to eradicate Arundo donax.	
<b>Help Received</b> Reference materials were obtained from the Santa Barbara Botanical Gardens. Shinichi Asao, a UCSB intern, gave a brief review of the scientific method. Mother provided transportation to sites.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jake P. Pellegrini</b>	<b>Project Number</b> <b>J1429</b>
<b>Project Title</b> <b>How Does Cigarette Smoke Affect Crickets?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective is to determine if different amounts of nicotine in cigarettes have an effect on crickets' chirping. I believe the cigarettes with the greatest amount of nicotine will cause the greatest increase in chirping because nicotine is a stimulant.</p> <p><b>Methods/Materials</b> I prepared four containers holding one female and four male crickets in each container. Each group of crickets was exposed to unfiltered, filtered, or ultralight cigarette smoke (using a milk jug smoke machine) for one minute. A control group was not exposed to smoke. Cricket chirps were recorded for one minute before and after exposure to smoke. Four tests were conducted on consecutive days.</p> <p><b>Results</b> Crickets exposed to the most nicotine (unfiltered cigarette smoke) increased their chirping the most (by 64% on average), while crickets exposed to less nicotine (filtered cigarettes) increased chirping by 45% on average. Crickets exposed to the least amount of nicotine (ultralight cigarettes) increased 28% on average, while the control crickets did not change their chirping amount.</p> <p><b>Conclusions/Discussion</b> My conclusion is that the more nicotine contained in a cigarette, the greater the affect on crickets' chirping because nicotine stimulates the crickets.</p>	
<b>Summary Statement</b> My project is to examine the effect of different levels of nicotine on crickets' chirping.	
<b>Help Received</b> Mom lit the cigarettes and typed abstract; Used smoke machine from OLQA Science teacher, Mrs. Westhart; Dad took me to get crickets.	





**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Julia E. Pinto</b>	<b>Project Number</b> <b>J1430</b>
<b>Project Title</b> <b>Opuntia: Hope for Diabetics</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To conduct a comparative pharmacological study on non-diabetic and type II diabetic subjects (under a doctor's supervision), and observe blood glucose levels after the consumption of Opuntia (nopales cactus).</p> <p><b>Methods/Materials</b> Subjects were studied for three weeks. Opuntia consumption was begun at 1/4 cup daily in the first week and doubled each week thereafter. Test subjects recorded their own fasting blood sugar daily and reported results to a monitoring doctor who supplied results to me under HEPPA guidelines.</p> <p><b>Results</b> The control group showed a minimal drop in blood sugar levels. The type II diabetic group showed a significant drop in the third week with an average of 60mg/dl.</p> <p><b>Conclusions/Discussion</b> The studies indicated that Opuntia consumption did produce significant blood sugar reduction especially in type II diabetic subjects.</p>	
<b>Summary Statement</b> To determine if Opuntia cactus will significantly reduce blood sugar in type II diabetic subjects.	
<b>Help Received</b> Riverside Medical Center and Glendi Chen.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Brittany N. Sargent</b>	<b>Project Number</b> <b>J1431</b>
<b>Project Title</b> <b>Can Gum in Your Mouth Make Your Temperature Go South?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> It is hypothesized that the cinnamon gum, Big Red, will change the temperature of my test subject's mouth the most. The modern person chews about 20,000 pieces of gum each year. People chew that much gum without knowing the affects that it can have on their body. Cinnamon gum also kills the bacteria living in the human mouth along with conquering bad breath. This could change the environment of the mouth and therefore could also change the temperature.</p> <p><b>Methods/Materials</b> My project includes a lot of materials. In the research, I found out that cinnamon gum kills 97.3% of the bacteria living in the human mouth. The plant oils (used to make cinnamon gum) have something in it that kills bacteria. My procedure was very complicated to plan. Each student had his or her temperature taken. Next, they were given a piece of gum. They are to chew it for 2 minutes and then spit it out in the trashcan. Then, each student's temperature was taken again and recorded. Temperature was taken before and after each piece of gum to serve as a control. They got to chew 3 different flavors of Wrigley brand gum in a period of one week.</p> <p><b>Results</b> In the testing, the gum did not change the subject's temperature enough to be recognized as anything but normal. It changed to about .2 to 2.4 degrees of the control temperature. There wasn't just one gum that changed the temperature the most. They were all pretty similar. I proved my hypothesis to be incorrect.</p>	
<b>Summary Statement</b> I tested to see if gum changed the temperature of your mouth or if it just affected your tastebuds.	
