



**Project ID: 771**  
**Junior Division**  
**Product Testing**

**Avianca Brady**  
**Nazareth School**  
**Gr. 7**



### *Do Anti-Fog Markers Work Just as Good as Anti-Fog Goggles?*

For my science fair project I tested if anti-fog spray was better or worse than anti-fog goggles. These products are both coated with similar materials so it ultimately comes down to which one will stay on the longest and which one absorbs the fog.

The reason why I chose this project was because fog is an issue for swimmers. As a swimmer myself, I have noticed the fog causes such big issues, especially in long distance races.

In my project I used 3 goggles. 2 of them were ordinary goggles. 1 of them were anti-fog goggles. I coated one of the regular goggles with anti-fog spray. I hung up all three goggles on a towel holder above a hot pot of water and let it sit for 10 minutes. After set time I took the goggles off of the device and observed which substance can absorb the fog better.

After my procedure I have observed that the goggles with anti-fog spray let off the fog better than the other 2. Based on what I learned from this experiment the anti-fog spray works better. The anti-fog goggles that were already coated did not do so well. From what I could see



**Project ID: 772**

**Junior Division**

**Product Testing**

**Ivonne Cohen**

**San Diego Hebrew Day School**

**Gr. 8**



*Does Water Impact the Effectiveness of Sun Protectors*

**AWARDS:**

***CSEF Qualified***

The purpose of this project was to test the effectiveness of different sunscreens against UV light and to see whether adding water to the sunscreens would make a difference. A sunscreen, a sunblock, and a popular brand spray sun protector were used in the experiment. It was believed that Zinka, the sunblock, would protect the best due to its thick consistency that wouldn't let anything go through. In the end, this was found to be true. The hypothesis was tested by applying the sun protector on a plastic dish, then placing it on top of a UV test card, sliding it under the UV light for about 15 seconds, and recording the results. Then it was taken out and sprayed with water, put back under the light for another 15 seconds, and new results were recorded. 20 trials were conducted for each variable. The results were then compared.

Results showed that the Alba Botanica, the sunscreen, let the most UV light go through it with an average UV rating of 41.25, while the Zinka, the sunblock, and Neutrogena spray, the popular brand sunscreen, had an average rate of 17.5 UV. All the sun protectors overall without water protected at a rate of 26.67 and with water it improved by about 2.5 making it a rate of 24.17.



**Project ID: 773**  
**Junior Division**  
**Product Testing**

**Jacob Crivello**  
**St. Gregory the Great Catholic School**  
**Gr. 7**



*Sunscreen Skirmish: Who Will Withstand the Heat?*

**AWARDS:**

***CSEF Qualified***

The purpose was to test the effectiveness of popular sunscreen brands and determine whether physical block sunscreens (mineral sunscreens) or chemical absorber sunscreens (chemical based sunscreen) perform better. It was hypothesized that physical block sunscreens would out-perform chemical absorbers. Chemical sunscreens need about fifteen minutes to soak in, while physical block sunscreens work immediately when applied. Moreover, research has indicated that physical sunscreens are better at blocking ultra violet rays because they create a barrier, whereas chemical based sunscreens soak into the dermis and diminish absorption of rays rather than shield the skin. To test this hypothesis, equal sized pieces of blue photo-sensitive paper, each with a different sunscreen, were exposed to the sun for the same amount of time. The papers had the following sunscreens on them: The physical block sunscreens were Blue Lizard; Coppertone; and Cetaphil. The chemical absorber sunscreens were Banana Boat; Sun Bum; and Neutrogena. There was a control as well with no sunscreen. The lighter the deep blue sun paper becomes when exposed to sunlight, the less effective the sunscreen is. The experiment was repeated twice a day for three days. The conclusion is that the brands of sunscreen known as Sun Bum 50 spf (chemical absorber) and Blue Lizard Mineral Sunscreen 50 spf (physical block), are the two most effective sunscreens of all the sunscreens we tested. The hypothesis was proven false. Chemical absorber sunscreens as a whole, outperformed the mineral sunscreens, with the exception of Blue Lizard which may have a special patented formulation we are unaware of.



**Project ID: 774**

**Junior Division**

**Product Testing**

**Victoria Dougherty**

**Chula Vista Middle School**

**Gr. 8**



*What Fabric Dries the Quickest?*

The science fair project titled, "Which Fabric Dries the Quickest?" statement of purpose was, which fabric dries the quickest, cotton, polyester, nylon velvet, wool, or silk? The hypothesis stated that silk will dry the quickest because the fabric is lightweight. The procedure starts with cutting all of the fabrics into 50 pieces and placing them on a drying rack. An eye dropper will then be used to apply water onto each piece of fabric and the data and observations will be recorded until the experiment is finished. The results show that the hypothesis was supported, and the data ranged from 15 minutes to 57 minutes it took to conduct the experiment. The conclusion stated that silk dried the quickest, having an average drying time of 14.2 minutes while wool dried the slowest, having an average drying time of 45.8 minutes.



