Project ID: 891

JR - Product Testing

Maddie Zwahlen

Comparing Extracted

A vast body of research shows that improved nutrition in schools leads to increased focus and attention, improved test scores and better classroom behavior. Most students in middle and highschool love to snack and I wanted to find out if the most popular snacks in my school are accurate to their nutritional labels. I used goldfish, Mauna Loa macadamia nuts and Nature Valley granola bars.

My hypothesis was that the fat percentage of the goldfish would be most accurate as it is a popular snack marketed as a healthy snack.

Variables:Control: 8 oz. mason jars, time spend in extracting fat

Independent: Type of snacks (goldfish, granola, macadamia nuts)

Dependent: How much fat was extracted.

Procedure: Choose three popular snacks, goldfish, granola, and macadamia nuts) and record their fat percentage on the nutrition labels. Crushed snacks in the jars. Stir acetone in the jar with each snack for 4 minutes. Did 20 trials for each snack. Strained the solution. Put extracted fat in a jar and let sit for 24 hours. Made observation of color change and calculated the extracted fat

Results: My hypothesis was refuted and the granola showed a higher percentage (89%) than the goldfish (75.2%) . The goldfish showed the lowest percentage. The fat color for goldfish was a bright yellow with a syrupy consistency, the macadamia nuts were a white creamy consistency and the granola had a thick oily consistency and beige in color. Food Type Results in Snacks by Average Fat Content (grams) Average Extraction Efficiency (%): Goldfish: 6 g, 75.2%; Macadamia Nuts: 21.5 g, 78.13: and Granola: 4.2 g, 89%.

Conclusion: My goal was to determine the accuracy of the nutritional label so consumers can make good choices when selecting these snacks. Goldfish was 75.2% off compared to the 100% making it the least accurate. Macadamia Nuts were 21.87% off compared to 100%. Granola was the most accurate and was 11% off making it the most accurate of all of the snacks. Fat is not the only thing in foods causing snacks to be unhealthy, sodium and added sugars can be huge impactors on making a snack unhealthy.

Project ID: 892

JR - Product Testing

Sebastian Maldonado

What is the Optimal Skate Wax for Street Skating?

This project examined whether homemade skate wax was better than professionally branded skate wax. It was hypothesized that homemade skate wax ingredients are the same as brands sold in stores and would prove to be better at allowing longer sliding along street curbs or rails. To conduct this experiment, 3 different skate waxes were purchased from the store, Creature skate wax and Baker skate wax. Next the homemade skate wax was made using the same base ingredients as the store-bought waxes. Each skate wax was individually placed on a skate rail. The skater then proceeded to skate across the rail. Data was collected, measuring the length of how far the skateboard slid across the rail. Each test has conducted a total of 10 times for each skate wax for an overall collection of 30 data points. The results indicated that the hypothesis was not supported and the store-bought skate waxes allowed for long slide distances. . The results ended up as Baker skate wax being the best skate wax, then Creature skate wax, and ending, the Homemade skate wax was the least functional. The average length that the skateboard went with the Baker skate wax was 6ft and 3 inches, for the Creature skate wax it was 5ft and 9 inches, and finally for the homemade skate wax, 4 ft, and 6 inches. These trials showed that homemade skate wax really isn't better than branded skate wax but it still works for skate use on skate rails.

Project ID: 893

JR - Product Testing

Jorge Schroeder

Which Insulated Water Bottle Can Keep Cold Water the Longest?

The project examined which insulated water bottle, Yeti, Coldest, or Camelbak would keep water the coldest for 8 hours. It was hypothesized in this experiment the Yeti would be the most successful out of these three bottles. Each bottle was filled with 36 OZ of water and 20 ice cubes were added. All had an initial starting temperature of 68 F. Ten trials for each bottle were conducted and temperature was recorded after 8 hours. Results indicated that the hypothesis was not supported, Coldest kept water the coldest 70% more than Yeti or Camelbak. Coldest was the most beneficial at keeping water the coldest over 8 hours.

Project ID: 894

JR - Product Testing

Iason Chang

Which Pen Lasts the Longest?

This project examines the time of three pen brands (three for each different pen brand making a total of 9 pens needed for this project) by wasting the ink and seeing when the ink runs out. All of the pens all contain blue ink. It is hypothesized that one of the other two pens besides the BIC pen may be the longest. Making a chart with a notebook, I did 3 trials, of which there was a single pen of each three brands in a trial. Starting the project, I got a few sheets of paper and 3 pens of each 3 pen brands. I then got a phone to time myself how long a pen lasted writing its ink. When writing with the other two pens (Signo Uni-ball, and Pilot), I noticed that the quality of those pens is better than the BIC pens. In all of the trials of Signo Uni-ball and Pilot, they were all above the average of 1 hour of writing. But, with the BIC pens in all trials, they noticeably were lower, the time of which was of 30-46 minutes each trial. The results are that among the three brands chosen for this project, the Pilot pen lasted the longest. At the first trial however, the Pilot pen was second at being the longest, but at the other 2 trials, the Pilot pen beated the other pens by time.