<b>Help Received</b> Teachers, Ms. Hill and Mrs. Marcarelli, helped me write everything; Friend helped me write data; Mother helped me think of project and how to do it; Step-dad helped me put together my board; Sister helped me decorate board; Friend helped me with title.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Brent T. Scheneman</b>	<b>Project Number</b> <b>J1432</b>
<b>Project Title</b> <b>Electricity Instead of Spray</b>	
<b>Abstract</b> <b>Objectives/Goals</b> To see if electricity could be used as an ant repellent. Also to find out the lowest voltage that would repel an ant without injuring it. <b>Methods/Materials</b> The materials I used were a 12v-1.4 amp. battery, plain PC board, volt meter, wire, potentiometer(1m), wooden disk, dowel, circuit writer conductive ink, soldering iron, solder, battery, and 1/4in. wood. <b>Results</b> By raising the voltage up with the potentiometer, I found out the lowest voltage that would stop an ant from crossing over the two conductors was 11 V. <b>Conclusions/Discussion</b> In conclusion, if the 12 V battery was fully charged, and everything was working properly, I found out that the lowest voltage that stopped the ants from crossing over the two conductors was 11 V. If I were to perform more studies on the device, I would want to find a way to stop other insect pests.	
<b>Summary Statement</b> To find out if electricity can be used as an ant repellent.	
<b>Help Received</b> Father bought the materials needed; Teacher helped with design plans	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Danielle C. Serna</b>	<b>Project Number</b> <b>J1433</b>
<b>Project Title</b> <b>Electrifying Plants</b>	
<b>Objectives/Goals</b> If I add electricity to the growth of plants then the plants metabolism would speed up causing the plant to grow faster.	
<b>Abstract</b>	
<b>Methods/Materials</b> Materials: 10 Plant Pots, 10 Drainers, 10 Broccoli Plants, 9 Volt Battery, Cables/Nails, Water, Soil, Wire  Procedure: Day One - First I will place the soil in the plant pot and plant the broccoli sprout two millimeters below the surface in the soil. Then I will moisten the soil with the drainer under the pot.  Day Two - I will wire up the battery with the battery cables and jolt the plant for 10 seconds then wait an hour and jolt the plant again. I will repeat day two twice a day for 2 weeks.	
<b>Results</b> The shocked plants grew larger and faster than the non-shocked plants.	
<b>Conclusions/Discussion</b> I think one the problems were that I waited to long in between the shockings. I think that if I would have shocked them more frequently than the plants' growing rates would have been higher. If I conducted the experiment again the one thing I would do different would be shocking them more frequent and not forget about them. I also found that when I stopped shocking them for a period of time they still grew more rapidly than the non-shocked. I think that this science fair fits into the greater scheme of things because if farmers would shock their crops then their supply would nearly double.	
<b>Summary Statement</b> I electrocuted plants with a nine volt battery for three weeks.	
<b>Help Received</b> Grandma helped layout board, Uncle helped build electricity transmitter, Step-Father gave me the idea, Mom helped me shop for materials.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Barbara A. Shinaver</b>	<b>Project Number</b> <b>J1434</b>
<b>Project Title</b> <b>The Effects of Various Herbal Teas on the Longevity of Drosophila melanogaster</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of my science project was to determine whether various herbal teas would affect the longevity of Drosophila Melanogaster.</p> <p><b>Methods/Materials</b> I used five different types of herbal teas; Chamomile Red, St. John's Wort, Echinacea, Ginseng, and Green Tea. The tea solutions were prepared by steeping a single tea bag of each tea in three tablespoons of boiled distilled water for one hour. I combined one tablespoon of dry fruit fly food with one tablespoon of my tea solution. My control was boiled distilled water given to the flies in the same manner as my teas. Each mixture of tea solution and dry food was placed in a separate vial. I added a pinch of yeast on top of the food in each vial. To each of the vials I added ten fruit flies. I monitored the number of fruit flies remaining alive in each vial on an every-other-day basis. Every two weeks I removed only the living adult fruit flies from each vial and transferred them to a new vial with a fresh food mixture consisting of the identical tea solution. I repeated this every two weeks until there were no living adult fruit flies from the original ten left. In this manner I compared how long each fruit fly population was sustained on each of the teas.</p> <p><b>Results</b> The result of my experiment showed that the tea that most promoted the longevity of the fruit flies overall was Green Tea. When the average of the flies' life was counted, I discovered the flies that ate the Green Tea lived days longer than any of the other teas. Ginseng, however, was a close second to Green Tea in its life-prolonging effect. Echinacea and Chamomile Red were very close to the lifespan of the Control flies. One of the most interesting and unanticipated results that I found was that the second generation of flies, whose parents were raised on the tea-food formula had a greater lifespan than the generation that preceded them. For example, while the lifespan of my first batch of fruit flies that were fed Green Tea lived longer than the Control group, on average, their children, who were also fed Green Tea, lived even longer.</p> <p><b>Conclusions/Discussion</b> Certain types of herbal teas do have an effect on the longevity of the fruit fly. Green Tea and St. John's Wort had the greatest effect on increasing the lifespan of the fruit fly. Echinacea and Chamomile Red did not have a substantial effect on the flies' longevity.</p>	
<b>Summary Statement</b> I used a variety of herbal teas to show that there are some teas that can have a life-prolonging effect on Drosophila Melanogaster.	