**Project ID: 775**

**Junior Division**

**Product Testing**

**Elisheva Ellis**

**San Diego Hebrew Day School**

**Gr. 8**



### *How Do Sulfate and Non-Sulfate Shampoos Affect Hair Strength?*

How did sulfate and non-sulfate shampoos affect hair strength? It was hypothesized that if shampoos were applied to the hair samples, then sulfate shampoo would be more abrasive to the hair strength because the hair would be drier, weaker, and thinner. If the sulfate shampoo was applied to the curly hair sample, the hair strength would be even drier than the straight hair sample because curly hair tends to be drier, brittle, and thinner at the start.

This project showed which shampoo was the best for hair strength. This was tested by shampooing the hair with sulfate shampoo and then letting it dry. After that, the strength was tested by tying one strand of hair to a pencil on one end and the other end to a paperclip. Finally, the paper clip was attached to the bag, and pennies were dropped in until the strand broke. These steps were done with hair treated with sulfate shampoo, hair treated with non-sulfate shampoo, and untreated hair. The results were that untreated hair had the lowest strength while non-sulfate had the highest strength. Also, non-sulfate shampoo strengthens hair more than sulfate shampoo. In conclusion, when not treating hair with shampoo it is the most dry and brittle.



**Project ID: 776**  
**Junior Division**  
**Product Testing**

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**Nazareth School**  
**Gr. 7**



### *Which Soccer Shinguard Material is Most Protective*

This project examined which soccer shinguard is most protective. To determine which material was more protective we made a drop test from 5 feet and 15 feet. We used 4 shinguards, and with each different shinguards, we separated the rights and the left's of each shinguard. We used the left shinguard of each material and brand on the 5 foot drop. For the 15 foot drop we used the right shinguard material and brand. The 5 foot drop was to simulate a low force impact. The 15 foot drop was to simulate a high force impact. We know that there will be greater force of impact from the higher drop due to distance and acceleration of gravity.

We laid a wooden dowel rod on the grass and placed a certain amount of play dough on the wood. Then we placed the shinguard on top of it all. Next, we dropped a 10 pound weight from each height for each different shinguard. Results indicated that the initial hypothesis (the carbon fiber shinguards would be more durable and protective) was not supported. The means of all the carbon fiber damage were greater than the means of the commercial polypropylene shinguards in all categories, except in the high impact play dough damage category. Therefore my hypothesis was not supported, and in fact hints that the opposite might be true, that commercial polypropylene shinguards are more protective than the commercial carbon fibers.



**Project ID: 777**  
**Junior Division**  
**Product Testing**

**Zsabrina Grenevitch**  
**St. Gregory the Great Catholic School**  
**Gr. 7**

Did Not  
Attend  
Judging

### *Bleach Away: Exploring the Power of Whitening Toothpaste on Coffee Stains*

In the experiment "Bleach Away: Exploring the Power of Whitening Toothpaste on Coffee Stains", the experimenter tested which brand of whitening toothpaste is most effective on getting coffee stains out of tiles. It was hypothesized that if the tiles are soaked in coffee for 60 minutes, then the Crest brand of whitening toothpaste will get rid of the coffee stains the best because it is a best-selling brand. Based on the results, the hypothesis wasn't supported. The Sensodyne toothpaste was the most effective on getting the stains out.

The procedure for the experiment was to get all the supplies needed, scratch each tile, brew coffee and pour over tiles, wait 10 hours, and apply different brands of whitening toothpastes.

The Sensodyne toothpaste was the most successful in getting the coffee stain out of the tile. All tiles initially started at a level 8 on the shade chart after staining with coffee. Sensodyne was able to bring that down to a level 3. The average for all 7 tested products was 4.86, so Sensodyne performed 38% better than the average. The next best-performing toothpaste was Colgate at a level 3.5. Sensodyne performed 14% better than Colgate. The least effective brand of toothpaste that got the coffee stains out was the Hello brand which achieved a level 7. This is 44% worse than the average.

After analyzing the ingredients, it seems that the more carbamide peroxide was present, the more effective it was to removing stains.