Project ID: 895

JR - Product Testing

Pablo Amon

Which Scooter Bearing Cream Allows for the Longest Spin?

This project examined the effect of wheel bearing creams on spin time for scooter wheels. It is hypothesized that Bones Speed Cream would allow for the longest spin times. A total of 10 trials for each bearing cream was conducted on the wheel bearings of the scooter using Bones Speed Cream, North Speed Cream and Bronson Speed Cream. Each cream was placed on the wheel bearings, then the wheels were spun and the time recorded until spinning stopped. Results indicate that the hypothesis was not supported, North Speed Cream had the longest spin time with an average of 8 seconds, which is a 128% increase from the control spin time of 3.5 seconds. The North Speed Cream was the most beneficial at allowing the longest spin time for scooter wheel bearings.

Project ID: 896

JR - Product Testing

Lillianna Benjalil

The Effect of Cleaning Products and their Efficiency in Eliminating Smoke Damage

This project examined the effects of cleaning product efficiency on smoke damaged surfaces and was named The Effect of Cleaning Products and their Efficiency in Eliminating Smoke Damage. It is hypothesized that the cleaning agent, TSP, will have the greatest effect on the cleanliness of the surface damaged by smoke because it has a high concentration of trisodium phosphate and sodium carbonate which is used in laundry detergent. It is also hypothesized that the other cleaning products will not have as great an effect on the surface because two of them are stain removers and degreasers, whereas the other is only soap and water. Results indicated that the initial hypothesis was not supported by evidence. I completed three trials with all 4 cleaning products and made 2 swipes of the sponge on the surface. I used the sponge soaked with a certain cleaning solution and each cleaning solution did eliminate the smoke damage to a certain extent. However, the soap and water proved to be the most effective out of all other cleaning agents. In conclusion the hypothesis was not supported by the evidence in this experiment when soap and water was the most effective and the 409 degreaser and stain remover was the least effective and it also had the lowest average.

Project ID: 897

JR - Product Testing

Demetrio Gallego

Which is the Thickest Pasta Sauce

The purpose of the project is to find the densest pasta sauce between stores bought. Sauces versus homemade pasta sauce. The hypothesis states that the homemade sauce will be the thickest. To begin the project three pasta sauces were purchased and the homemade sauce was made. The homemade sauce used the simmer and reduce method, to achieve a thick sauce. The pasta was cooked and then taped onto a tray. The sauce was applied to the pasta. I lifted up the tray for 5 seconds and the distance of the sauce slide was measured and recorded. The procedure was repeated a total of ten times. The results indicated that the hypothesis was not supported, the store-bought sauces were denser than the homemade sauce. The densest pasta sauce was Botticelli with an average of 8 cm.

Project ID: 898

JR - Product Testing

Antonio Moreno

Soda's Impact on Staining Teeth

My science fair project is about soda's impact on staining teeth. My project's goal is to find which sodas, coco cola, Pepsi, 7 up, sprite, and mountain dew are most effective in staining teeth. My hypothesis states, "If I use the various beverages, coca cola, Pepsi, 7 up, sprite, and Mountain dew to figure out which is most visually effective in staining and decaying teeth. My conjecture of the results would be that coco-cola would be the most effective." The procedure includes five white eggs fully submerged in five cups, each cup is filled with a specific soda. This would sit for an entire 7-day week. During the week the soda would dye the white color of the egg to reveal the staining effect it does on teeth. Eggs were used in the experiment since eggs are similar to our teeth. The results supported my hypothesis since the egg that had been submerged in coca cola for a week had the darkest shade of all the other eggs. The results can inform soda drinkers how coca cola, Pepsi, 7 up, sprite, and mountain dew, stain their teeth. Since coca cola was the darkest-colored soda, I believe it was the reason why it stained the egg more drastically.