<b>Help Received</b> Nathan Whittington; high school science teacher provided flies and equipment.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>David R. Soloway</b>	<b>Project Number</b> <b>J1435</b>
<b>Project Title</b> <b>You're Happy; Are Your Teeth? The Truth About Sodas and Tooth Decay</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Even though our teeth are extremely strong, they can be harmed. The acids in many drinks, such as sodas, can dissolve teeth, cause tooth decay and drastically change the color of teeth. Or can they? The reason for doing this project is to disprove the old wife's tale that if you leave a tooth in a glass of soda overnight, the tooth will dissolve by morning.</p> <p><b>Methods/Materials</b> I put three groups of four teeth each in 12 separate cups and filled each cup with Coke, Pepsi, milk or orange juice. The teeth were immersed for seven days and were weighed once every 24 hours using a scale accurate to 0.003 gram. Each day I recorded my observations and refilled the cups. On the 8th day, I calculated the total amount of weight that each tooth lost (or gained).</p> <p><b>Results</b> My initial hypothesis was that the teeth would not dissolve. Based on the negligible amount of weight each tooth lost (from a low of 0.5% to slightly more than 2%), my hypothesis is proved and the wife's tale is disproved. By conducting this experiment for 7 days, not just 8 hours, these teeth were immersed for 168 hours, which is 160 hours more than the wife's tale claim.</p> <p><b>Conclusions/Discussion</b> One thing surprised me. The teeth soaked in milk gained weight. My family dentist thinks that bacterial action, similar to bottle mouth, might have caused a film to develop on the teeth, adding weight. She also had me check to see if the soda teeth still had their enamel, and they did not, while the milk teeth did.</p>	
<b>Summary Statement</b> Teeth immersed in soda, orange juice and milk for 7 days were weighed to determine if acids in beverages can dissolve teeth.	
<b>Help Received</b> My Mother helped type report and assisted in weighing teeth; Family dentist helped to answer questions; Industry expert help to answer questions; science teacher helped to set up electronic scale.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>David Steffen</b>	<b>Project Number</b> <b>J1436</b>
<b>Project Title</b> <b>Comparing the Effects of Natural Pesticide on Mosquito Larvae</b>	
<b>Objectives/Goals</b> My goal is to determine if I can use a safe natural pesticide to help control mosquito population. I will see if there is natural, environmentally safe, process that can kill mosquito larvae and reduce the chances of spreading West Nile Virus.	
<b>Abstract</b> <b>Methods/Materials</b> I will place 50 mosquito larvae into 4 different containers. Each container will have 16 cups of water. I will then place the natural pesticide into the water. 1 and a half cups of the following: One container will have orange peels Another container will have camphor leaves added. Another will have banana peels added. And the fourth container will have nothing added (control) I will then record results to determine how the natural substances effected the larvae. Larvae will also be fed to make sure starvation doesn't play into the results.	