**Project ID: 778**

**Junior Division**

**Product Testing**

**Reema Jasim**

**Bright Horizon Academy**

**Gr. 7**



*What Types of Food Storage is Best for Storing Food?*

This study investigates the effectiveness of various food storage materials in preventing bacterial growth on packed lunches. The aim is to determine the most suitable option for maintaining food freshness and safety for students. I hypothesize, that the glass type of storing will be the best at keeping food healthy, and the plastic will be the most unhealthy and won't be very significant. The experiment involved dividing petri dishes into sections, labeling each, and swabbing different packaging materials onto them. Turkey sandwiches were prepared and standardized, then placed on agar plates and incubated for 72 hours. Results were analyzed for bacterial growth, considering factors such as types of bacteria and signs of spoilage. Statistical analysis were conducted to the significance of differences between storage materials. The findings provide insights that the glass was in fact the most significant as it had the least amount of bacteria while on the other hand the plastic bag had the most amount of bacteria.





**Project ID: 779**  
**Junior Division**  
**Product Testing**

**Jacob Lowry**  
**Nazareth School**  
**Gr. 7**



### *Are Different Brands of Water More Pure Than Others?*

For this project I tested different brands of water to see if they were purer than others. It was hypothesized that the different brands of water would have different purity levels in pH and hardness. How I tested was pouring 22 different water brands into separate glass containers measured at 100mm each. Then I would dip my pH meter into the glass containers and label the number that it read. Then I would wash it and wait 5 min.

For me to test for the hardness scale factor I dipped the pH strip into the glass container for 2 seconds. Then compared it with the hardness reading paper on the tube that holds the pH strips.

My results supported my hypothesis, the different water brands had all different pH levels and hardness scale readings. The pH levels from the different 22 brands of water had a difference from 7.1-9.2 with Arrowhead water being the lowest, and the tap water being a 7.6. Tap water came out with results in the middle. The hardness was measured from 0-250 parts per million with Alkaline, Refreshe, and Aquafina having a 0 hardness scale factor. The water with 250 hardness was tap water (the control). The different water brands being tested clearly helped out with my project, question and hypothesis. To support my conclusion, yes there was one brand of water that was more pure than others with dassine coming in at a 9.18 pH. I would like to test more water brands in the future.



**Project ID: 780**  
**Junior Division**  
**Product Testing**

**Marty Meza**  
**Nazareth School**  
**Gr. 7**



*Are the pH Levels of Commercially Bottled Water Correlated to Price?*

It was hypothesized that the pH level of bottled drinking water would be correlated to the price of that bottled water and that of the bottled water brands tested, Smartwater would have the most neutral (ideal) pH level and as a result will be the bottled water that cost the most of the waters tested. Based on the review of literature, the pH level of drinking water should be at a pH measurement level between 6.5 to 8.5 with a pH of 7 considered "neutral" or "ideal." Trials of 13 different brands of water, including 2 controls (home tap water and home filtered water), were tested 3 times each by 3 different testing kits. Data was recorded and an average (mean) pH level was determined for each water tested based on the result of the 3 tests. Results indicated that the initial hypothesis was not supported - there was no significant correlation between the measured pH level of the bottled water and the commercial cost. Of the 13 different types of drinking water tested, 5 bottled water brands had pH levels lower than 6.5, making them more acidic. There was also no correlation between the water brands with the highest pH level (most alkaline) and the price. Essentia was the only bottled water brand tested that had a perfect neutral pH average of 7, and Essentia was moderately priced compared to other bottles tested at \$0.08/fl. oz.



**Project ID: 781**  
**Junior Division**  
**Product Testing**

**Anthony Nayab**  
**St. Gregory the Great Catholic School**  
**Gr. 7**



### *Catching a Football: A Guide to the Effects of Sunglasses*

This science fair project tests the effects of different types and brands of sunglasses on sports performance, specifically catching a football. In this project, 5 different types and brands of sunglasses, and the control (nothing), were put to the test to see which will benefit the athlete best. The procedure when testing was to go to a field or park on a clear hot sunny day, record the temperature and wind speed, throw a football 10x for each sunglass and the control, do this 4 different days/trials, add all the catches up in total for each sunglass (out of 40 throws), find the percentage of catches for each, find the average number of catches, and lastly rank them best to worst based on their sports performance when it comes to catching a football. It was hypothesized that the higher the UV rating along with the combination of being polarized, the better sports performance the athlete will have as evidenced by an increased percentage of catches of a football. After testing, the results concluded that the hypothesis was partially supported. This is because the Oakley polarized sunglasses were #2, with 32/40 footballs caught (85%). But, the sunglass that was the #1 was the SOJOS gradient sunglasses that helped catch 37/40 footballs (92.50%)! This led to the factual information that the UV label did not have an effect because both Oakley and SOJOS sunglasses were UV 400. Also, the gradient sunglasses were much cheaper than the expensive polarized sunglasses. This testing found out that gradient sunglasses have the best effect on sports performance, specifically catching a football than polarized sunglasses (and the others tested as well) and that the price does not affect the sunglasses by any means.