Project ID: 899

JR - Product Testing

Zaid Shaikh

Antacids: Synthetic vs. Natural

Antacids are medications used to treat acid reflux and indigestion by raising the pH of stomach acid. Synthetic antacids are useful for balancing the pH of stomach acid, but they also contain chemicals that are not absorbed by the body and can have negative side effects if used frequently. Natural antacids, on the other hand, could take longer to work but don't have any negative side effects. The purpose of this study was to determine whether natural antacids are equally effective and efficient at treating acid reflux as manufactured antacids. It is hypothesized that natural antacids will be as effective and efficient as synthetic antacids in increasing the pH of simulated gastric acid. First, add one 300 milliliter of water to a container. Then, add 1.6 mL of hydrochloric acid to the water in the container, and then add 1.5 g of table salt and another 1.5 g of potassium chloride to the water container. Then measure the solution pH level; make sure to measure 1 pH. Then, dilute Two tablets of one of the antacid in the solution immediately after which the pH is measured. Then, measure the pH again after 15 minutes, 30 minutes, and 60 minutes. This process was repeated multiple times to get more accurate results. In conclusion, this experiment tested the effectiveness of different antacids and natural remedies in neutralizing stomach acid. Results showed that Tums was the fastest in reducing the acidity, followed by Gaviscon. Carrot juice, a natural remedy, was also able to neutralize the acidity, but at a slower pace compared to Tums and Gaviscon. It is worth noting that while antacid medicines can provide fast relief, they come with potential side effects and should be used with caution. On the other hand, natural remedies like carrot juice may be a safer alternative, but it takes longer to take effect.

Project ID: 900

JR - Product Testing

Layla Ezquivel

What Brand of Soil Absorbs the Most Water

The purpose of this experiment is to help with water conservation in the garden. The experimental question was, what brand of soil absorbs the most water? (Miracle-Grow, Back to the Roots, Expert Gardener, Scotts, or Dr.Earth). The hypothesis was that if the brand Miracle-Grow were to be used it would retain the most water out of the other brands of soil because the soil is the driest, therefore retaining the most water. To conduct this experiment, first grab 50 plastic cups and place them side by side to create 10 rows of 5 columns each and place 10 bowls under 10 of the plastic cups. Then pour 2 cups of the First soil being used into each of the 10 plastic cups, after adding in the 3 cups of water and wait until the water is fully absorbed by the soil. Next lift up the plastic cups to reveal the water underneath and measure the water from each individual plastic cup, record results in a data table. Repeat all steps for the remaining 4 soil brands and record all data earned. The result of the experiment showed that Back to the Roots was the brand that absorbed the most water. The hypothesis was refuted because the hypothesis stated that if the brand Miracle-Grow was used then it would absorb the most water out of all the brands. Instead the brand Back to the Roots absorbed the most water at 471.8 mL while Miracle-Grow absorbed 324 mL.

Project ID: 902

JR - Product Testing

Almog Mizan

Detergents Vs. Stains

This project examined how natural, traditional, and homemade detergents compete against each other in cleaning a white t-shirt stained with different stains. It is hypothesized that if traditional, natural, and homemade detergents are tested against each other in cleaning stains, then the traditional detergent will be the most effective because it is what is most widely used. In order to test this one must take a four-by-four-inch piece of a t-shirt and put it in a Ziploc bag. Mix in the stain in the bag with the t-shirt until fully covered and leave it for 24 hours. After 24 hours, take it out, compare its color to the palette, and input it into the data table. Put it in the washing machine with the detergent being used, after the wash, compare its color to the palette, and then input it into your data. This was repeated for 90 trials. If one were to look at the data of the testing they would see that the control-water test was the least effective when trying to clean stains. The graph that showed percent change for the coffee stain shows that homemade detergent was the most effective, then traditional, and lastly natural. The graph for the tomato sauce shows that traditional detergent was the most effective, then natural, and then homemade. This may be because stains are made with different ingredients therefore it might take different types of detergents to clean them. This project proved the most effective detergent for cleaning stains.

Project ID: 903

JR - Product Testing

Madelyn Kennedy

Leaving the Least Dog Hair: Microfiber, Vinegar, Packing Tape, & a Lint Roller

I have dogs that shed, leaving their fur on any clothes, causing me to spend time removing the dog hair from my clothes. This problem causes people to spend extra time getting dog hair off clothes, and most people do not know the most effective method to do so. My hypothesis was that the microfiber method would remove the most hair of the four methods. My hypothesis was not supported.

The methods used for removal were simple: washing clothing in distilled white vinegar, lint rolling, patting packing tape on clothing, and putting wet microfiber cloths into the dryer with clothing. The methods were tested using the same wash and dry cycles, as well as washed and dried separately.

Of these methods, the lint roller removed the most hair. It removed an average of 42.6 hairs per trial. The other methods were similar, the vinegar removed an average of 33.6 hairs, the microfiber method removed an average of 34.8 hairs, the packing tape method removed an average of 37 hairs, and the control trials removed an average of 19.8 hairs.