<b>Results</b> Results were very exciting: Control - all 50 larvae lived Orange peels - all 50 larvae died within a very short time! (24 hours) banana peels - not much effect 7 of 50 died camphor leaves - similar to banana	
<b>Conclusions/Discussion</b> My experiment showed that orange peels will have a direct effect on killing mosquito larvae. This will provide a safe, natural pesticide, that you can use in standing water without the risk of hurting humans or animals. I think this will also help in keeping the spread of West Nile Virus under control.	
<b>Summary Statement</b> I want to see if there is a safe, natural, pesticide that can be used to help control mosquito population.	
<b>Help Received</b> Teacher helped set up project, and acquire mosquito larvae.	





**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Sonia Tomas</b>	<b>Project Number</b> <b>J1437</b>
<b>Project Title</b> <b>Non-Toxic Snail Pellets</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My goal is to make a formula that will kill snails but will not harm the dogs. Then cover snail pellets with the formula and test the snail pellets on snails and dogs. My hypothesis is that the snail pellets will kill the snails but not harm the dogs. <b>Methods/Materials</b> The formula is made of dog biscuits, green leaves, eggshells, garlic, and salt. Then I covered snail pellets with the formula and tested them on snails and dogs. I had groups of snails and some dogs. I gave them some of the snail pellets I made. <b>Results</b> The snails all died after trying my snail pellets. Then, all the dogs didn't like the snail pellets. The reason why this happened was that the snail pellets contained materials that dogs hated and that snails like and hate. <b>Conclusions/Discussion</b> In conclusion, the snails died and the dogs didn't like the snail pellets. So, my pellets did work. Finally, my hypothesis was right, the snails did die but the dogs didn't like the snail pellets.	
<b>Summary Statement</b> My project is about making snail pellets that will kill the snails but not harm the dogs.	
<b>Help Received</b> Friend helped type report ; teacher helped me in making my project better.	



# CALIFORNIA STATE SCIENCE FAIR 2005 PROJECT SUMMARY

<b>Name(s)</b> <b>Ross P. Vittetoe</b>	<b>Project Number</b> <b>J1438</b>
<b>Project Title</b> <b>It's Only Water, Right?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The hypothesis of this science fair project is that when four leading brands of bottled water are blind taste-tested by 100 random people, the brand with the least chemical content will be preferred by the majority of the participants. The goal of this experiment is to see if the natural state, addition of or the removal of chemical ingredients in bottled waters will influence the taste preferences,</p> <p><b>Methods/Materials</b> The four brands of bottled water taste-tested were Dasani, evian, Arrowhead and Crystal Geyser. A table was set up with the labels of the four different brands concealed and coded with a shape for later identification. There were four stations with small samples of each water placed in front of each different label-concealed water. 100 people taste tested each of the four samples and their preferences were recorded using the shape code identification. Then, using a water testing kit, the four brands of water were tested for chlorine, iron, copper, nitrate, pH and hardness. The results were transferred to a spreadsheet and then to graph form.</p> <p><b>Results</b> The taste-test results indicated that Dasani Water was preferred by 39% of the subjects; followed by evian at 27%, Arrowhead at 19% and Crystal Geyser at 15%. The results of the water analysis showed that Dasani had the lowest pH and registered a 0 for hardness. Evian and crystal geyser had pH levels of 7.5ppm and 6.0ppm respectively, with hardness readings of 250 and 50 respectively. Arrowhead had .1ppm of chlorine, .1ppm of copper, 7.0pH and 250 hardness. None of the waters tested exceeded the 2004 EPA guidelines for bottled water. However, Dasani was significantly below the guidelines for hardness.</p> <p><b>Conclusions/Discussion</b> These results support the original hypothesis. The brand of bottled water with the least amount of chemicals was the brand preferred by the most people in a random testing situation. Dasani Water was preferred by 39% of the subjects and it was also the water with the lowest levels of chemicals. This is likely due to the purification process used in its bottling process. During the purification process, which involves the reverse osmosis process, most if not all chemicals and minerals are removed. This process also removes the hardness and apparently gives it a taste which is more pleasing to consumers.</p>	
<b>Summary Statement</b> This project conducted blind taste-testing of 4 leading brands of bottled water to see if the one with the least chemicals would be preferred by the majority of subjects.	