**Project ID: 782**

**Junior Division**

**Product Testing**

**Wyatt Raspotnik**

**The Children's School**

**Gr. 8**



*The Effect of Weathering on Premium and Basic Paint*

**AWARDS:**

*CSEF Qualified*

The effect of weather on premium paint to see if it lasts longer than basic. The hypothesis was that the premium paint was going to be the least faded/damaged out of the basic along with the titanium dioxide mix. One thing that was noticed is that the titanium dioxide mix is white, therefore, it dilutes paint. It has experienced more fading than the other two paints, but that could just be because of that mix.

When this project was being tested, everything was just fine, from the painting to the UVB light, except for one thing, this experiment had to have been started a lot sooner because by the time it was started, there was only time to shine light on it for a few weeks, which is not enough time for any paints to fade to where it is easily noticeable. The paint has only faded a little but if someone were to examine the first and last picture side by side, they would see a small difference in the color. But if this experiment were to be attempted again, then they would have to start very soon after and get all the materials together quickly in order to have the best looking outcome.



**Project ID: 783**  
**Junior Division**  
**Product Testing**

**Andrea Salmon**  
**Nazareth School**  
**Gr. 7**



### *Can You Lower Your Energy Bill by Using Ultra-Reflective Paint?*

Air conditioning makes summer energy bills expensive. This project analyzed whether using different exterior paint can keep a house cooler. My hypothesis was that 'ultra-reflective' paints will reduce exterior house temperature and result in lower energy bills, because a cooler exterior means a cooler interior and less energy uaw.

The experiment involved samples of two common home exteriors, wood and laminate. Planks of identical length, width, and thickness were placed under identical heat lamps for 4 hour periods to measure before and after temperatures, using a wireless thermometer with identical wireless sensors. Seven measurements happened over a few weeks in my parents' garage to control for weather, tracking garage temperature as a control. I painted the planks with three different types of paints with different reflective ratings. Ten total sets of Identical temperature testing took place over multiple days under the same heat lamps for identical periods of time. Data logs document the net temperature changes of the samples.

My test results supported my hypothesis - the most reflective paints consistently lowered temperature more than the least reflective paints for each material. The most reflective white paint lowered wood temperature by 50.45% versus unpainted wood, and lowered laminate temperature by 56.7%. The less reflective white paint lowered the same surfaces by 29.63% and 27.13%, respectively, and the lowest rated reflective tan paint lowered the wood and laminate by 6.9% and 9.17%, respectively. Based on this, highly reflective paints can lower temperatures and energy bills.



**Project ID: 784**  
**Junior Division**  
**Product Testing**

**Isabella Scherer**  
**Nazareth School**  
**Gr. 7**



### *How Effective Are Child Proof Caps?*

This project examined the efficiency of child proof caps on medicine bottles. It is hypothesized that children between the ages of five and six years old will not be able to open the bottles. Screw top easy-open cap bottles, my control, and push screw cap bottles, my experimental variable, were collected. One by one, I sat down with each student volunteer. First, the control bottle was given to each one, then the experimental one after the first control's test. They were instructed to try to open it under the time limit I gave, three minutes. All actions and responses were observed and observations were recorded. Conclusions were then made. Results indicated that the initial hypothesis was supported-zero participants were able to open the bottles. All eleven student volunteers were unable to open the control nor the experimental bottle. Based on the results of this experiment, I concluded that the caps on the empty child proof medication bottles, both the control and the experimental, effectively kept children from opening the bottles.



**Project ID: 785**  
**Junior Division**  
**Product Testing**

**Olivia Spenla**  
**Nazareth School**  
**Gr. 7**



*How Effective Are Child Proof Containers?*

**AWARDS:**

***CSEF Qualified***

Child proof containers have been used for decades to promote child safety and prevention against medicine poisoning. This project examined the effectiveness of child proof containers to determine their effect on preschool children ages 3-5. It is hypothesized that children ages 3-5 would be able to open these "child proof" containers. To test this hypothesis, 15 children were asked to attempt to open each of 5 containers, one minute given for each. Children were carefully watched and their behavior with the containers was observed and if they were successful or not when it came to opening the containers was recorded as each child tested. Results indicated that the initial hypothesis was not supported - only 33% of the children were able to open the control (Container 1) and only 20% were able to open Container 4. Each of the 3 other containers were unopenable by all tested. Based on the experiment, we can conclude that the child proof containers were highly effective in preventing young children from accessing potentially dangerous substances. The significantly higher failure rate in opening the child proof containers demonstrates their importance in ensuring child safety. Parents and caregivers can rely on child proof containers as a reliable safeguard against accidental ingestion, though precautions should still be taken to keep hazardous medicine containers out of reach from children at all times.