In conclusion, a lint roller was most effective at removing dog hair. Packing tape and microfiber were also effective, and vinegar was the least effective. My recommendation to anyone struggling with dog hair removal is to buy a lint roller or a roll of packing tape, as they removed the most and second most hair.

Project ID: 904

JR - Product Testing

Alexis Lau

The Mouthwash Brand that is Best at Getting Rid of Bacteria

This project was executed to find which mouthwash brand gets rid of the most bacteria. It was hypothesized that the mouthwash made by Listerine would exterminate the most bacteria because many sources (dentists) claim that Listerine is very effective when preventing things like cavities and gingivitis. The experiment was easily carried out; eat, wait around two hours, swab mouth and place bacteria in a petri dish, use a mouthwash, wait another 10 minutes, swab again, and repeat for each mouthwash. After taking those steps for every mouthwash, there is a waiting period for the bacteria to grow that lasts around four days.

The results showed that the hypothesis made was not supported and that the Listerine mouthwash only got rid of around 10% of bacteria. The brand that got rid of the most bacteria was Colgate, which killed 75% of bacteria. The Act brand got rid of around 47% of the bacteria, meaning that it did second best when it comes to exterminating bacteria. To get these results, the number of bacteria after using mouthwash was divided by the number of bacteria before using mouthwash, then taking that number and multiplying it by 100, then subtracting it from 100.

I would do this project two more times as that would help increase the accuracy of the test and give more precise results.

Project ID: 905

JR - Product Testing

Lorenzo Leal

What Lotion Moisturizes the Best

My project asked what lotion is the best moisturizer. I did this project because lots of people have dry skin and spend money on lotion. I'm trying to find which lotion should people buy if they have dry skin. I hypothesized that the lotion with the occlusive agents would do the best. Occlusive agents work by increasing moisture levels by providing a protective layer on the skin that keeps water in. Ingredients with occlusive properties include petrolatum, waxes, oils and silicones. My hypothesis was correct because the lotion with the occlusive lost the least amount of weight and height. I put JELL-O in the petri dishes to represent skin with moisture. Both skin and JELL-O have collagen. I put the lotion on the JELL-O and let it sit. I measured the heights and weights over a period of time. I also had a control with no lotion. The lotion did work because the control lost most of its weight and height. Most of the lotions lost around the same amount of height and weight. I don't think it matters much what lotion you buy unless you suffer from severe dry skin.

Project ID: 906

JR - Product Testing

Apollo Nguyen

Which Plastic is Strongest Against Weight Dropping, High Heat, and Bending? ABS, PLA, or PETG?

This project showed the strength of the plastics ABS which is my control, PETG, and PLA. It is hypothesized that PETG would be the toughest out of the 3 plastics because PETG is less brittle and has the highest melting point. And I also hypothesize that PLA will be the weakest because it has the lowest melting point at 190 Celsius and is also brittle. 3 experiments were conducted for the 3 plastics. I dropped weights on the 15mm plates with a mechanism, put plastic cubes into an oven and heated it to 260 Celsius to see which one would melt the fastest, and bent plastic plates and saw which one was the hardest to bend. PETG performed the best in the oven experiment and the bending experiment. PLA was the first plastic cube to start warping in the oven. And on the bending experiment, PLA, and ABS broke in half almost immediately after being bent for 2 to 3 times. In the weight dropping experiment, PETG could not survive the 2.5 kg weight and the other two broke at the 5 kg weight. I concluded that PETG was the toughest plastic because it performed the best in two experiments. Behind PETG was ABS, and behind that was PLA as the weakest plastic in this experiment.

Project ID: 907

JR - Product Testing

Adriano Shores

Which Type of NFL Mouthguards Are the Best?

Which type of mouthguards are the best? I hypothesized that the custom mouthguard would be the best because firstly it has a normal protection of a mouthguard. Secondly it has a gel substance so that before the game so that when you wear it you can bite on it and the gel becomes a layer of protection for your teeth. When I started I made a procedure and it goes like this. First I had to gather my materials and put the crayola model magic inside the mouthguard. Second I made a pole with a nail on top and marked where each height is. Thirdly I put the rope attached to the weight and the nail. Fourthly I dropped the weight first onto the standard mouthguard and measured the mouthguard's distance and compared it to the distance before and that is how I got the data. Next I started to do the same thing to my custom mouthguard and collected the data. After I finished the final mouthguard and collected the data I looked at the results. I concluded that the custom mouthguard had the best protection for the teeth in the whole process. This is because that first protector part was the strongest support to the model magic clay.