<b>Help Received</b> My science teacher helped me to order the testing kit. My mom helped proof read the paper and buy the supplies for the testing.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kristine K. Vue</b>	<b>Project Number</b> <b>J1439</b>
<b>Project Title</b> <b>Determining the Toxicity Level of Aromatic Substances</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My project was to determine which common household aromatic substance is the most toxic. <b>Methods/Materials</b> I tested ten different common household products that have a strong odor. I then placed 8 fluid ounces of each product into individual sterile plastic cups. I covered the cups with saran wrap and poked holes in them. Next, I placed one cricket into a sealed environment with the household product. I then recorded the time for the cricket to die. I repeated the process ten times for each test variable. At no time did the crickets come into direct contact with the household product. <b>Results</b> The results of my experiment showed that "Orange Spray" had the most toxic odor, and "Pine Sol" had the least toxic odor. <b>Conclusions/Discussion</b> When using common household products that have a strong odor it would be wise to use them in a well ventilated area.	
<b>Summary Statement</b> My project is to determine which common household aromatic substance is the most harmful to people.	
<b>Help Received</b> Father helped put display board together. My teacher helped with revising rough drafts.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kristine M. Ware</b>	<b>Project Number</b> <b>J1440</b>
<b>Project Title</b> <b>Anti-Ants: Organic Ant Repellents</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to find organic ant repellents. I hypothesized that cedar chips, small dried lavender twigs and torn marigold petals would repel ants.</p> <p><b>Methods/Materials</b> In my experiment, I used five miniature Uncle Milton ant farms with provided sand and connector tubes. I used three tubes (about 81) of Pogo-nomyrmex harvester ants from the same colony also provided by Uncle Milton's Industry. I used CedarFresh premium grade cedar chips, dried lavender from the same plant in my backyard and marigold petals from the same plant. I connected all five ant farms using connector tubes and placed cedar chips in one farm, dried lavender in another and marigold petals in a third ant farm. The two remaining ant farms were my control farms. I recorded the number of ants in each ant farm several times a day.</p> <p><b>Results</b> My results were that cedar chips came in first, averaging one active ant in the cedar chip farm. Marigolds came in second, averaging four active ants and lavender came in third, averaging seven active ants. Cedar chips repelled 99% of the ants where as marigold petals repelled 95% and dried lavender repelled 91% of all the ants.</p> <p><b>Conclusions/Discussion</b> The results from my experiment supported my hypothesis. This information extends our knowledge of ants and how to control them without harming them. Organic ant repellents are useful when it comes to human food and pets. Cedar chips can effectively repel ants in food preparation and storage areas, outdoors where pets roam and pet feeding regions.</p>	
<b>Summary Statement</b> I proved that cedar chips, dried lavender and freshly torn marigold petals repelled ants.	
<b>Help Received</b> My mother helped me paste all my information on my display board.	



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Brian F. Whalen</b>	<b>Project Number</b> <b>J1441</b>
<b>Project Title</b> <b>Impact of Vitamins on Planarian Regeneration</b>	
<b>Abstract</b> <b>Objectives/Goals</b> For my science project I want to answer the question, #What are the affects of vitamins A, B, and C on the asexual reproductive rate of land planarians?# The original hypothesis is that vitamin A will help the planarians to regenerate because it is essential for growth and reproduction. Vitamins B and C are not expected to help or hurt the specimens because planarians do not have cartilage or blood. <b>Methods/Materials</b> For this experiment the worms were divided into four groups and then cut in half. Vitamin A enriched water was added to group A, vitamin B water was added to group B, and vitamin C water was added to group C. The control group had water with no vitamins added. The planarian regeneration progress was monitored daily. <b>Results</b> In this experiment, vitamin A increased the regenerative rate by 11% over the control group. Vitamin B and C both killed the planarians. <b>Conclusions/Discussion</b> This study has helped answer the original question by showing that vitamin A increases the regeneration rate of land planarians. This study does raise the question of why the groups with vitamins B and C died. What vitamins B and C have in common is that both are acids (folic acid and ascorbic acid) and both dissolve in water. In comparison, vitamin A is not water soluble because it is an oil, and therefore it does not change the acidity of the water. It can be inferred that vitamin B and C killed the planarians because they were water soluble acids. If this experiment is repeated a much lower dose of vitamin B should be used, and you should not use vitamin C.	
<b>Summary Statement</b> Study if vitamins that promote growth in humans also affect regeneration of flat worms.	
<b>Help Received</b> Science Teacher helped revise hypothesis; Father helped organize and type report.	